Comhairle Contae Chorcaí
Cork County Council

Water Services
Courthouse,
Skibbereen,
Co. Cork.
Tel No: (028)21299
Fax No: (028)21995

Web:http://www.corkcoco.com/

Index of Contents

Comhairle Contae Chorcaí
Cork County Council

Courthouse,
Skibbereen,
Co. Cork.
Tel No: (028)21299
Fax No: (028)21995

Web:http://www.corkcoco.com/

Administration,
Environmental Licensing Programme,
Office of Climate, Licensing & Resource Use,
Environmental Protection Agency,
Headquarters,
PO Box 3000,
Johnstown Castle Estate,
County Wexford

1st July 2008

Re: D0051-01 - Clonakilty Waste Water Discharge Licence Application – Reply to Notice in accordance with Regulation 18(3) of the Waste Water Discharge (Authorisation) Regulations 2007 – Supplementary Information

Dear Ms. O'Connor,

I refer to my submission of the 19th June 2008 regarding the above and in particular:

Regulation 16 Compliance Requirements

- 16 (1)(k) Further information was sought on the dispersion modelling contained in EIS - Attached please find response from Irish Hydrodata, sub-consultants to EIS consultants White Young Green in relation to modelling.

- 16 (1)(l) Details of consultation with National Parks and Wildlife Service were awaited - Attached please find response received on 27th June 2008 from DoEHLG in relation to National Parks and Wildlife Service issues which is currently being assessed.

Included are one original and one copy of each plus both documents on CD-ROM in electronic searchable PDF format. The content of the electronic files is a true copy of the original hardcopy.

Yours sincerely,

Declan Groarke
Senior Executive Engineer
Water Services
Cork County Council (Western Division)

Encls.

ATTACHMENT No F.1

DISCHARGE MODELLING ADDITIONAL INFORMATION

Irish Hydrodata Ltd.,
Ballygarvan,
Co. Cork.

Ph: 353-21-4311255
Fax: 353-21-4311740
e-mail: info@hydrodata.ie

White Young Green,
Consulting Engineers,
Cork.

Attn Mr Kieran Thornton.

26/6/08

Clonakilty WWTP-Discharge Licence

Dear Sirs,

Further to your email of 18th inst. we outline below our response to various points raised in paragraph 16 (l)(k) of the EPA correspondence dated 4/4/2008.

The location of the seaward model boundary was chosen based on the observed drogue and dye patch trajectories. Tidal amplitudes corresponding to mean neap and mean spring were applied with amplitude and phase factor variations along the boundary as determined from local tidal data and Admiralty Publications.

Bathymetric data used in the model for the area within Clonakilty Harbour and along the entrance channel from the open sea was taken from detailed surveys conducted in 2000 (see attached figure 1). Data for the deeper waters in the outer bay and for Muckross Strand, to the west, were taken from Admiralty Charts.

The choice of model was determined by the dominant characteristics of the site. The very shallow bathymetry and drying bank features indicate that advective terms will dominate in the hydrodynamic equations. The Particle Track (PT) technique is considered to be capable of simulating advection to a high degree of accuracy. It allows for the ready implementation of a velocity profile with depth, based on the local depth averaged velocity, and thereby can better simulate the trajectories of near surface contaminants in areas where the concentration with depth is unlikely to be uniform. The stochastic treatment of diffusion and decay in the PT model readily re-create the dispersion of a dye patch and the model is considered to be a reliable predictor for first order contaminants such as faecal coliforms. The treatment of N and P as conservative contaminants is somewhat simplistic but also acceptable given the concentrations and estuary flushing time s involved.

A solute model, SMS RMA2/RMA4, was implemented at the early stages of the project as this would have allowed for integration of the river in the simulations and a fuller representation of the nutrients. However despite extensive effort a stable solution was not achieved within the project timescales.

