Appendix 4

Site Synopsis of Terrestrial Ecology at the Facility

Appendix 1 SITE SYNOPSIS

SITE NAME: BOYNE COAST AND ESTUARY

SITE CODE: 001957

Boyne Coast and Estuary is a moderately-sized coastal site which includes most of the tidal sections of the River Boyne, intertidal sand and mud flats, salt marshes, marginal grassland, and the stretch of coast from Bettystown to Termonfeckin that includes the Mornington and Baltray sand dune systems.

The Boyne River channel, which is navigable and dredged, is defined by training walls, these being breached in places. Intertidal flats occur on the sides of the channelled river. The sediments vary from fine muds in the sheltered areas to sandy muds or sands towards the river mouth. The linear stretches of intertidal flats to the north and south of the river mouth are mainly composed of sand. One of more species of Eelgrass (*Zostera* spp.) occur in the estuary.

Parts of the intertidal areas are fringed by salt marshes, most of which is of the Atlantic type, and dominated by Sea-purslane (*Halimione portulacoides*). Other species present include Common Saltmarsh-grass (*Puccinellia maritima*), Sea Plantain (*Plantago maritima*), Lax-flowered Sea-lavender (*Limonium humile*) and Glasswort (*Salicornia* spp.). Common Cord-grass (*Spartina anglica*) occurs frequently on the flats and salt marshes.

The two sand dune systems in the site, at Baltray and Mornington, are of conservation value, despite the restricted distribution of the intact areas and the high recreational pressure to which they are subjected. A gradient from embryonic dunes to Marram dunes and then fixed dunes is shown at both systems. The embryonic dunes are particularly well-developed at Baltray where there is active accretion. Species present include Sand Couch (*Elymus farctus*), Lyme-grass (*Leymus arenarius*), Marram, (*Ammophila arenaria*), Sea Sandwort (*Honkenya peploides*) and Prickly Saltwort (*Salsola kali*). The embryonic dunes grade into a narrow band of shifting Marram dunes. Marram is dominant, though there are also such species as Cat's-ear (*Hypochoeris radicata*), Mouse-ear Hawkweed (*Hieracium pilosella*) and Dandelion (*Taraxacum officinale*). The areas of fixed dunes on the site have a typical diversity of species, including Marram, Red Fescue (*Festuca rubra*), Wild Carrot (*Daucus carota*), Common Bird's-foot-trefoil (*Lotus corniculatus*), Common Restharrow (*Ononis repens*), Wild Thyme (*Thymus praecox*), Lady's Bedstraw (*Galium verum*) and Wild Pansy (*Viola tricolor*). Vegetation dominated by bryophytes and lichens is limited, though such species as *Brachythecium albicans*, *Hypnum cupressiforme*, *Peltigera canina* and *Cladonia* spp. occur. Some dune slacks may still occur at the site. A number of scarce plants such as Viper's-bugloss (*Echium vulgare*), Adder's-tongue (*Ophioglossum vulgatum*), Variegated Horsetail (*Equisetum variegatum*) and Wild Sage (*Salvia verbenaca*) have been recorded from the site in the past. The last-named species is of particular note as it is a Red Data Book species at its most northerly known Irish station.

The site supports a population of the rare snail, *Helix pisana,* in Ireland known only from the coast between counties Louth and Dublin.

The Boyne is the second most important estuary for wintering birds on the Louth-Meath coastline. From a recent wetland survey carried out over 4 seasons (1994/95-97/98), it is known that this site supports nationally important numbers of Shelduck (176 individuals), Golden Plover (5,338), Lapwing (4,755), Knot (1,559), Black-tailed Godwit (414), Redshank (539), Turnstone (104), Oystercatcher (922), Grey Plover (112) and Sanderling (93).

Other species of regional or local importance include Brent Goose (142), Wigeon (485), Teal (185), Mallard (160), Dunlin (627), Curlew (352) and Ringed Plover (c. 100). An area of shingle at Baltray Dunes is also an important breeding site for Little Tern, with 14 pairs recorded in 1995. Little Tern is the rarest Irish tern species, and is listed on Annex I of the E.U. Birds Directive. Part of the estuary is a Wildfowl Sanctuary and has been designated a Special Protection Area under the E.U. Birds Directive.

In general the site has been somewhat modified by human activities. The river is regularly dredged to accommodate cargo ships, which can cause disturbance to the bird, fish and invertebrate communities in the estuary. Several factories operate upstream from the estuary and pollution and disturbance associated with them has had an impact on the ecology of the area. There is a proposal to create a deep water facility at the north end of Mornington Dunes on the mouth of the Boyne estuary.

The site is of considerable conservation as a coastal complex that supports good examples of eight habitats that are listed on Annex I of the E.U. Habitats Directive (estuaries, tidal mudflats, *Salicornia* mud, Atlantic salt meadows, Mediterranean salt meadows, embryonic shifting dunes, Marram dunes and fixed dunes) and for the important bird populations that it supports.

