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Date: 09.03.2026

Project No: GEO2026-7124

Project: Jacktrees Road, Cleator Moor

Report Title: Field Investigation – Drainage and Pond (Draft for Design Team Review)

Dear Stephen,

Geo Environmental Engineering Ltd (GEO) were commissioned by the Client, Gleeson to carry out investigation works relating to a pond in the field due west of their Jacktrees Road development site in Cleator Moor.

Site Area History and Geology

The area of investigation comprises a wooded copse with pond within an agricultural field. Further west is a tree lined cutting that was a railway line. The area has been subjected to iron ore mining with numerous pits and shafts noted on geological plans (e.g., Montreal Mine and William Pit), close to the investigation area, with several potential shafts to the west and southwest. Historical plans indicate railway infrastructure within mineral railways, sidings and an aqueduct. Mining geohazards therefore exist in the area, such as mine entries (shafts, adits and opencast) and mining related subsidence features are possible (e.g., crown hole migration).

Geological plans indicate the area of investigation as being underlain by the Frizington Limestone Formation. These deposits are potentially susceptible to ground dissolution resulting in irregular rockhead and, in some cases, the washing out of sediment-filled joints, potentially causing surface subsidence hollows or dolines, which are closed, bowl-shaped depressions in the ground, characteristic of karst landscapes, formed by the dissolving or collapse of soluble rock like limestone.

The pond features noted in this general area could therefore potentially be attributable to the above man-made and natural geohazards. However, it could just be a low point in the field where water naturally collects.

Scope of Investigation

The design team is considering options for the surface water drainage at their Jacktrees Road site in Cleator Moor. It has been noted that drainage infrastructure exists in the fields to the west of Jacktrees Road, with existing drainage noted as entering a tree lined pond. Beyond the pond is agricultural field, leading to a tree lined cutting. The pond does not seem to overflow, so there was a suspicion that an unrecorded pipe might run from the pond to the gully, where a stream is present.

The client therefore requested a trench to be dug along the edge of the pond to determine if an outfall was present.

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Findings of Investigation

Trial Trench

GEO attended the site on the 26th February 2026. The weather conditions on the day comprised heavy rain and light to moderate winds. Temperatures were around c.8 degrees Celsius. A single linear trench was excavated as per the enclosed plan. The trench was excavated to consistent depths of c.2.30m below ground levels and identified topsoil over natural appearing sandy silty gravelly clay soils. There was no visual evidence of made ground or buried utilities (e.g., pipes, drains etc.). The excavation was predominantly dry but did become unstable.

Within the western most extent of the pond was a collection of large cobbles. They were subrounded to rounded and appeared to be of natural materials. It is possible that this collection of cobbles was a result of agricultural activities and the cobbles being removed from the field (e.g., to aid ploughing). There was no visual evidence of building materials to suggest it was a former structure. It was at this location that the water in the pond appeared to flow downwards. Some of the cobbles were removed, but there was no evidence of an outfall or a pipe.

There was a slight opening in the cobbles, where it was possible to insert a tape measure that extended c.4m in a west-north-west direction. The trial trench included this location and nothing of note was identified (e.g. no evidence of a pipe or drain). A sonde was inserted into the opening, however due to the debris and cobbles it inserted less than c.0.5m.

Cutting

A cutting, previously a railway line, is present beyond the field to the west of the pond. A brief walkover of the cutting was undertaken and there was no visual evidence of an outfall opposite the pond. It should be noted that the cutting is steep sided and heavily vegetated, however, no emerging water was noted.

Slightly north of the pond, within the gully, was a c.150mm diameter clay pipe emerging into a circular pond. A sonde was inserted into the pipe, however after c.2m the pipe was blocked with debris (although water was still flowing). The direction of the pipe was toward the manhole in the field to the north of the pond, shown on existing utility plans.

Conclusions

Public sewer plans indicate a surface water sewer entering the pond at its northern point. Excavations have not indicated any pipes or drains exiting the pond on its lowest lying (western) edge. However, water does visibly leave the pond along its western edge and water was noted descending vertically into the ground at the location of a collection of cobbles.

General Comments and Limitations

Consideration must be made for variations to occur in the ground conditions between the exploratory hole locations for which GEO holds no responsibility. It is therefore recommended that a “watching brief” be applied to ensure that if ground conditions vary from those identified during this investigation then advice should be sought from a suitably qualified and experienced Geo-Environmental Engineer.

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The recommendations and opinions expressed in this report are based on the ground conditions observed. Consequently, GEO takes no responsibility for conditions that have not been revealed or which occur between them.

