Our Ref C5336/26/E/9103
26th February 2026

Santokh Singh,
1 Central Drive,
Fartown,
Huddersfield,
West Yorkshire
HD2 1DD

For the attention of Santokh Singh,

Ref: Foundation Solution at Land adj 3 Vernon Close, Huddersfield

Dear Santokh,

Thank you for forwarding on the following documentation:

- Coal Mining Risk Assessment, issued by the Coal Authority, ref 71009796765001.
- Follow-On Rotary Drilling Report, issued by GeoInvestigate, ref G25226 Rev B.

The Coal Mining Risk Assessment identified that there was probable historical unrecorded shallow underground mining in the Soft Bed Coal. A review of the published geological map (BGS map sheets 77 & SE11NW) identified that this coal seam is the last recorded seam in the Pennine Lower Coal Measures Formation and has a seam thickness up to 0.8m. Therefore, if identified, no further recorded coal seams would be present at shallow depths. The site itself is underlain by the Middle Band Rock, a named sandstone member.

The Mining Risk Assessment stated that:

Due to the potential for unrecorded shallow mine workings in the Soft Bed coal seam and underlying Soft Bed Flags, an intrusive site investigation will be required. It is acknowledged that a single borehole has been drilled at site previously, noted to have found poor quality coal, however it is not considered that a single borehole is sufficient to have proved the absence of workings across the site, especially given the significant evidence of mining subsidence that his historically taken place in the area.

With regards to the mining subsidence, the Mining Assessment has advised that a number of subsidence claims have been made in the area and are indicative of subsidence associated with historical shallow mining. In addition the Mining Assessment highlights that *The client has also provided a letter dated June 2003 which references a coal mining subsidence claim for No.2 Vernon Close in May 1975, which was discharged by compensation in 1979. The letter goes on to advise that following ground investigations, the cause of damage was considered likely to be ground movement associated with unrecorded coal mine workings, however the letter does not state whether any ground treatment works were undertaken. Unfortunately the Coal Authority no longer holds the original records for this claim.*

With reference to publically available historic maps (OS 1:25,000, 1945-1965), Vernon Close and the surrounding area was well-developed prior to 1965. It is unlikely that the properties in this area will have undertaken investigative mining risk assessments nor mitigation measures during this period as it will have not been required as a planning measure. Moreover, any workings below the site will have not been recorded. To that affect, and given that the sandstone in the area is very shallow, the properties in the area will have most certainly been constructed upon shallow strip footings or built on to the rock directly. As such, any subsequent movement in the ground below could result in settlement at the surface, thus the number of subsidence claims made historically.

In view of the above, GeoInvestigate completed a borehole investigation in September 2025. Three boreholes were completed and the strata conditions are summarised below:

BH01
Soil - Ground level to 1.2m
Sandstone - 1.2m to 5.6m
Shale/Sandstone - 5.6m to 17.0m
Weak/Broken Ground - 17.0m to 18.2m
Sandstone - 18.2m to 30m

BH02
Soil - Ground level to 1.5m
Sandstone - 1.5m to 5.4m
Shale/Sandstone - 5.4m to 18.2m
Weak/Broken Ground - 18.2m to 19.0m
Sandstone - 19.0m to 30m

BH03
Soil - Ground level to 1.2m
Sandstone - 1.2m to 5.1m
Shale/Sandstone - 5.1m to 16.5m
Coal - 16.5m to 16.8m
Mudstone - 16.8m to 17.3m
Sandstone - 17.3m to 30m

It is considered that the initial sandstone layer at near surface is representative of the Middle Band Rock which is known to immediately underlie the site. Thereafter, undifferentiated strata were recorded until either intact coal or weak/broken ground were encountered. The coal is considered to represent the Soft Bed Coal, with the 500mm of mudstone beneath possibly representing a seatearth. The weak/broken ground is considered to represent workings within this seam and seatearth. It is of note that the workings were not recorded as a distinct void, rather as broken ground, thus suggesting that the workings have collapsed beneath the site. Indeed, GeoInvestigate have commented in their report that e*ncouragingly no upward mine roof separation, void migration or water loss was identified above the coal mining horizon in any of Geoinvestigates 3 boreholes.*

Typically the general rule for assessing the potential for surface instability is to ascertain the seam/working thickness (T) and apply a 10T rule for competent overburden. The coal seam is 0.3m in thickness, however it would be reasonable to assume that the seatearth was also worked, thus a working thickness of 0.8m should be assumed in the first instance; this would estimate a 10T of 8.8m thickness of competent overburden. Notwithstanding this, even if taking 1.2m as a maximum ‘working’ thickness, a ‘worst-case’ scenario for 10T would require 13.2m of cover above the seam, which appears to exist. This would then raise questions as to why a number of subsidence claims have arisen previously in the surrounding area.

The topography varies in the area, with Edgerton undulating in elevation, thus the depth of the Soft Bed Coal will be variable. Therefore in certain areas, the workings will have been shallower, meaning that a 10T cover may not be present in the surrounding areas thus making them more susceptible to surface instability. Moreover, as highlighted above, given the age of the local properties, shallow strip foundations will more than likely have been utilised or structures may have even been directly built on to the sandstone rock, again making them more susceptible to structural distress if any ground movement did occur.

GeoInvestigate have also included a letter in their report that the Coal Authority were not privy too in their Mining Risk Assessment. The letter indicates that the successful 1975 mining subsidence claim may not have been entirely attributable to mining subsidence. The letter states that *Mr Wade also questioned the minor structural damage to the bungalow on this site being due to mining subsidence. He was of the strong opinion that it was due to tree root damage. There was a flowering cherry tree to the west elevation of the bungalow, next to the dry stone wall. It had a base diameter of 0.8m and was within 2.5m of the bungalow wall. The roots had raised the footpath between the tree and bungalow. Mr Wades opinion was further strengthened when I excavated the bungalow foundations and found tree roots, some 100mm in diameter had penetrated under the foundations which were only 500-600mm deep. In so far as anyone can be accurate in these circumstances, the evidence pointed to likely root cause of the problem.*

This would provide clarity to the damage caused given the measured depth of coal beneath the site itself and the apparent adequate 10T cover.

GeoInvestigate have offered two remedial measures in their report:

- Grout the workings and utilise reinforced strip footings.
- Adopt a raft foundation, albeit the Coal Authority should be consulted on this approach.

In RGS' view, a raft foundation would be suitable in this instance. A sufficient cover of rock (competent overburden) is recorded to be present; coal workings will be at varied depth in the area, but are at a sufficient distance beneath the site in question; the working beneath the site also appear to have collapsed, thus further movement is unlikely; previous movement in the immediate area may be attributable to root damage, rather than the collapse of coal workings.

To conclude, it is considered that grouting is a not necessarily a preferential option on this occasion and a suitably designed reinforced raft shall mitigate against any potential risks. A suitable design should then be submitted to the Coal Authority for comment.

We trust that this information is of interest and should you have any other requirements do not hesitate to contact us.

For Rogers Geotechnical Services Ltd,

Yours Faithfully

Rob Palmer MSc FGS ACIEH
Engineering Director