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FAO – Mr S Fretwell

Our Ref. – 0520521

Date – 18th November 2021

By email

Dear Spencer

Ref. – St. Begas Chapel, Crossings Cl., Cleator Moor, CA25 5QH

With reference to your email dated 15th November 2021 regarding the above site, I can provide the following information on the proposed site layout and foundation design in relation to local sub-soil conditions.

1.0 – Site Layout

The site is bounded to the north-east by overgrown land and an access track off Crossings Close, to the south-east by Crossings Close, the south-west by a brook and to the north-west by the continuation of the access track.

The site falls in level from the north-east corner, adjacent to Crossings Close to the brook along the south-west boundary by approx. 3.5m.

The site is covered to the north-east side by a tarmac car park and the former St. Begas Chapel building. The remainder of the site is overgrown with several trees adjacent to the brook at the south-west boundary.

2.0 – Development In The Area

The area immediately adjacent to the north-west boundary has been developed as Coniston Park, a mixture of single and two-storey properties early in the 1990's.

Crossings Close to the south-east of the site has been developed with bungalows to its south-east side.

3.0 – Mining History

The area has several mine access shafts and workings, primarily for the extraction of iron ore. There are two shafts near the site, recorded on British Geological Survey Maps, that provide an indication of workings in the area.

Whinney Hill Pit, some 375m to the west of this site, had a borehole excavated to a depth of 278m. The Pit was owned by the Whitehaven Heamatite Iron Company. The borehole encountered minor coal seams of upto 0.65m thickness at 87.6m, 91.25m, 102.6m, 113.8m and 117.3m depth prior to a main seam at 129.3m. The access shaft was sunk in 1839 and a 2.70m coal seam was excavated at a depth of 205m from 1843 onward. Whinney Hill Pit was exhausted by 1863. Whinney Hill Pit was used to provide coal to the local iron works.

Cleator Moor Colliery No. 2 Pit, some 30m west of this site, was excavated in 1863 and was primarily used for extracting iron ore. Records indicate that the ore was extracted from workings at least 80m below ground level.

4.0 – Railway History

Numerous railway lines served the area primarily for the mines and iron works.

From Railscot archive records, Cleator Moor West Station was located some 50m to the west of this site and served Cleator Moor Colliery Pit No. 2 and Whinney Hill Pit. The location map appears to show a small branch line crossing into the site now occupied by St. Begas Chapel. A further Station, Cleator Moor East, was located to the east of Crossings Close. This line extended round to the north-east to the former iron works site now redeveloped as the Leconfield Industrial Estate.

5.0 – Geology

British Geological Survey records indicate that the site is likely to be covered by a Boulder Clay overlaying a Sandstone.

6.0 – Flood Risk Assessment

A preliminary Flood Risk Assessment indicates that the finished floor levels would need to be at least 320mm above the local ground level adjacent to the brook. The local ground level is 71.50m.

7.0 – Proposed Foundation Design

The finished floor levels of the proposed development are likely to be governed by either anticipated flood levels or access road gradients. There may also be a requirement to attenuate surface water drainage into the brook by means of storage crates, increased drainage pipe sizes or a combination of the two.

The foundation options are likely to be trench-fill foundations to all plots or pile/ground beam to plots adjacent to the brook according to proposed ground levels or attenuation requirements.

For standard two-storey houses, a trench-fill foundation is usually 600mm in width and would impose a maximum pressure on the sub-soil of 100kN/m². Given the anticipated soil cover to mine workings, the pressure on mine workings would be greatly reduced and any settlement of mine workings would not impact on the foundations.

If a pile/ground beam option were necessary for plots local to the brook, the expected pile depth required would be between 12m and 15m in depth. At a pile depth of 15m, the soil cover to mine workings would be around 65m according to available records. The load from the pile would also dissipate and be greatly reduced at the level of mine workings.

8.0 – Conclusions

The site is likely to be covered in fill material from its potential former railway use or mine workings.

The sub-soil would be suitable for the use of trench-fill foundations. Based on available information, the mine workings are deep enough for them not to affect the proposed foundations nor for the foundations to affect the former mine workings.

If pile/ground beams were required to the plots adjacent to the brook then these too would not affect the mine workings for the reasons noted for the trench-fill foundation option.

The above conclusions have been reached based on available records and will need to be confirmed by intrusive site investigation work.

If you have any queries, please call me.

Yours Faithfully

Mark Vaudeau C.Build.E FCABE