

16th August 2013

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Dear Chris

RE: SUMMARY OF SITE VISIT OBSERVATION AND QUALITATIVE STABILITY ASSESSMENT

BritaniaCrest has recently received a Planning Contravention Notice in relation to operations at Washington Sand Pit in Sullington, West Sussex. The notice relates to recent excavation activities.

In order to assess the stability of the current excavation and consider the implications of restoration / buttressing options in this area a site visit was carried out on Wednesday 14th August 2013. This letter outlines observations made during the site visit and provides a commentary on the restoration and buttressing options for the area.

At this stage the stability assessment has been limited to a qualitative exercise. Where further geotechnical and material data is available it may be possible to carry out a quantitative stability assessment on the area in question.

Site Setting

Washington Sand Pit is situated on the eastern edge of Sullington, West Sussex. Sand is extracted from Folkestone Beds, part of the Lower Greensands Group of the Cretaceous.

A large portion of the available mineral at the site has been excavated. A pond is present in the northwest corner of the site. The site forms the eastern portion of a larger quarry complex, the remainder of which is operated by another operator.

Site Observations

Of key concern in this site visit is a face in the south west corner of the site. The face has been recently excavated to expose a fresh face of Folkestone Beds.

The Folkestone Beds excavated in the quarry comprise orange brown fine to coarse grained weakly cemented sand with rare bands of iron rich material.

The face in question is excavated from surface to a maximum depth of approximately 15m below ground level (bgl) (Note, all distances and heights are visually estimated). An initial

upper bench is excavated within topsoil and overburden material observed to comprise brown clayey fine to coarse sand with frequent roots and rootlets.

An approximately 3m wide bench separates the upper overburden material from the main mineral. The main sand face is excavated at a near vertical gradient (approximately 85 degrees) to a maximum height of 10m. A final, approx. 3m wide, bench is located approximately 1.5m above the base of the excavation.

Figure 1 Excavated Sand Face



At its western edge of the excavation the face has been extended into a deeper wedge of in-situ sands, where the inner material has been retained. This appears to have been carried out to allow an area of vegetation to be retained.

Figure 2 Western Extent of Excavation



The base of the excavation extends to a deeper level when compared adjacent areas, particularly to the east where existing cut sand faces are present.

The existing cut sand faces appear to be stable at a height of up to 8m. Vegetation at the crest of the face in this is beginning to overhang where overburden material is sloughing from the slope. A similar process is likely to occur at the crest of the new face over time; however, the uppermost bench will prevent this material collapsing into the main void.

The remainder of the existing sand slopes appear have been in-situ for a long period (a number of years) and are not showing any explicit signs of instability.

Figure 3 Existing Cut Sand Faces]



Stability Considerations

Based on the observations made during the site visit there is no explicit evidence to suggest the cut face is at risk of instability in the short to medium term. Whilst the face is higher than those present elsewhere on the site, the excavation works have been carried out in a manner that reduces the risk of instability having an adverse effect on further activities within the quarry. In addition the excavation has been carried out in general accordance with recommendations within the Quarries Regulations, 1999.

Care should be taken when plant or personnel are operating at the toe of the face and regular inspections of the cut slope should be carried out by the Quarry / Site Manager. Any signs of instability should be addressed as they are identified. Remedial works may include clearing of loose or unstable material from the face or buttressing works, if necessary.

Buttressing Options

Options for buttressing the face are under consideration. These include replacing some of the excavated sands use of overburden material stockpiled elsewhere at the site.

Whilst no quantitative stability analyses have been undertaken to demonstrate the suitability of the different options, all of the above buttressing solutions are considered to be equally viable. Design gradients of buttress slopes would need to be defined dependent on the geotechnical parameters of each material; however, all the proposed materials are suitable for buttressing the slope in the long term. There is no specific advantage to utilising the excavated sand as a buttressing material over alternative solutions, utilising either existing overburden materials or imported inert materials.

Yours sincerely

SLR Consulting Limited

Mike Reeve

Associate