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This letter has been forwarded
to the following addresses
(see attached list)

Contact: Mr. R. Walton
Direct line: (01304) 872420
E-mail: pts@dover.gov.uk
Our ref: RW/EC/FO.10.01
Your ref:
Date: 14 March 2001

Dear Sir/Madam,

Folkestone Warren, Potential Landslip Area

I am writing to advise you of the action which the Council is currently taking in response to concerns regarding the stability of sections of the cliff face along the high cliff frontage at the Folkestone Warren.

The past few months have seen a sustained period of above average rainfall across the whole region and groundwater levels are, I understand, at record levels. As a direct consequence, there have been a number of examples within the District where the action of the weather has resulted in localised cliff falls such as at St. Margarets Bay, Langdon Cliffs and elsewhere. The Folkestone Warren is a geologically complex feature which has a long history of landslip activity with the most serious failure occurring in December 1915, following similar weather conditions, although at least 12 major slips have been documented since 1767.

The area is closely monitored by Railtrack who have obvious concerns at the potential effect of any movement on the Folkestone to Dover railway line. The Council was therefore contacted by Railtrack's Earthworks Engineer and met with them on 13 February 2001 concerning what they described as 'evidence for accelerating activity around the Warren'. This concern centred on a series of cracks in the surface of Old Dover Road extending eastwards from opposite number 157 for a distance of some 200 m. Following this site meeting the Council contacted Knight Piésold, an eminent firm of consulting engineers and commissioned a geotechnical study of the area together with the establishment of a comprehensive monitoring programme. The area of the study now includes the area of the cliff around the Café as this was closed to the public on 14 February 2001 following clear evidence of land movement affecting both the structure and surrounding paths.

The aim of the study being carried out is to establish if ground displacements are still occurring, and the rate of movement and the extent of the area affected. A detailed report is being prepared which will be available in the next few weeks. The monitoring programme commenced on Saturday, 17 February 2001 and regular surveys have been undertaken since that date and are continuing.

In conclusion, given the geological history of the area, the Council has been concerned to take immediate action to monitor the area and, given the evidence suggesting ground settlement, to seek to establish the facts as to what exactly is taking place. It is too early to try to draw conclusions as to the potential consequences of this activity or as to what if any measures can be taken to remedy the situation. I will of course keep you informed as the situation develops, in the meantime you may wish to take your own independent advice as to the future implications on your property.

Should you wish to discuss any aspect of this letter please do not hesitate to contact me.

Yours sincerely,

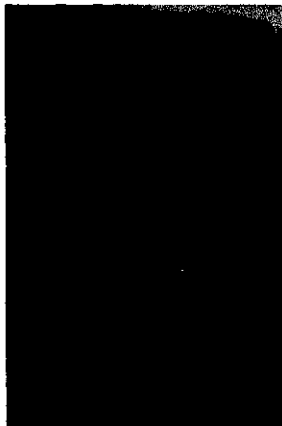
Roger Walton
Engineering Manager (District)

**Capel-Le-Ferne
Potential Landslip Area
Information Note 1
April 2001**



Introduction

Following a period of exceptionally heavy rainfall over the winter months of 2000/2001, evidence of ground movements was identified in land bordering some sections of the cliff top at Capel-le-Ferne. This evidence included cracking of the Old Dover Road surface, disruption of buried services and structural damage to some properties.



Dover District Council has commissioned Knight Piésold Ltd, a local consultancy with specialist expertise in problems of this nature, to undertake a preliminary investigation and survey of the area to determine the extent and magnitude of ground deformation. Precision survey monitoring has been centred on two areas; immediately in the vicinity of the Cliff Top Café, and the eastern sections of Old Dover Road near to the junction with the B2011.

The monitoring has confirmed periodic small deformations of the ground surface.

Site History

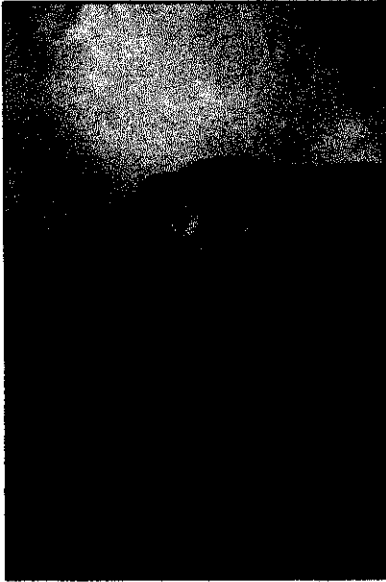
Historical information on the area indicates that there have been intermittent failures of sections of cliff top, most notably during the winter of 1915 when extensive landslips occurred in The Warren undercliff concurrent with collapse of sections of the high chalk cliff above. These events resulted in complete closure of the Folkestone to Dover railway line as well as slippage of the "Eagles Nest" house near to the site of the Cliff Top Café and necessitated realignment of the Old Dover Road away from the new cliff edge at the junction with Winehouse Lane.



