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## ELC\_24: Lochhouses

### Site information

#### Location and summary description:

The site comprises a peat-filled depression in a gully system north of Lochhouses, 1.5km north-east of Whitekirk, that contains sedimentary evidence for a tsunami associated with the Holocene Storegga Slide that occurred offshore south-west Norway around 8110 years ago. It is an important dated reference site for this event in south-east Scotland.

#### National Grid reference:

Mid-point: [NT 61415 82176]

**Site type:** Natural landform; Sub-surface sediments

**Site ownership:** Not known

**Current use:** Agricultural land

**Field surveyors:** John Gordon

**Current geological designations:** None

**Date visited:** 24th October 2014

**Other designations:** None

### Site map

(Figure 29) Lochhouses Location Map. Suggested site boundary includes the field boundary surrounding the landform in which the tsunami deposits are found.

### Site description

#### Background

The site consists of two buried gullies that join to form a peat filled depression cut off from the coast by blown sand north of Lochhouses (ELC\_24\_P1).

#### Quaternary deposits and landforms

Sub-surface coring has revealed that the gullies and depression are infilled with up to nearly 5 m of peat and fine clastic sediment. Within the peat, a layer of sand c. 30 cm thick contains marine and brackish-marine diatoms and damaged pollen grains (Robinson, 1982; Smith et al. 2004), indicative that the sand was washed inland. Four radiocarbon dates from the contacts of the sand with the peat place the accumulation of the sand within the timeframe of the Holocene Storegga Slide tsunami (c. 8110 years ago). This huge submarine slide is the most recent of a number of slides in the Storegga area off the coast of south-west Norway. It occurred over an area of 95,000 km<sup>2</sup> and involved the displacement of up to 3200 km<sup>3</sup> of sediment (Haflidason et al., 2004), generating a tsunami that impacted the eastern coast of Scotland from Shetland to the Borders (Smith et al., 2004).

#### Access and additional information

Access is across farmland from Lochhouses.

## Stratigraphy and rock types

**Age:** n/a

**Formation:** n/a

**Rock type:** n/a

## Assessment of site: access and safety

**Road access and parking** Access is via Lochhouses Farm.

**Safety of access** The site can be viewed from adjacent farm tracks. **Safety of exposure** There is no exposure.

**Access** Access is via agricultural land.

**Current condition** Good

**Current conflicting activities** The area is used for agriculture which is compatible with maintaining the interest.

**Restricting conditions** None evident.

**Nature of exposure** Sub-surface sediments accessible only by coring.

## Assessment of site: culture, heritage & economic value

**Historic, archaeological & literary associations** n/a

**Aesthetic landscape** Near the coast

**History of earth sciences** Evidence of tsunami hitting Scotland's shores 8110 years ago.

**Economic geology** n/a

## Assessment of site: geoscientific merit

	Rarity	Quality	Literature/collections	Primary interest
Lithostratigraphy				
Sedimentology				
Igneous/mineral/metamorphic geology				
Structural geology				
Palaeontology				
Geomorphology	Regional	Good	Newey, 1965; Robinson, 1982; Shi 1995; Hafliðason, 2004; Smith et al., 2004.	X

## Site geoscientific value

Lochhouses is an important reference site for the Holocene Storegga Slide tsunami in south-east Scotland. A sand layer buried within peat provides sedimentary and dating evidence for the event.

Lochhouses is an important dated reference site for the Holocene Storegga Slide tsunami, with regional significance.

### **Assessment of site: current site usage**

**Community** Not applicable.

**Education** Field use is principally as a research site.

### **Assessment of site: fragility and potential use of the site**

**Fragility** The site is potentially sensitive to building development, tree planting, tipping, drainage and deep ploughing.

**Potential use** The site was first investigated in the 1960s and continues to have significant research value. There is also significant potential for virtual interpretation.

### **Geodiversity summary**

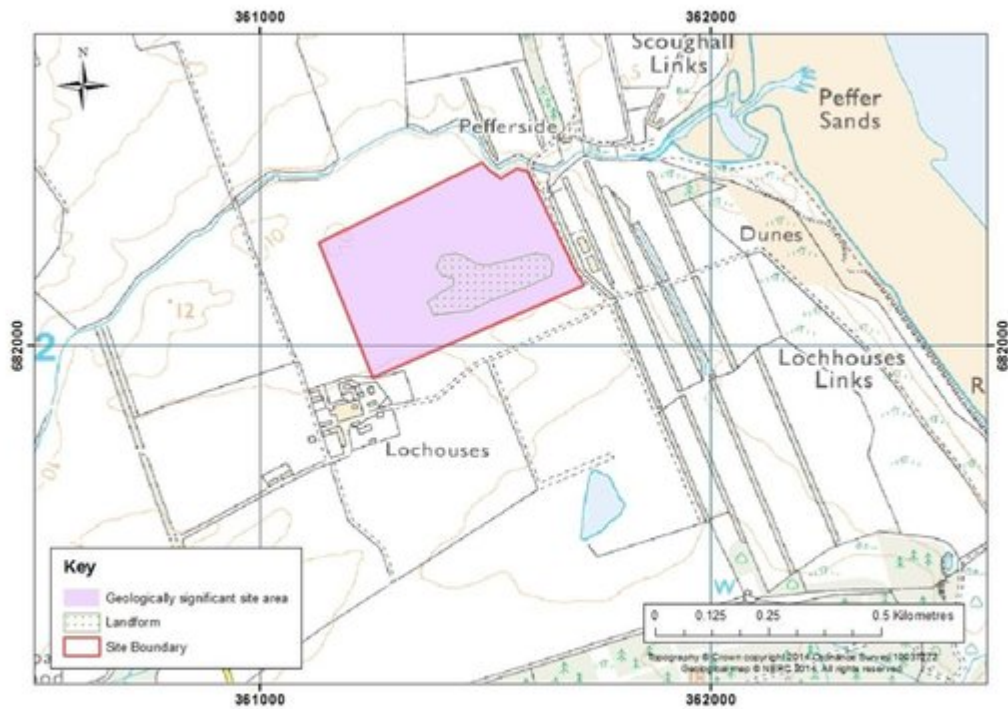
Lochhouses is an important research site for studies of the tsunami arising from the Holocene Storegga Slide around 8110 years ago.

### **Site photos**

(ELC\_24\_P1) Lochhouses viewed from north. The key sediments lie beneath the gully (centre of photo). © John Gordon.

### **[References](#)**

## Site Map



**Figure 29: Lochhouses Location Map.** Suggested site boundary includes the field boundary surrounding the landform in which the tsunami deposits are found.

*(Figure 29) Lochhouses Location Map. Suggested site boundary includes the field boundary surrounding the landform in which the tsunami deposits are found.*



*(ELC\_24\_P1) Lochhouses viewed from north. The key sediments lie beneath the gully (centre of photo). © John Gordon.*