SITE NOTIFIED TO THE SECRETARY OF STATE ON 10 MARCH 1989

COUNTY: NORTHUMBERLAND SITE NAME: LINDISFARNE

Status: Site of Special Scientific Interest (SSSI) notified under Section 28 of the Wildlife and Countryside Act 1981, as amended. Part of this site is a National Nature Reserve (NNR) declared in 1964 under Section 19 of the National Parks and Access to the Countryside Act 1949.

Local Planning Authority: BERWICK-UPON-TWEED BOROUGH COUNCIL

National Grid Reference: NU 100430

Ordnance Survey Sheets 1:50,000: 75 1:25,000: NU 03, 04, 05, 13, 14

Area: 3965.0 (ha.) 9797.4 (ac.)

First notified SSSI: 1954* Date of Revision: 1989

Description:
Lindisfarne comprises a wide range of coastal habitats including extensive intertidal sand and mudflats which support internationally important wintering populations of waders and wildfowl, as well as coastal features and rock exposures of physiographical and geological importance. The site supports a number of rare plants and invertebrates and important breeding populations of seabirds.

This site contains one of the largest intertidal areas in North East England. These support extensive beds of narrow-leaved and dwarf eelgrass *Zostera angustifolia* and *Z. noltii* and the alga *Enteromorpha* which provide feeding grounds for internationally important numbers of the Svalbard population of light-bellied brent geese (regularly over 2,000 birds), wigeon (up to 40,000) and whooper swan. Shelduck, greylag geese and common scoter occur in nationally significant members. The mudflats are also of international importance for wintering bar-tailed godwit, redshank and grey plover and are nationally important for ringed plover, golden plover, curlew, dunlin and sanderling. Breeding bird populations include little terns and a small number of roseate terns as well as common, arctic and, in some years, sandwich terns.

Although common cord-grass *Spartina anglica* has colonised large areas of intertidal mud and lower saltmarsh, the upper marsh remains dominated by common saltmarsh-grass *Puccinellia maritima* and thrift *Armeria maritima*. Extensive sand dune systems include that on Ross Links where a series of dune ridges of recent origin shelter an ancient beach and glacial sands. The older, leached, sands support dune heath, with heather *Calluna vulgaris* and bell heather *Erica cinerea*, and acid dune grassland in a mosaic unique within North East England. Dune slacks, dominated by creeping willow *Salix repens* and cross-leaved heath *Erica tetralix*, are well developed both on Ross Links and also on Holy Island where they support the rare dune helleborine *Epipactis dunensis*, coralroot orchid *Corallorhiza trifida*, round-leaved wintergreen *Pyrola rotundifolia*, curved sedge *Carex maritima*, seaside centaury *Centaurium littorale* and tufted centaury *C. capitatum.* The dune ridges are dominated by marram *Ammophila arenaria* with a rare hybrid grass, purple marram *Ammocalamagrostis baltica*, on the most seaward dune crests. An unusual assemblage of lichens is found on shingle which is exposed in places amongst the dunes. The only English populations of Scots lovage *Ligusticum scoticum* occur on the shore.

The dune systems support a good lepidopteran fauna including colonies of dark green fritillary, grayling and ringlet butterflies and the rare moths *Aphelia unitana*

and *Crambus uliginosellus*. The uncommon coastal moths *Agrostis ripae*, *Mythimna litoralis* and *Ochropleura praecox* are also present and a rare fly, *Opomyza punctella*, has been found on Ross Links.

Locally, limestone outcrops support species-rich grassland with meadow oat-grass *Avenula pratensis*, glaucous sedge *Carex flacca*, carline thistle *Carlina vulgaris*, autumn gentian *Gentianella amarella*, wild thyme *Thymus praecox* and burnet-saxifrage *Pimpinella saxifraga*. On Holy Island outcrops on whin sill, with typically thin, drought-prone soils, have an unusual flora including common rock-rose *Helianthemum nummularium*, meadow saxifrage *Saxifraga granulata*, crested hair-grass *Koeleria macrantha* and field garlic *Allium oleraceum.* On the cliffs south of Spittal there are fragments of heathland with heather, bell heather and crowberry *Empetrum nigrum*. Juniper *Juniperus communis* also grows on these cliffs.