The models were calibrated against the field measurements, primarily the drogue and dye data and to a lesser extent the current meter records as the latter were near-bed mounted and so would not necessarily represent the near-surface effects.. Lateral x,y dispersion coefficients were estimated from the dye patch dimensions while drogue speed data was used to estimate the advective speeds with a suitable allowance for windage. Figures 2-5 show comparisons of measured and modelled data. The modelled patch trajectories did not travel quite as far to the south as those observed and this could not be replicated without excessive vertical shear in the water column. However as this would ultimately produce slightly conservative contaminant concentrations in the sensitive areas like Inchadoney beach it was considered acceptable. On this basis the model was considered to be calibrated and production runs were undertaken.

Table 6.1 shows the predicted contaminant concentrations in the river channel at low tide. These represent the proposed scenario where effluent at a flow rate of 53 litres/sec is added to river waters which already have background levels of N = 1mg/l, OP = 0.02mg/l and FC = 0.

We trust this reply is sufficiently detailed to meet your requirements. Unfortunately as we are in the middle of a very busy field work season and with holidays coming soon it would be some considerable time before we could provide any further detailed information.

Yours Sincerely

J. F. Walshe

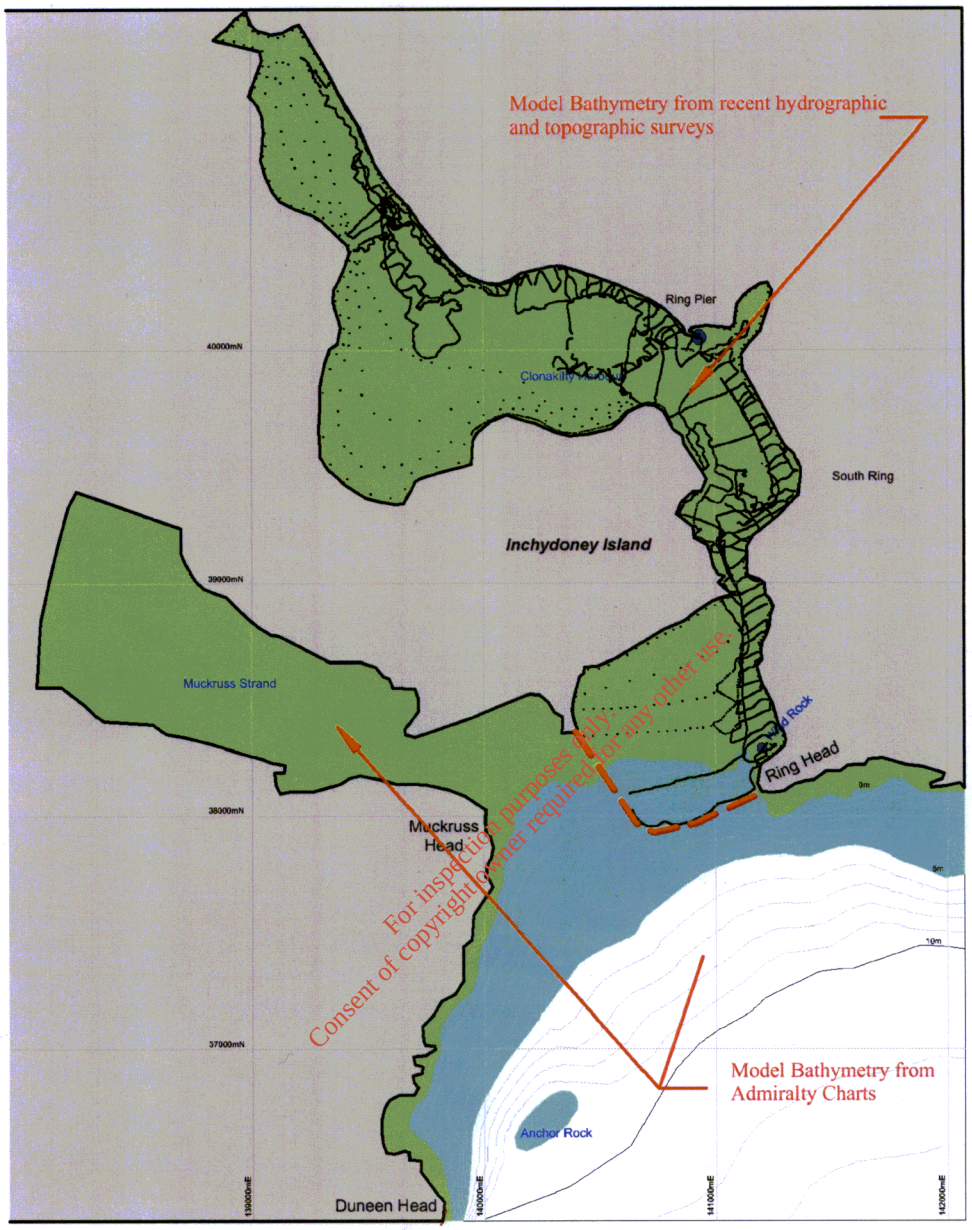

Figure 1 – Model Domain showing sources of bathymetric data.