SITE NAME : BOYNE WOODS

SITE CODE: 001592

This site comprises a stretch of the River Boyne and adjacent habitats and is located approximately 5km south-west of Slane, roughly halfway on the way to Navan. The River here separates the Beauparc Demesne, east of the River, from Stackallan townland, to the west.

Most of the site is broadleaved woodland which fringes the river on both sides and is comosed of a mixture of native and exotic tree species. Ash (Fraxinus excelsior) is abundant, also, Sessile Oak (Quercus petraea), Wych Elm (Ulmus glabra), Beech (Fagus sylvatica), Sycamore (Acer pseudoplatanus) and occasionally Lime (Tilia cordata x Platyphyllos). Coniferous trees, Larch (Larix sp.) and Scots Pine (Pinus sylvestris) also occur. The woodland ground flora includes Barran Strawberry (Potentilla sterius), Enchanters Nightshade (Arcaea lutentiana) and Ground-ivy (Guechoma hederacea), along with a range of ferns - Harts-tongue (Phyllitis scolopendrium), Male-Fern (Dryopteris fiux-mas) and Soft Shield-fern (Polystichum setiferum). Variation occurs in the composition of the canopy, for example, in wet patches alongside the river, White Willow (Salix alba) and Alder (Alnus glutinosa) form the canopy.

The River Boyne along this stretch is fast-flowing and largely unvegetated. Along the riverbanks are patches of fresh-water marsh. At some locations, stands of Butterbur (Petasites hybrious) dominates the vegetation. Elsewher Floating Sweet-grass (Glyceria fluitans), Reed Canary-grass (Phalaris arundinacea), Wild Angelica (Angelica sylvestris) and Marsh Wount-wort (Stachys palustris) are found.

A canal runs alongside the river and south of it, Reed Sweet-grass (Gluceria maxima), Great Willowherb (Ealobium hirsutum) and Meadowsweet (Filipendula ulmaria) fringe the canal. Adjacent are some areas of disturbed ground, where Weld (Reseda luteola), Great Mullein (Verbascum thapsus), Common Figwort (Sorophularia modosa) and Hemp-agrimony (Eupatorium cannabinum) occur.

Swamp Meadow-grass (Poa palustris) is an introduced plant which has spread into the wild (naturalised) at some locations. It is a rare species which is listed in the Red Data Book and has been recorded among freshwater marsh vegetation on the banks of the Boyne in this site. The only other record for this species in the Republic is from a site in Co. Monaghan.

Cattle and sheep have access to the riverbanks and to the woods. There may be a threat of overgrazing, which would prevent tree regeneration and cause damage to ground vegetation. Felling of timber is ongoing at one location within the site. Quarrying is apparent and another. These activities threaten the woodland habitats. Future plans to dredge this section of the Boyne may exist. If so, then care should be taken to avoid dumping spoil onto the marshes along the riverside, to protect these habitats and the swamp Meadow-grass population.

This site is of importance for its semi-natural habitats, particular for the strips of woodland which extend along the Riverbanks. These woodland require further survey for a full evaluation, and the survey could extend to other sectsion of the Boyne. The occurrence of the rare grass enhances the importance of this site.

SITE NAME: BOYNE RIVER ISLANDS

SITE CODE: 001862

The Boyne River Islands are a small chain of three islands situated 2.5 km west of Drogheda. The islands were formed by the build up of alluvial sediment in this part of the river where water movement is sluggish.

All of the islands are covered by dense thickets of wet, Willow (*Salix* spp.) woodland, with the following species occurring: Osier (*S. viminalis*), Crack Willow (*S. fragilis*), White Willow (*S. alba*), Purple Willow (*Salix purpurea*) and Grey Willow (*S. cinerea*). A small area of Alder (*Alnus glutinosa*) woodland is found on soft ground at the edge of the canal in the north-western section of the site. In the past, the islands were used as a source of cane for the construction of coracles and for the basket making industry.

The site includes an area of wet grassland found along the river bank to the north of the islands. This grassland is dominated by Soft Rush (*Juncus effusus*) and Hard Rush (*J. inflexus*), with Creeping Buttercup (*Ranunculus repens*), Red Fescue (*Festuca rubra*), Creeping Bent (*Agrostis stolonifera*) and Marsh Thistle (*Cirsium palustre*) occurring commonly. In places this wet grassland grades into freshwater marsh, which supports a diverse assemblage of sedge (*Carex*) species, including Greater Pond-sedge (*C. riparia*), a locally-occurring species, and Brown Sedge (*C. disticha*). The site also includes areas of reedswamp and part of a canal.

Although the site is small there are few similar examples of this type of alluvial wet woodland remaining in the country. The woodland is notable for its natural, unmodified condition, its diversity of Willow species and in particular for the fact that it conforms well to a type listed, with priority status, on Annex I of the EU Habitats Directive.