Freshwater habitats are represented at Holy Island Lough and in flooded limestone workings near Cocklawburn. The former has a well developed emergent and floating vegetation and supports a breeding colony of black-headed gulls. There is also a brackish lagoon.

A wide range of marine habitats are created by the varied geology and topography of the rocky intertidal zone which support contrasting foreshore communities on the coal and shale seams, limestones and sandstones. Overhangs and under-boulder habitats support particularly varied communities and the larger rock pools support a rich algal flora. Locally midshore pools are colonised by eelgrass *Zostera* sp., here in an unusual habitat.

Goswick – Holy Island – Budle Bay is a key site for coastal geomorphology. It comprises three main units: (i) the dunes and barrier beaches of Cheswick and Goswick Sands, (ii) the dunes of the Snook and the clifftop dunes and cliff-beach system on the north coast of Holy Island, and (iii) the dunes and sandy beaches of Ross Links and Budle Bay. The significance of the site lies, first, in the extensive progradation of sandy beaches; secondly, in illustrating the role of different wave-energy distributions north and south of Holy Island on beach forms and processes; and thirdly, in the total assemblage and variety of contemporary and older coastal features. It is one of only four locations in England and Wales where barrier-type beaches occur and is the sole example in the North Sea wave climate which coincides with conditions of coastal emergency rather than submergence. The site is broadly comparable, but at a different stage of development, with sites on the east coast of Scotland.

The raised beach of Flandrian age on Holy Island is the only one known on the English east coast and provides geomorphological and stratigraphic evidence for sea-level changes. Underlying deposits, including organic remains, provide a dateable stratigraphic record which, with morphological evidence, provide a key link in comparing relative sea-level changes on the east coast of Britain during the Flandrian.

The shore at Spittal, regarded as one of the finest sections of Dinantian (Lower Carboniferous) strata in England, exposes an almost continuous section through the Asbian and Brigantian stages and has considerable palaeotological, sedimentological, palaeogeographic and stratigraphic interest. Palaeoenvironmental interpretation in the exposures of the upper part of the Scremerston Coal Group and Lower and Middle Limestone Groups indicates a change from fluviodeltaic to Marine environments during their deposition. The spectacular development of cyclic lithologies, stratigraphy and fossil faunas make the locality important in the study of Lower Carboniferous history and palaeogeography and the locality is critical in understanding the evolution and palaeogeography of the Northumberland Trough during the late Dinantian.

A dyke associate with the Whin Sill, up to 60 metres wide and consisting of five discrete segments arranged *en echelon* extends from St Cuthberts Isle across the southern coast of Holy Island to the Plough and Goldstone Rocks. In places the present surface shows chilled dyke-rock with ropey flow structures interpreted as the original surface where upward intrusion terminated.

Other Information:
1. Part of this site is listed in 'A Nature Conservation Review' edited by D A Ratcliffe (1977), Cambridge University Press.
2. Lindisfarne NNR is included in the list of Wetlands of International Importance under the Ramsar Convention and fulfills the criteria for listing as a Special Protection Area under the European Community Directive 79/409/EEC on the Conservation of Wild Birds.
3. Parts of the site are identified as of national importance in the Geological Conservation Review.
4. Parts of this site were formerly notified* as North Northumberland Coast SSSI. During the 1988 revision, the site boundary has been amended, (i) to encompass the entire area of Lindisfarne NNR, (ii) to include further areas of land not previously notified*, (iii) to exclude some areas previously notified*.
5. Part of the former North Northumberland Coast SSSI are now notified separately as Bamburgh Coast and Hills SSSI and Spindlestone Heughs SSSI.
6. The Northumberland Wildlife Trust manages part of the Cocklawburn Coast as a nature reserve.

*Under Section 23 of the National Parks and Access to the Countryside Act, 1949.