

15 TERRESTRIAL ECOLOGY & ORNITHOLOGY

15.1 Introduction

This Chapter of the EIS considers the potential and likely significant effects of the proposed alterations to the permitted development on terrestrial flora and fauna, including terrestrial habitats, higher plants, mammals and birds. The purpose of this Chapter is to identify and describe any likely significant ecological effects as a result of the proposed alterations in the context of the permitted development.

Marine Ecology is dealt with separately in Chapter 14 of this EIS.

A project description is provided in Chapter 3 of this EIS. Information contained in it and associated figures have been fully considered during the completion of this impact assessment. This assessment has been concluded upon review of the following allied assessments in particular:

- Chapter 3 Project Description
- Chapter 7 Landscape & Visual
- Chapter 9 Noise & Vibration
- Chapter 10 Air Quality & Climate
- Chapter 12 Coastal Processes
- Chapter 13 Water Environment
- Chapter 14 Marine Ecology

This assessment includes the following technical reports and figures which are appended to this EIS:

- Appendix 15.1 Screening for appropriate assessment report and Natura Impact Statement
- Appendix 15.2 Data records
- Appendix 15.3 Otter Survey Report 2015
- Appendix 15.4 Common Tern Monitoring Surveys 2014 - 2016
- Appendix 15.5 Wintering Wetland Bird Survey 2014/15
- Figure 5.1 Designated Sites
- Figure 5.2 Habitat Survey

This chapter of the EIS outlines the terrestrial ecology and ornithology features of the receiving environment for the proposed alterations and within a wider zone of influence in the vicinity of the permitted development. It comprises information as required by Annex IV to the EIA Directive to be contained in an EIA Report (an EIS), in respect of terrestrial flora, fauna and avifauna.

15.2 Methodology

15.2.1 Consultation

Prescribed bodies were consulted on the proposed alterations to the permitted development. The Department of Arts, Heritage Rural, Regional and Gaeltacht Affairs (DAHRRGA) responded in writing. Regional staff of NPWS and the Heritage Officer of Cork County Council met with the project ecologist on site in October 2016 to discuss *inter alia* the proposed alterations to the permitted development.

The purpose of consultation is to identify any relevant existing baseline information held by consultees; to identify and potential concerns associated with the proposed development and to identify any key issues to be addressed and detailed within this EIS.

A wealth of desktop research was conducted in the preparation of a previous ecological assessment for the permitted development, and this was used and updated as required for the current assessment. The following key websites and databases were consulted:

- National Parks & Wildlife Service (NPWS) - www.npws.ie;
- National Biodiversity Data Centre – www.biodiversityireland.ie/;
- Botanical Society of the British Isles - www.bsbi.org.uk;
- Invasive Species Ireland - www.invasivespeciesireland.com;
- Bat Conservation Ireland - <http://www.batconservationireland.org/>;
- Chartered Institute of Ecology & Environmental Management (CIEEM) - www.cieem.net; and
- BirdWatch Ireland (BWI) - <http://www.birdwatchireland.ie/>.

15.2.2 Terrestrial Ecology Surveys

15.2.2.1 Flora & Habitat Survey

The permitted development site was surveyed in May 2012, September 2013 and January 2014, in order to carry out a Flora and Habitat Survey. Areas where the proposed alterations are proposed were re-visited in April 2016. All applicable terrestrial habitats i.e. above the mean high water mark (MHWM) encountered within the survey area were mapped and an intensive search was undertaken for protected and invasive flora species. Habitat assessment categories used were consistent with those outlined in *A Guide to Habitats in Ireland* (Fossitt, 2000).

15.2.2.2 Mammal Fauna Study

A mammal fauna study was undertaken for the permitted development site in 2012 and updated in late winter 2014. The shoreline of all lands within which the permitted development is located (and which includes those marine areas in which the marine components of the proposed alterations are located) was surveyed for otter in December 2015. All other terrestrial areas where the proposed alterations are proposed were re-surveyed in April 2016. The surveys aimed primarily to identify the presence and importance of the proposed development footprint to otter *Lutra lutra* and badger *Meles meles*. In addition the survey also gathered general observation of all other terrestrial mammal species.

15.2.3 Ornithological Surveys

15.2.3.1 Breeding Bird Survey

A breeding bird survey was undertaken in 2012 and 2013. The field survey methodology employed was largely a scaled down version of the British Trust for Ornithology's (BTO) Common Bird Census (CBC) technique (Bibby *et al.*, 2000 & Gilbert *et al.*, 1998). All bird species encountered during survey were mapped and coded using standard BTO 'Species Codes' and 'Categories of Breeding Evidence' e.g. singing male, agitated behaviour, carrying food, recently fledged downy young. No attempts were made to locate nests as such behaviours are generally sufficient to determine probable or confirmed breeding. Survey visits commenced shortly after dawn and were completed before mid-day to coincide with the peak bird activity period. Visits were not made during adverse weather conditions, and a route was chosen to ensure all parts of the survey area were passed within c.100m.

