



Our Ref: 2726-L-001 GSA Swift Cottage

14 December 2020

Mr S Cope
Seb Cope Design

BY EMAIL

Dear Seb

Ground Stability Assessment
Proposed Extension, Swift Cottage, Charmouth Road, Lyme Regis DT7 3DP

In accordance with your instructions I have carried out a desk based geotechnical assessment for the proposed development at the above site, in particular with respect to how the proposals may affect the stability of the site and surrounding area.

The proposals, shown on your Drawing Nos. C2046.01 to 07, dated 6 November 2020, involve the construction of a two storey extension at the rear of the above detached house.

The assessment has been based upon a study of various geological and historical records together with my knowledge of the likely ground conditions in the area, and a brief inspection of the site on 10th December 2020. As no inspection of ground conditions at the location of the proposed extension has been made, I am unable to make specific recommendations as to the nature of the required foundations.

Swift Cottage is located on the Eastern side of Charmouth Road. Charmouth Road runs up the north-eastern valley side of the River Lim, from the centre of Lyme Regis, in a northerly direction. The property lies between the junction with Anning Road and the Football Ground. In this area the slope is at an overall angle of about 6 degrees. It is at a position where, the south-westerly facing valley side slope, to the west, becomes a southerly facing coastal slope.

The property lies about 60m from an area, to the east, that is known to have been affected by recent active coastal landslipping. That landslipping is generally related to instability in the oversteepened cliff face below it. West Dorset District Council's (WDDC), now Dorset Council, land instability zoning for planning applications changes on the eastern side of Charmouth Road to reflect the greater risks in this area. The less severe Zone 2 designation is located to the west of Charmouth Road, whilst Swift Cottage on the eastern side is located in Zone 3.

Consulting Engineers Halcrow have produced coastal risk planning guidance for WDDC. They zoned the coast in terms of predicting the regression of coastal landslipping. Their plans show the site location to fall on the boundary between the middle and outer zones, a location as defined as having a 5% risk of regression to it within the next 50 years. However, both this and the advice upon which the planning zones are based, pre-dates land stabilisation works carried out by WDDC in 2014.

The proposed extension is to be 2 storeys, across the full width of the house, on its rear eastern side. It will replace an existing single storey extension and conservatory, extending slightly further to the east than the existing extension.

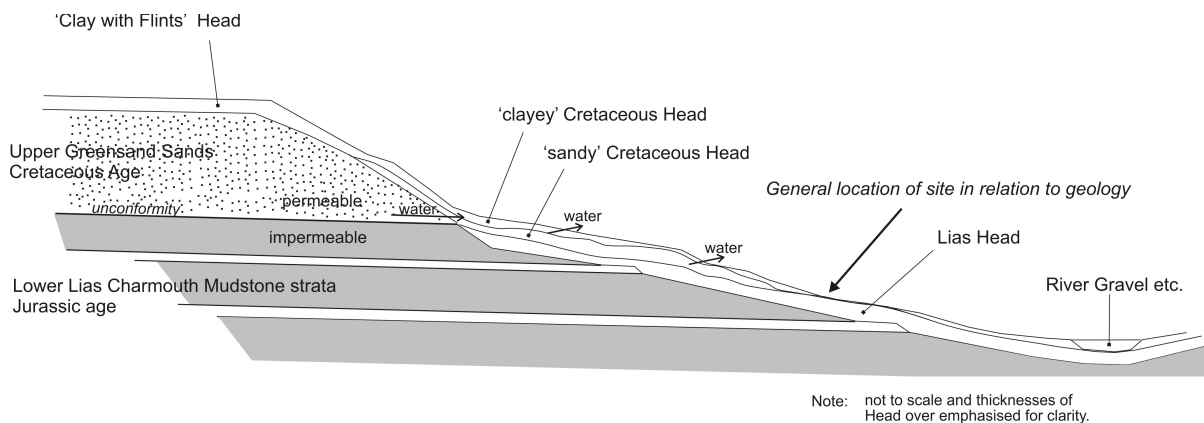
Historical records indicate Swift Cottage is likely to have been constructed in the 1920s, on a site that was formerly a garden nursery. In 1890, the rear extent of the eroded coastal slope stood about 105m from the future site of Swift Cottage.

Geology

The 1:50,000 British Geological Survey plan for the area indicates the site, beneath drift materials, to be underlain by the Lower Lias, Charmouth Mudstone strata of early Jurassic age, with the overlying Upper Greensand strata of Cretaceous age outcropping much further up the valley side. The Charmouth Mudstone generally comprises clays and mudstones with thin bands of limestone, while the Upper Greensand generally comprises silty fine sands with gravel and cobbles of chert.

The superficial drift is a deposit known as 'Head'. It was formed during glacial times, and covers the hillside slopes in the Lyme Regis area. The Head was created by severe weathering and subsequent downslope movement of outcropping materials under periglacial freeze/thaw conditions. Head produced in the area is named either Lias Head or Cretaceous Head depending on the predominant strata from which it is derived. Generally the Cretaceous Head can either take the form of a sandy clay with much angular chert and flint gravel and cobbles (clayey Cretaceous Head), or can be a very silty fine sand. This 'sandy' Cretaceous Head, if present, usually underlies the 'clayey' Cretaceous Head and can often contain groundwater close to the junction with the underlying Lias Head. The Lias Head generally comprises grey mudstone and limestone fragments in a soft or firm remoulded and fissured clay matrix. When both types of Head are present on a site the Cretaceous Head usually overlies the Lias Head. The sandy Cretaceous Head, colloquially known as 'Greensand', usually contains groundwater, while the Lias Head can be of low strength and contain pre-existing shear planes.

Below is a diagrammatic section through the valley side to show the location of the site in relation to the geology:



Under present-day conditions the valley side slopes are relatively stable but are particularly prone to instability should loading or groundwater conditions be significantly detrimentally altered i.e. significantly increasing or reducing the load on a slope by filling/removal of material or an introduction of excessive groundwater.

Experience in the vicinity of the site suggests that the Lias Head may be present from shallow depth, with no water bearing sandy Cretaceous Head being present.

Conclusions

A brief inspection of the external walls of the rendered and painted house and immediate surrounding area, revealed no significant distortion or cracking that could be attributed to current or past slope instability.

In terms of overall slope instability, the construction of the proposed extension will not involve significant short or long-term excavation into the slope or significant increase in loading. Although, in the long term, it will involve an increase in loading, due to the greater mass of the extension compared to what it is replacing, this will be insignificant in terms of slope stability. On this basis, I would consider the proposed development is unlikely to have any significant effect on the overall stability of the site or surrounding area.

Due to the recognised risks of slope instability in this area of Lyme Regis it is accepted good practice not to use soakaways for the disposal of surface water, all surface water, requiring disposal, should be taken to an existing piped disposal system. The opportunity should be taken to check that the existing drainage systems are functioning adequately.

Although the property falls at the point where the Halcrow coastal risk planning guidance zones suggest there is a 5% risk of coastal regression to it within the next 50 years, as mentioned above, that guidance pre-dates land stabilisation works carried out by WDDC in 2014. Furthermore, the guidance comments that, should continued maintenance of the coastal defence works be carried out (i.e. the stabilisation works) then there would be no significant risk to development within this eastern area of Lyme Regis for the next 100 years.

I trust the above is clear and sufficient for your purposes at present. However, should you have any queries please do not hesitate to contact me.

Yours sincerely

Peter Chapman
PCRM Consultancy