

Geological And Hydrogeological Issues

Groundwater flow

Section 4.5 Recommendations from Preliminary Risk Assessment of the Geological and Hydrogeological Report states:

The groundwater flow is also anticipated to flow from west to east due to the geological structure and recorded dip. This would mean that any features potentially susceptible to reduced groundwater flows, in particular the Far Tupton Woods to the west of the site, are unlikely to be affected by the effects of groundwater drawdown at the site as they are both "upstream" of the groundwater flow below the site and would be based on geologically "lower" or different strata which would be less likely still to be affected by the proposed site operations.

It is interesting to note that the only feature discussed in relation to altered groundwater flows is Far Tupton Wood. This is no doubt a response to Natural England's comments in the Scoping Opinion:

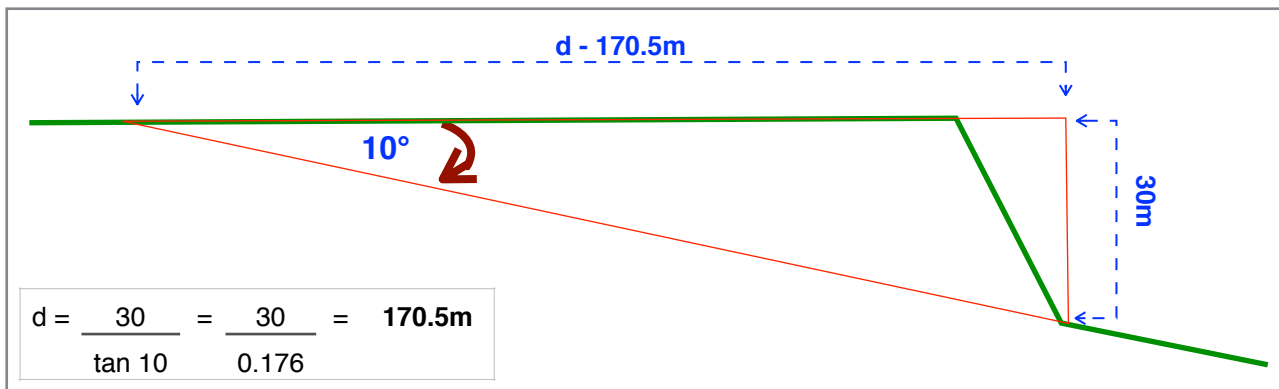
Hydrological impacts will need to have particular regard to the presence of Far Tupton Wood to the immediate west, and the assessment work will need to be able to demonstrate how management of surface and ground water will ensure that water is not drawn away from this ancient semi natural oak woodland site.

Of even more concern to local residents is the effect on houses on and near to Russell Gardens and Woodland Way and the belt of trees separating them from the Hilltop site. Being nearer to the site than Far Tupton Wood they **will** be affected by groundwater drawdown.

Section 4.2.2 of the report states:

*Given the geological dip of the natural strata recorded at approximately **10- 12degrees** to the east, and the surface water flow from west to east, it is anticipated that the groundwater flow will follow the geological structure of the site and also flow in a west to east direction through the site.*

If the nearest cut is 30m deep then any property within approximately 170m will be lying on or above strata at the base of the excavations. (See diagram below.) Groundwater will be drawn away from the land beneath these properties into the excavations lowering the water table.



Section 4.3 Groundwater Quality of the report says:

The only potential exception to this will be within the northern fields where investigations have identified the potential presence of old pillar and stall works which will be excavated out.

The full extent and state of these old pillar and stall excavations have not been investigated by the applicant. It must therefore be considered that they extend beyond the western boundary of the site and will drain into the excavations. This will cause further drawdown of groundwater and lowering of the water table.

Properties to the west of the site are built on clay soils which are susceptible to swelling and shrinkage. Changes to the water table will have a disastrous impact on foundations - a number of properties in the area have had to undergo underpinning work in the past.

The fact that the applicant has dismissed the hydrological impacts of deep excavations on surrounding properties are grounds to refuse this planning application.

Unidentified feature

Aerial imagery of the large field to north of Ashover Light Railway clearly shows an anomaly. This is not identified in either the Geological and Hydrogeological Report or the Cultural Heritage Report and has therefore not been investigated.



Southern Half of Site

Section 5.2 Groundwater Resources of the report states:

Some seepages may occur from the former opencast areas in the southern part of the site, but these are considered to be at a level where treatment described above will be suitable.

We note that no investigation of this part of the site has been undertaken by drilling test bores or otherwise. Surface mining was carried out here some 60 years ago when regulations and monitoring were far less stringent than today. Consequently, there can be no guarantee about what was included in the backfill material at that time.

As the statement in the report is **not based on sound investigation**, it must be assumed that **seepage from this area may be seriously contaminated** and an appropriate treatment regime implemented.

Slope Stability

The National Planning Policy Framework Guidance section on Quarry Slope Stability states:

- *identify any features which could adversely affect the stability of the working to enable basic quarry design to be undertaken*

The only time slope stability is mentioned in the application is in Section 2.7 Mining and Ground Stability. This details previous recorded mining activity on the site but says little about its implications for slope stability during the proposed excavations.

One other paragraph states that their Envirocheck Report confirms low risk of natural ground instability, but this is merely data extracted from a database, not based on site investigations.

No attempt has been made to identify any site specific features which might affect slope stability and need to inform quarry slope design.

Elsewhere in the report they say that the test bores encountered old 'pillar and stall' workings. These have not been fully investigated or their extent mapped. The area is also riddled with ancient bell pits. Should any of these intersect the faces of the various cuts there will be a serious risk of slope collapse.

The A61 road forms the eastern boundary to the site and they intend to excavate within a few metres of it. This is a busy main road with an average of 13,281 traffic movements a day, many of which are HGVs. At times when the nearby M1 Motorway is closed, traffic diverts onto the A61 and it becomes heavily congested - nose-to-tail, crawling HGVs. This not an uncommon occurrence. Consequently, this edge of the site is subject to considerable vibration loading which needs to be evaluated and allowed for in the design of the cuts, both in terms of slope angle and distance from the road.

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