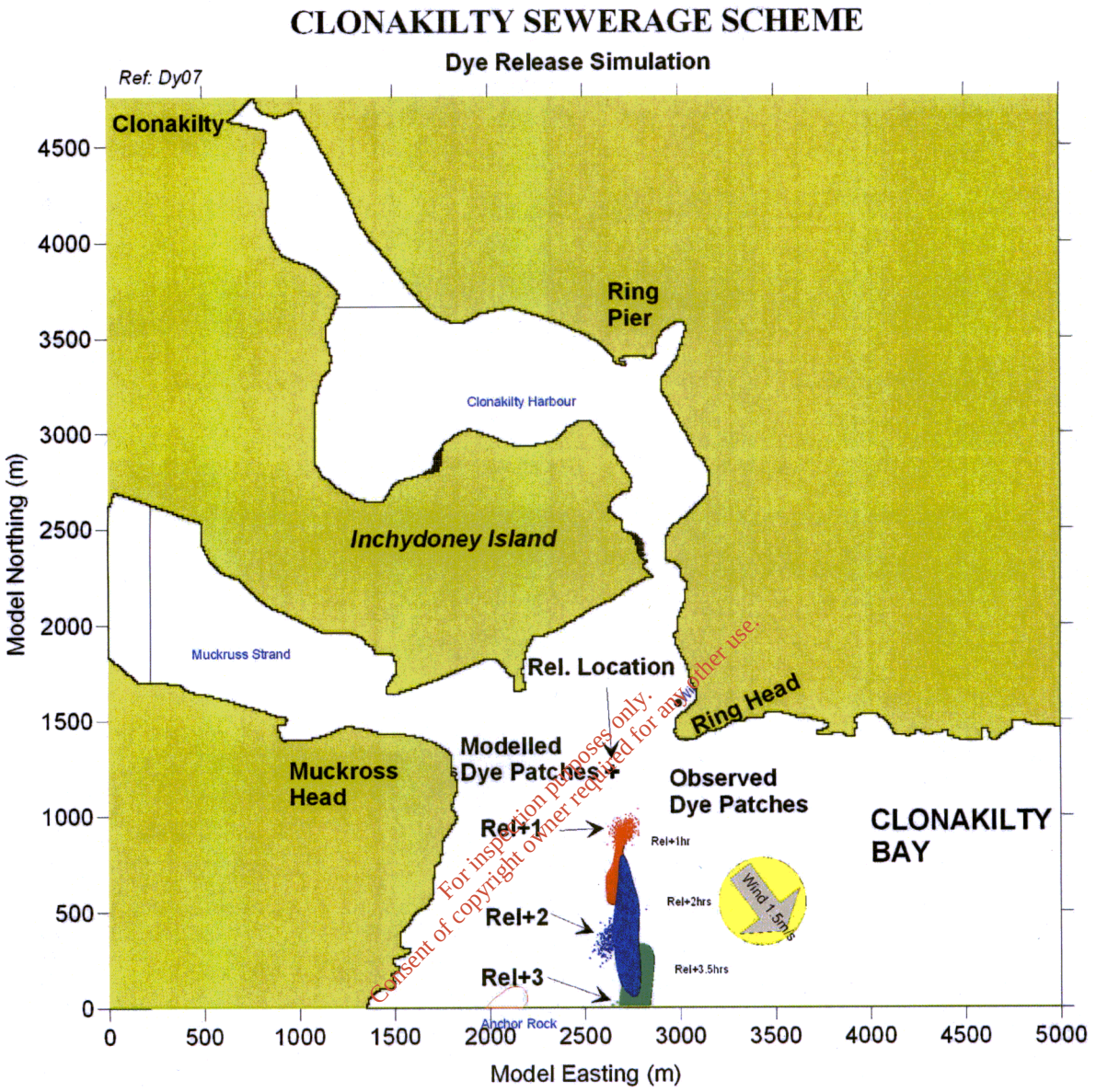

Figure 2 – Outer Bay Dye Track and Model Patch Comparison.