A breeding summer season wetland bird survey was undertaken within the intertidal and marine areas adjacent to the proposed redevelopment footprint in 2011, 2012 and 2013. Monitoring of the breeding site of the Ringaskiddy Deepwater Berth (DWB) sub-colony of Common Terns was conducted in 2014, 2015 and 2016.

The breeding season wetland bird survey primarily aimed to identify key foraging areas for Common Terns during the respective breeding seasons. Effort was made to visually track the origin and destination of terns using count areas to ascertain their association with the Deepwater Berth (DWB) sub-colony. All wetland bird species were recorded during the survey, with the overall objective to establish the usage of the survey area by wetland birds during the breeding season.

Common Tern monitoring involved regular visits by an experienced seabird ornithologist throughout the breeding season in order to locate and monitor the Ringaskiddy sub-colony. These visits were planned to coincide with all stages of the breeding season, i.e. pre-breeding (May), incubation (June),

chick provisioning (July) and post-breeding (August). Birds were recorded using a "look-see" approach at three sites in the Ringaskiddy area where Common Terns have nested in the recent past; being the Pfizer Pond at Raffeen Creek, Lough Beg and Ringaskiddy DWB. The number of individual adults, nesting pairs and young associated with each dolphin was recorded and are presented separately.

15.2.3.2 Wintering Bird Survey

The intertidal and marine areas were subject to a wintering wetland bird survey in 2011/12; 2013/14 and a scaled down version in 2014/15. The Wintering Wetland Bird Survey comprised a series of waterbird counts between the overwintering months of September to April, based on the British Trust for Ornithology's (BTO) Wetland Bird Survey (WeBS) and Irish Wetland Bird Survey (I-WeBS) methodologies (Gilbert *et al.*, 1998).

15.2.4 Impact Assessment

The information gathered from desk study and survey has been used to make an ecological impact assessment (EclA) of the proposed alterations upon the identified ecological features. The EclA has been undertaken following the methodology set out in CIEEM (2016) and with reference to BS 42020:2013. EclA is based upon a source-pathway-receptor model, where the source is defined as the individual elements of the proposed alterations that have the potential to affect identified ecological features. The pathway is defined as the means or route by which a source can affect the ecological features. An ecological receptor is the feature of interest, being a species, habitat or ecologically functioning unit of natural heritage importance. Each element can exist independently however an effect is created where there is a linkage between the source, pathway and feature.

A significant effect is defined in CIEEM (2016) as –

“an effect that is sufficiently important to require assessment and reporting so that the decision maker is adequately informed of the environmental consequences of permitting a project. A significant effect is a positive or negative ecological effect that should be given weight in judging whether to authorise a project: it can influence whether permission is given or refused and, if given, whether the effect is important enough to warrant conditions, restrictions or further requirements such as monitoring”.

BS 42020:2013 states that if an effect is sufficiently important to be given weight in the planning balance or to warrant the imposition of a planning condition, e.g. to provide or guarantee necessary mitigation measures, it is likely to be “significant” in that context at the level under consideration. The converse is also true: insignificant effects would not warrant a refusal of permission or the imposition of conditions.

Likely significant effects of the proposed alterations to the permitted development as described in Chapter 3 of this EIS are predicted on the basis of the above CIEEM (2016) and BS 42020:2013 definitions.

15.3 Terrestrial Ecology and Ornithology Baseline

It is important to note that the proposed alterations to the permitted development are located in and adjacent to an operational Port. The ecological baseline currently co-exists alongside the Port's operations including daily human and shipping presence on the quayside, periodic maintenance dredging, and the amenity and commercial use of the shoreline, basin and channel. When the permitted development is added to this characterisation of the immediate area, the sites of the proposed alterations can be described as being contained within and at the quayside of a major multi-modal Tier 1 deepwater port with ongoing operations 7 days a week throughout the year.

15.3.1 Designated Sites for Nature Conservation

A review of the NPWS database and the European Environment Agency (EEA) Natura 2000 Viewer revealed that the location of the proposed alterations is not located within any statutory or non-statutory designated site for nature conservation. The deepwater berth at Ringaskiddy West is located immediately adjacent to one existing designated site for international nature conservation importance and one proposed designated site for national nature conservation importance.