The occurrence of landslips in The Warren and failure of the high chalk cliff can be inter-linked and the extent of ground movement is generally related to

meteorological conditions and coastal erosion. Various works have been undertaken over the years to stabilise the ground at the base of the cliff. It is thought that these have been effective in limiting the extent of movement as preliminary data indicate that higher rainfall occurred during the recent winter months than during the corresponding period preceding the 1915 failures.

Preliminary Findings



It is understood that Railtrack PLC is currently monitoring active deformation of the ground in The Warren area and along the coastal defences. Preliminary investigations undertaken by the Council suggest that the ground deformation and movements features along the cliff edge are similar to those that occurred prior to some of the historical cliff failures. However it should be noted that ground deformation and movement features can develop and remain stable for many decades, but generally these indicate a zone at risk of eventual failure. The timing of failure will depend on a combination of destabilising influences including rainfall, drainage, coastal erosion and extent of land-slipping in The Warren.

Future Works

Dover District Council continues to closely monitor the situation. Working with its specialist advisor the Council are undertaking a detailed review of available information and will continue the process of identifying areas of ground considered to be potentially at risk of further movement. However as indicated above, the precise extent of areas at risk and the timing of potential failure cannot be predicted. Individual parties are encouraged to seek independent advice as appropriate regarding their specific locations.



If you wish to discuss any aspect of this information note please contact:

Mr. Roger Walton, Engineering Manager (District),
Dover District Council.
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E-Mail: rogerwalton@dover.gov.uk

8. CONCLUSIONS

8.1 EASTERN OLD DOVER ROAD

Recent evidence of deformation and ground movement at the eastern end of ODR mirrors historical precursory indicators of retrogressive cliff failure. The indicators delimit an area of cliff top that is quasi-stable and is potentially at risk of failure. The area of concern includes sections of the ODR, residential properties and a public footpath. The precision survey monitoring undertaken following the onset of renewed cracking has indicated that progressive ground movement was not detected during the period of monitoring.

From historical evidence of similar zones that have exhibited ground displacement, this area will ultimately fail due to loss of lateral confinement, often arising from progressive displacement of slipped material in the undercliff area. When failure does occur it is likely to be rapid, forming a flowslide onto the undercliff and beyond, possibly initiating further instability in this zone. The timing of failure will depend on the combination and magnitude of destabilising causal factors including rainfall, drainage, coastal erosion and any other significant changes to the debris zone in front of the high cliff.

Large scale instability in this area presents a significant hazard to life and property. However, the timing of failure is difficult to determine as historical evidence indicates that other areas that developed signs of deformation have remained relatively stable for many decades.

As the failure mechanism is likely to be controlled by deep-seated failure planes below the undercliff, ground stabilisation measures at the cliff top are unlikely to be effective. However, a number of mitigating measures to decrease the destabilising influence of water seepage can be pursued and are discussed below.

Recommendations for incorporating further investigations at this site into a landslip management strategy framework are also given below.

8.2 OLD ROVER ROAD CLIFF TOP CAFÉ

The ground displacements that have resulted in structural damage to the Cliff Top Café appear to be confined within the topographic depression immediately at the edge of the cliff. The shape of the tension cracks and the localised nature of distress suggests that the movements have occurred in superficial material overlying the chalk bedrock.

Whilst the precision level survey has indicated that no progressive ground movement has occurred during the period of monitoring, with the possible exception of two points immediately seaward of the café building, the local depression that the café is situated in should be considered a high risk area likely to undergo further and possibly catastrophic movement. Reactivation of this landslip could be triggered by a number of destabilising influences such as saturation of the ground due to prolonged and or heavy rainfall, blocked drainage or damaged services, changes in loading or loss of support at the cliff edge.

The need to confirm the precise mechanism of instability and any other further work would be dependent on whether or not the café is to be retained as an amenity within the locality.