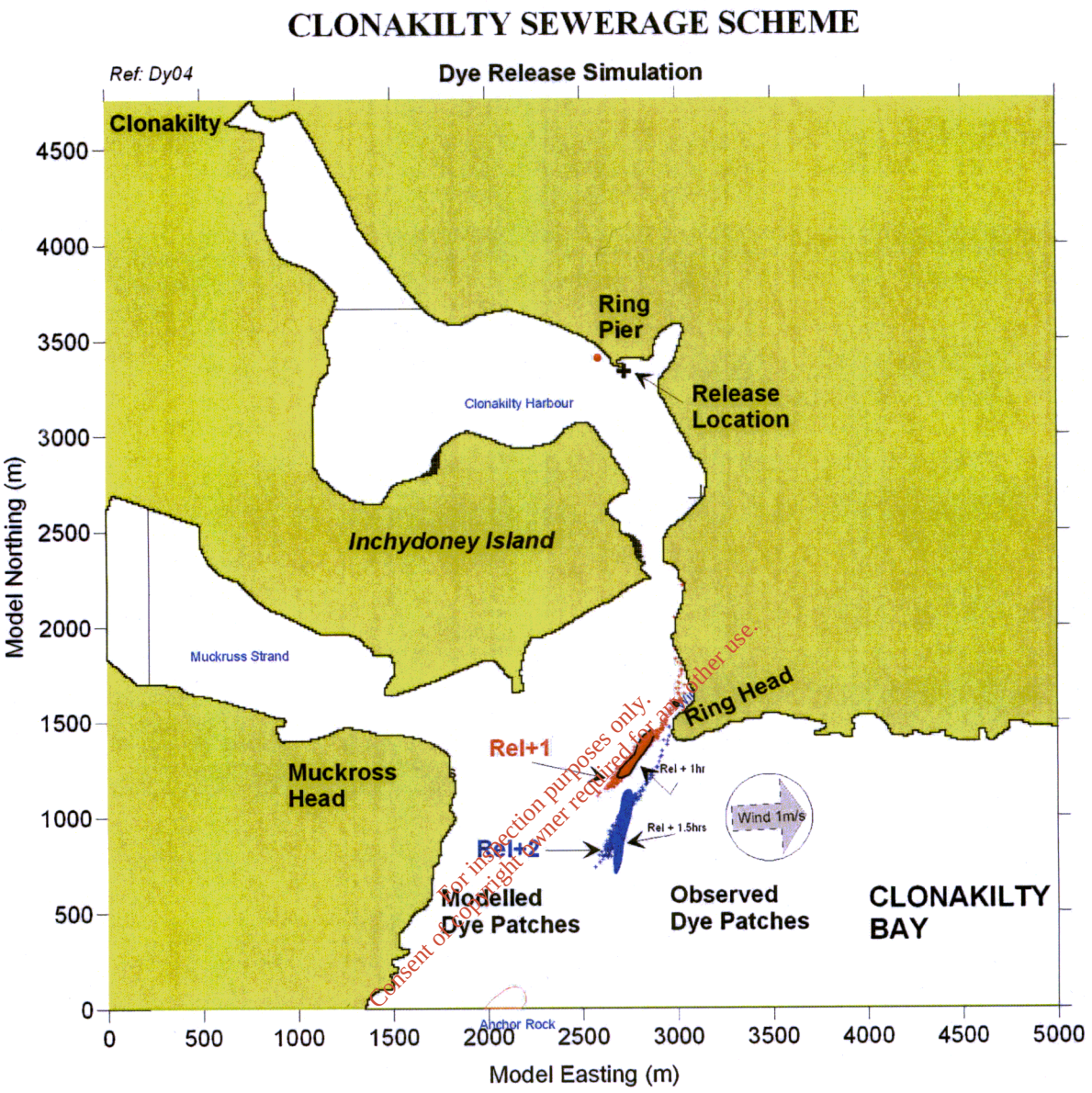

Figure 3 – Ring Pier Dye Track and Model Patch Comparison.