The conclusions and recommendations presented within this report are considered reasonable based on the available information. However, these cannot be guaranteed to gain regulatory approval. Therefore, the report should be passed to the appropriate regulatory authorities and/ or other key stakeholders, including warranty providers in order to seek their approval of the findings prior to undertaking any site works or development on site.

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If there are any queries, please do not hesitate to contact Geo-Environmental Engineering Ltd.

Yours Faithfully

.....
Curtis R Evans *BSc (Hons), FGS*
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GEO

Environmental Engineering

**Appendix I
Site History and Geology**



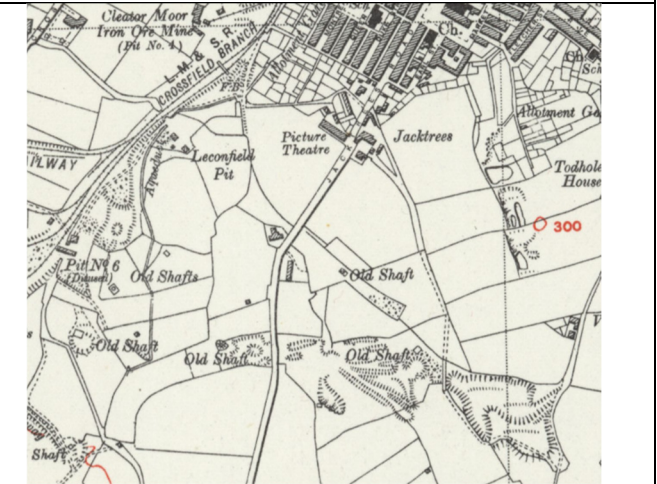
1863



1898



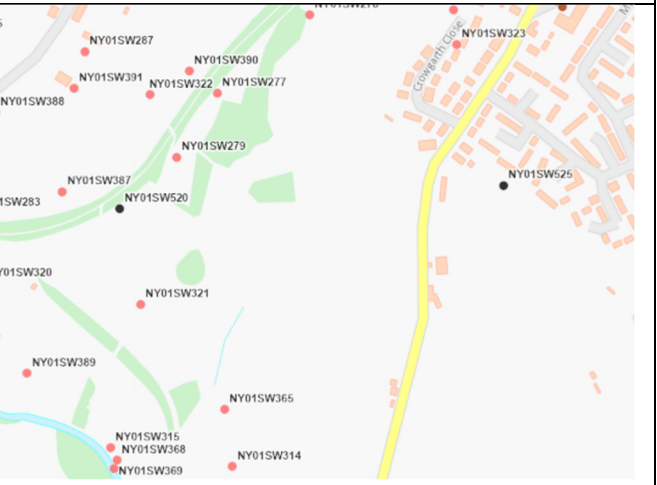
1923



1938



10K Geological Plan



BGS Information (Boreholes and Shafts)

