COUNTY: KENT SITE NAME: SHEPPEY CLIFFS AND FORESHORE

DISTRICT: SWALE

Status: Site of Special Scientific Interest (SSSI) notified under Section 28 of the Wildlife and Countryside Act 1981 as amended

Local Planning Authority: SWALE BOROUGH COUNCIL

National Grid Reference: TR 000731 Area: 301.50 (ha.)

Ordnance Survey Sheet 1:50,000: 178 1:10,000: TQ 97 SE, TQ 97 SW
TR 06 NW, TR 07 SW

Date Notified (Under 1981 Act): 1984 Date of Last Revision: 1998

Other Information:
This is a Geological Conservation Review Site.
Part of this site was formerly notified as Warden Point SSSI.

Description and Reasons for Notification:
Geological Interest
This classic coastal section is one of the best known Palaeogene sites in Britain having been the focus of scientific study since the eighteenth century. The cliff and foreshore section between Warden and Minster comprise Eocene London Clay, capped by Pleistocene sediments except between East End and Cliff Farm where the cliff intersects an outlier of the Eocene Virginia Water Formation. This is the only extant section of the upper part of the London Clay and is geographically the most extensive section of this Formation in Britain. Some of the most detailed studies of Palaeogene stratigraphy have been produced for this section. Five informal divisions (A–E) have been recognised for the London Clay of which divisions C, D & E are exposed. The stratigraphical and palaeoenvironmental significance of the site is a reflection of its extremely well preserved fossil fauna and flora.

A considerable invertebrate fauna has been recovered including bivalves, gastropods, brachiopods and nautiloids. Also encountered are the articulated remains of crabs and lobsters and occasionally well preserved insect remains. There is a particularly abundant microfossil fauna which has been used as a basis for defining the stratigraphical divisions A–E of the London Clay.

Fossil vertebrates are equally important and here include fish, reptiles and birds. Some of the most important fossil vertebrate remains occur in resistant nodules within the London Clay. Bony material is also often concentrated on the beach from otherwise fairly unproductive horizons. Agassiz's classic work of the 1840's figures many fish from the Sheppey section. The fossil fish uniquely include articulated cartilaginous shark remains and complete fish skulls. More than 160 fish species (including sharks, rays and bony fish) are recorded from this site for many of which this is the type locality. Since the 1820's the site has been

well known for its fossil reptiles. These include turtles *Argillochelys*, *Chrysemys*, *Eospargis*, *Puppigerus*, *Trionyx* for which this is the most prolific Tertiary site in Britain, crocodiles *Crocodylus*, and snakes *Palaeophis.* The site is also a key avian palaeontological site having yielded the first named fossil bird species, *Halcyornis toliapicus* (related to the kingfisher), in 1825. Since then 16 families (representing 12 Orders) have been identified and for some 20 species this is the type locality. The site shows the presence of a diverse fauna of shore and sea birds, as well as a large range of land birds from open and forest habitat.

This site is the richest palaeobotany site in the London Clay. Divisions D and E have yielded the most extensive Eocene fruit and seed flora, with over 300 species being recorded. The flora is dominated by tropical lianas and also the coconut *Nipa.* This is the type locality for 285 species and 66 genera of plant. 200 of these species and 23 genera are unique to the Tertiary sediments of this site.

Present day active processes have also been studied in considerable detail. At Warden Point, and to its west, a series of impressive, deep-seated, rotational landslips (bench shaped in plan) occur in the London Clay. Characteristically, each slip extends along the coast for distances between four and eight times the cliff height. The back-tilted blocks produced by failure are broken down by shallow slides and mudflows, the debris being removed by marine erosion. This in turn results in a progressive steepening of the cliff, and thus in further landslipping. This is the best locality in Britain to observe the cycle of rotational landslip typical of soft coasts.

Ecological Interest

The cliffs are of botanical interest in that they support a good population of the nationally rare* plant dragon's teeth *Tetragonolobus maritimus*. A number of other uncommon species have also been recorded, including the nationally scarce** bithynian vetch *Vicia bithynica*.

* Nationally rare plants are those which occur in 15 or less 10 km squares in Britain.
** Nationally scarce plants are those which occur in 16–100 km squares in Britain.