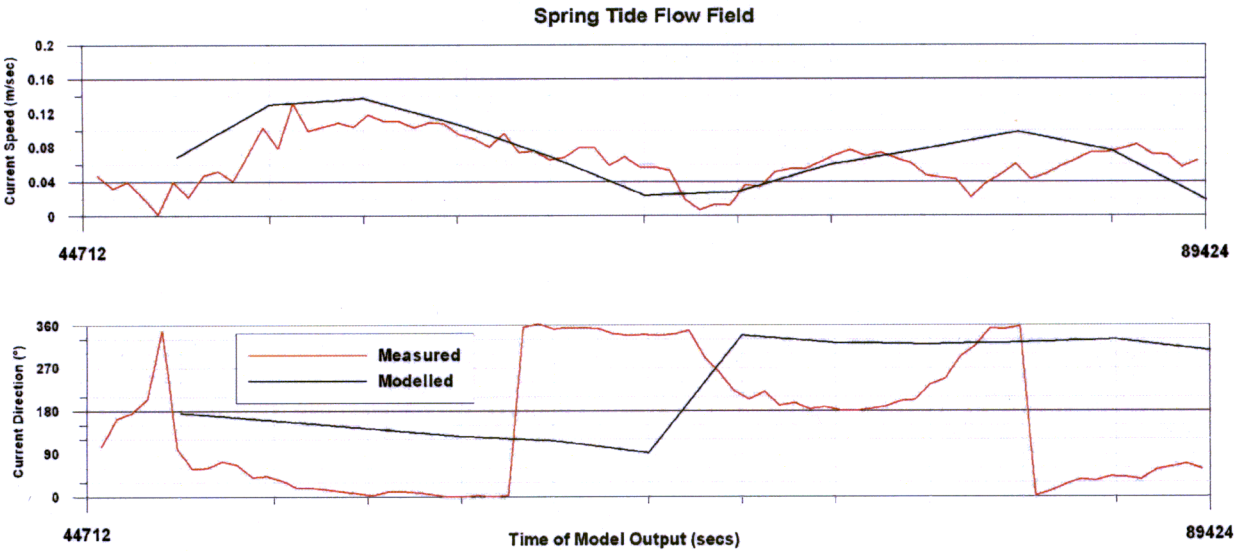

Figure 4 – Modelled Current at Western Current Meter Location.