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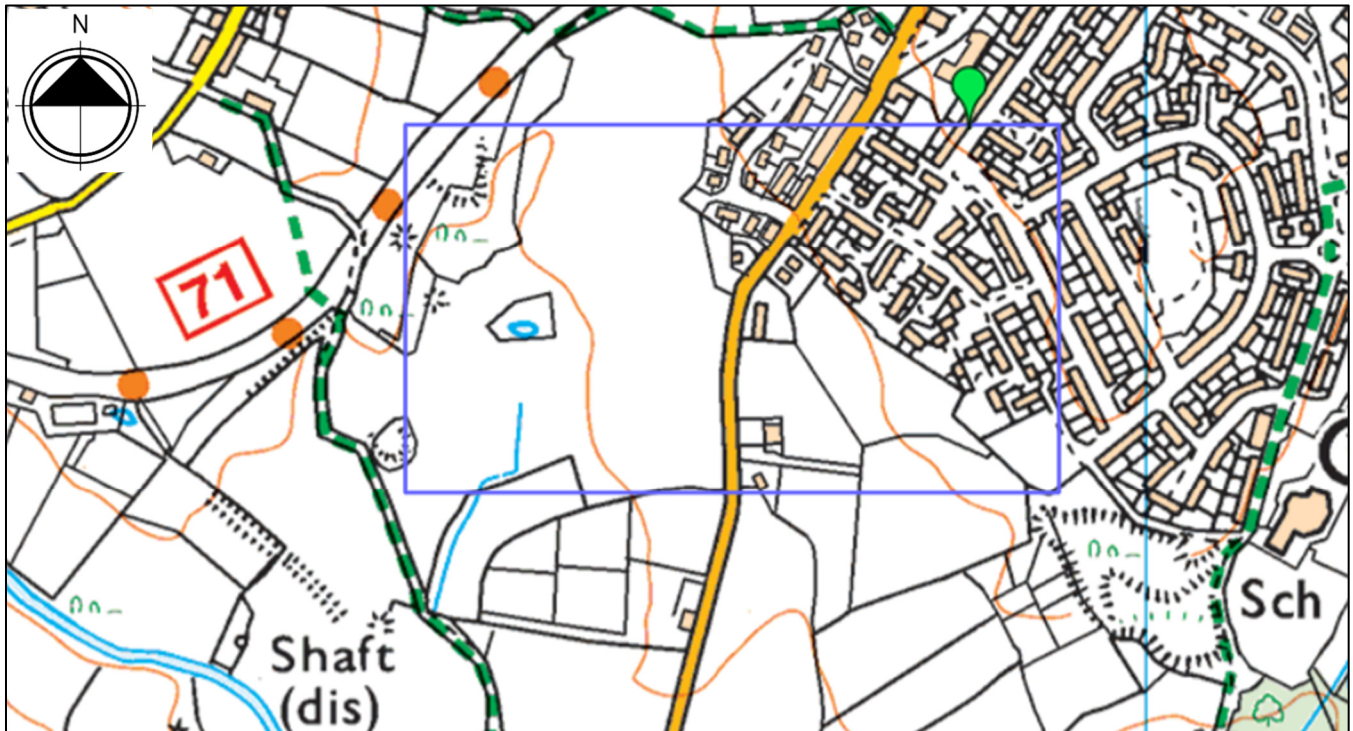
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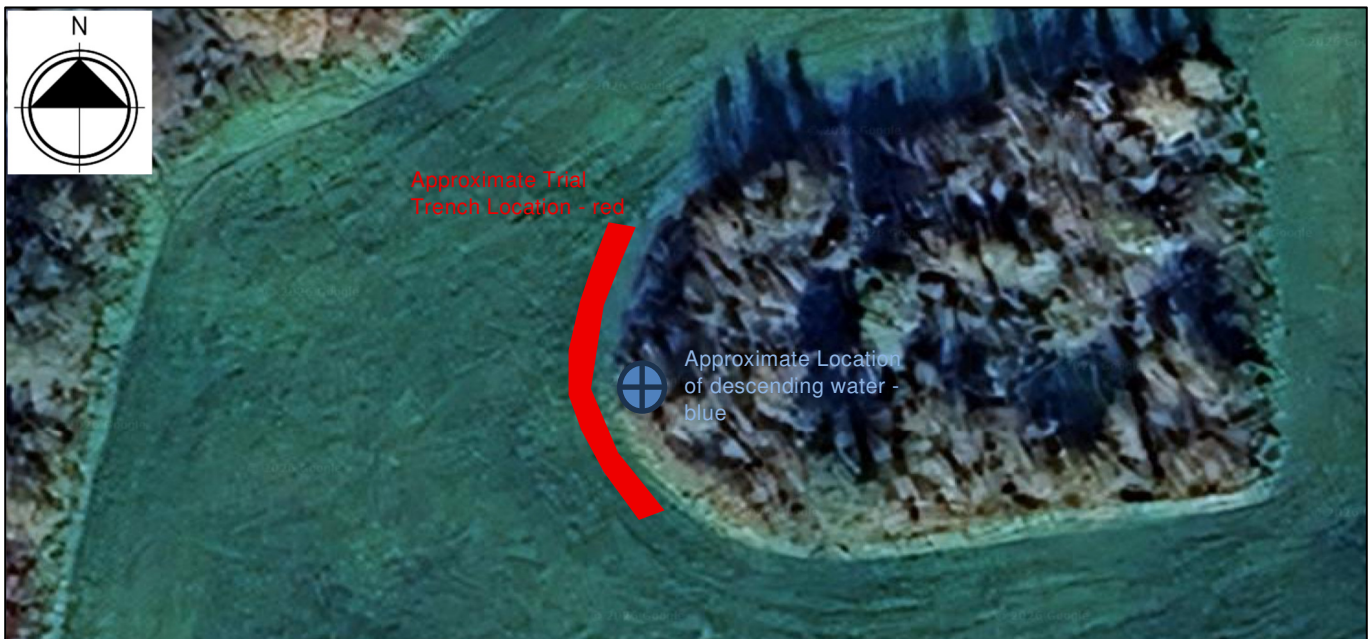


Appendix II
Site Works Information
(Drawings and Photographs)

Site Location Plan



Trial Trench Location Plan (Approximate Location – Not to Scale)



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Site Works Photographs



Trial Trench



Trial Trench



Trial Trench



Trial Trench



Cobbles and descending water



Cobbles and descending water

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Site Works Photographs



**Pipe into cutting upslope of site
(thought to connect to existing sewer)**



**Circular pond in the cutting in which the pipe
enters**



End of Report

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