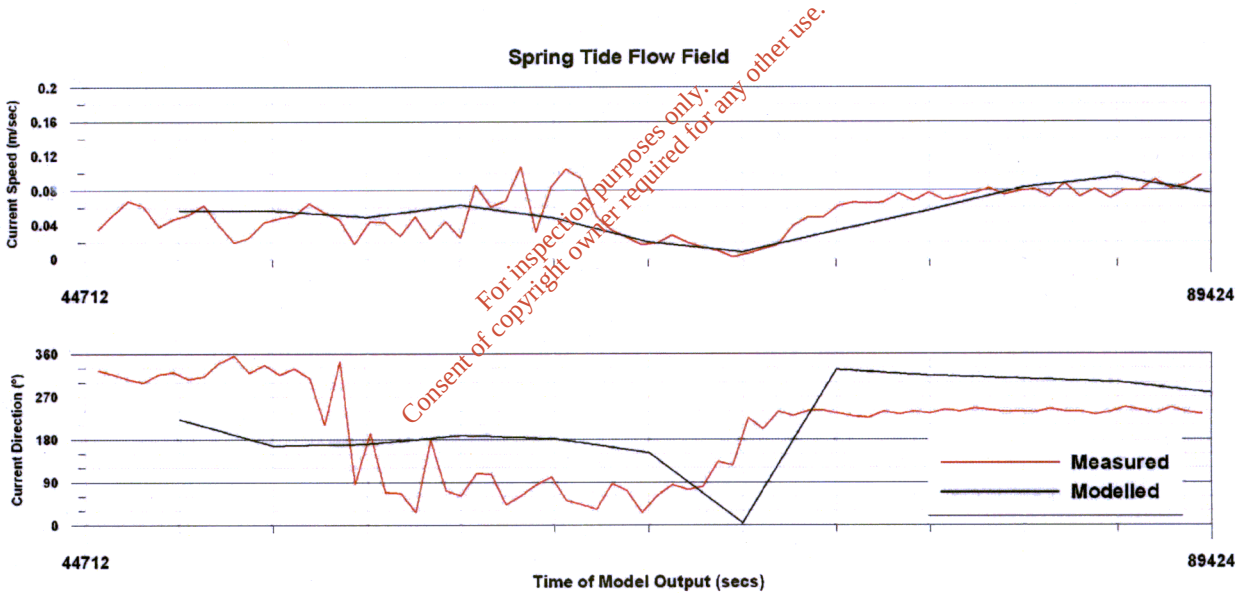

Figure 5 – Modelled Current at Eastern Current Meter Location.

SECTION No G.1

COMPLIANCE WITH COUNCIL DIRECTIVES
ADDITIONAL INFORMATION

AN ROINN COMHSHAOIL, OIDHREACHTA AGUS RIALTAIS ÁITIÚIL
DEPARTMENT OF THE ENVIRONMENT, HERITAGE AND LOCAL GOVERNMENT

23rd June 2008

Our Ref: G2008/468e
(EPA ref. D0051-01)

Valerie Hannon,
Senior Executive Scientist,
Cork County Council,
County Hall,
Cork.

AN ROINN COMHSHAOIL,
OIDHREACHTA AGUS
RIALTAIS ÁITIÚIL
DEPARTMENT OF THE
ENVIRONMENT, HERITAGE AND
LOCAL GOVERNMENT

DÚN SCÉINE
LÍNA FHEARCAIR
BAILE ÁTHA CLIATH 2

DÚN SCÉINE
HARCOURT LANE
DUBLIN 2

Tel: +353 1 888 3109
Fax: +353 1 478 0806

RE: Clonakilty WWTP discharge licence (D0051-01) (Consultation under Regulation 18 of the Waste Water Discharge (Authorisation) Regulations 2007 (S.I. No. 684 of 2007))

A Chara,

We refer to your letter dated 6th June 2008 in relation to the above-proposed development. Outlined below are the nature conservation recommendations of the Department of the Environment, Heritage and Local Government.

The proposed discharge is located within or upstream of the following European sites: Clonakilty Bay cSAC (91);Clonakilty Bay pSPA (4081).

The Environmental Impact Statement has sufficient data and interpretation to form the basis of an Appropriate Assessment as required under Article 6 of the Habitats Directive, but it does not explicitly address the conservation objectives of the site as required in Regulation 6(5) of the Waste Water Discharge (Authorisation) Regulations 2007. It is therefore recommended that the author of the EIS Ecology Section, using the conclusions and interpretation in the EIS, prepares a supplementary assessment addressing the conservation objectives of the two European Sites. These objectives can be obtained from Dr Rebecca Jeffrey, Management Planning Unit, NPWS, 7 Ely Place, Dublin 2.

Please note that the licence consultation has been forwarded to the NPWS Marine Ecologist for further comments regarding marine habitats listed for the cSAC, and these, if any, will be forwarded separately.

Should you require any further assistance please do not hesitate to contact this Department at the following address.

The Manager,
Development Application Unit,
The Department of the Environment, Heritage and Local Government,
Dún Scéine,
Harcourt Lane,
Dublin 2.

27 JUN 2008

Website: www.environ.ie

Thank you for your Co-operation

Mise le meas,

Ciara Beddy
Developments Applications Unit

SITE SYNOPSIS

SITE NAME: CLONAKILTY BAY

SITE CODE: 000091

Clonakilty Bay in west Cork is an inter-tidal expanse that stretches from Clonakilty to the open sea, and comprises two small estuaries separated by Inchydoney Island. The site also includes adjacent sand dunes and inland marshes, and therefore is a coastal complex with a good diversity of habitats including several habitats listed on Annex I of the EU Habitats Directive.

Sand flats dominate the inter-tidal area, although mud flats occur at the sheltered upper end of the inlets. The vegetation consists of algal mats (*Enteromorpha* spp.) with brown seaweeds (*Fucus* spp.) occurring where the coast is rocky. The invasive Cord-grass (*Spartina* sp.) occurs in places. The intertidal flats have a typical diversity of macro-invertebrates, including *Arenicola marina, Scrobicularia plana, Hediste diversicolor, Nephtys hombergii, N. cirrosa, Hydrobia ulvae* and *Cerastoderma edule.*

Sand dunes grade from a strandline, colonised by Frosted Orache (*Atriplex laciniata*), Sea Sandwort (*Honkenya peploides*) and Sea Rocket (*Cakile maritima*), through to fixed dunes vegetated by grasses, small herbs and several species of orchid. They also support an interesting array of introduced plants, amongst which Great Mullein (*Verbascum thapsus*), Viper's-bugloss (*Echium vulgare*) and Teasel (*Dipsacus fullonum*) are the most noticeable. Embryonic shifting dunes and white *Ammophila* dunes are also represented. Of particular interest is a small area of decalcified dune heath with some *Ulex europaeus*.

Inland of the western estuary, an extensive area of wetland occurs, which in itself contains a fine range of habitats from saline lagoons, to brackish grasslands, open freshwater marsh and Alder (*Alnus glutinosa*) scrub. Species found here are characteristic of marshy areas and include Creeping Bent (*Agrostis stolonifera*), Water Horsetail (*Equisetum fluviatile*), Marsh Cinquefoil (*Potentilla palustris*) and Marsh Willowherb (*Epilobium palustre*). The saline influence is evident by the occurrence of species such as Saltmarsh Rush (*Juncus gerardii*) and Sea Rush (*J. maritimus*).

The site contains a good diversity and density of waterfowl, with over 7,000 waders and wildfowl occurring regularly. Seven species have populations of national importance: Shelduck (168), Grey Plover (76), Lapwing (2,509), Dunlin (1,508) Curlew (1,231), Redshank (263) and Greenshank (27). The site is most noted, however, for its population of Black-tailed Godwit (866), which is of international importance and comprises over 10% of the national total. Amongst the other species which occur, there are notable populations of Golden Plover and Bar-tailed Godwit, both of which are listed on Annex I of the EU Birds Directive. All counts given are average winter peaks over either two or three seasons from 1994/95 to 1996/97. Herons commonly use the site and a heronry exists in the trees near Clonakilty.

Otter spraints were found frequently during a recent survey of the marsh area.

The site is under pressure from a number of sources, notably recreation and tourism developments and agricultural improvements, including drainage and fertiliser application. .

This site is of considerable scientific interest because it contains a good diversity of coastal habitats. These habitats show a succession from salt to freshwater influences and include six which are listed on Annex I of the EU Habitats Directive. Its value is enhanced considerably by the birdlife it supports. The occurrence of Black-tailed Godwit in internationally important numbers is particularly significant. The site also supports nationally important numbers of seven other species of waterfowl as well as two species listed on Annex I of the EU Birds Directive.

7.8.1999