Monkstown Creek is a shallow embayment immediately northwest of the deepwater berth at Ringaskiddy West. It is a proposed NHA and a component of Cork Harbour SPA. Its boundary is marked by a training wall. Feature species of Cork Harbour SPA also use structures within the Port and its dredged basin as part of their territories, in addition to parts of Cork Harbour further from the port.

Designated sites are illustrated in Figure 15.1.

15.3.1.1 European Sites

Cork Harbour SPA [Site Code: IE0004040] is located 770m NW of the new mooring dolphins and 800m NW of the additional area to be dredged for optimised berth geometry. The area of proposed marine works is located 100m NNE of existing mooring dolphins upon which the Deepwater berth Common Tern colony breeds each summer.

Great Island Channel SAC [Site Code: IE0002267] is located 5.5km north of the proposed alterations.

Ballycotton Bay SPA [Site Code: IE0004022] is located 29km by sea from the proposed alterations, and 16km by sea from the marine dump site off Roches Point.

These European sites are described further in Appendix 15.1, which contains a Screening for appropriate assessment report and a Natura Impact Statement.

15.3.1.2 Natural Heritage Areas

NHAs are statutory designations, considered important for the habitats present or the species it holds, whose habitats need protection. NHAs are designated under the provisions of the Wildlife Act and are legally protected from damage from the date they are formally proposed for designation. There are no NHAs located within 5km of the proposed alterations.

Monkstown Creek is a *proposed* NHA [Site Code: 001979] listed in the Cork County Development Plan 2014 (CDP 2014), a designation not specified in the Ballincollig / Carrigaline Municipal District Local Area Plan (draft BCMD LAP) published in November 2016.

The boundary of this pNHA was coincident with the SPA boundary. Consultation with NPWS confirms that the conservation objectives and qualifying interests of the European site are to be considered for impact assessment purposes.

15.3.1.3 Ramsar Sites

Sites designated for their nature conservation value, which are not statutorily protected, derive from International Treaties and Regional Planning Policy. The Ramsar Convention (The Convention on Wetlands of International Importance, especially as Waterfowl Habitat) is an international treaty for the conservation and sustainable utilisation of wetlands, which is designed to stem the progressive encroachment on and loss of wetlands. The Convention was developed and adopted by participating nations at a meeting in Ramsar, Iran in 1971 and came into force in 1975. The Republic of Ireland was one of the original signatory nations.

The Cork Harbour Ramsar Site [Site Code: 837] is located approx 800m to the south of the proposed alterations at its nearest point. The site comprised a Harbour consisting of several limestone basins separated from the sea and from each other by sandstone ridges. The Harbour is impounded and so is no longer tidal. Vegetation is dominated by rushes and included algae, wet woodland and wet grassland. The site supports various breeding waterbirds, internationally important numbers of wintering and spring staging waterbirds and provided important feeding areas for waders. Human activities include industrial and urban development, recreation and shooting.

15.3.1.4 Important Bird Areas

Important Bird Areas (IBAs) are sites selected as important for bird conservation because they regularly hold significant populations of one or more globally or regionally threatened, endemic or congregatory bird species or highly representative bird assemblages. The European IBA programme aims to identify, monitor and protect key sites for birds all over the continent. It aims to ensure that the conservation value of over 4,000 IBAs is maintained and where possible enhanced. Through their designation they aim to form a network of sites ensuring that migratory species find suitable breeding, stop-over and wintering places along their respective flyways. The site of proposed alterations lies within Cork Harbour IBA [Site Code: IE088]. Whilst sites designated under the IBA programme have a different standard of qualifying criteria to European sites, it is sufficient to say that this site is considered an important bird area for its waders and waterbirds.

15.3.2 Protected Species (Existing Records)

The National Biodiversity Data Centre (NBDC) database was trawled in October 2016 to search for any protected flora or fauna species present within the vicinity of the proposed alterations. Protected species included are those listed in:

- Annex II of Habitats Directive;
- Schedules of The Wildlife Acts (excluding avifauna);
- The First Schedule of the Birds and Natural Habitats Regulations (all species listed in Annex IV and V of The Habitats Directive); and
- The Flora Protection Order 1999.

Table 15.1 presents protected species identified in the data trawl.

Table 15.1: Existing Protected Species Records

Species	W76S	W76X	Conservation Status
Hedgehog <i>Erinaceus europaeus</i>	X		WA
Leathery Turtle <i>Dermochelys coriacea</i>		X	Annex IV; WA
Pipistrelle <i>Pipistrellus pipistrellus</i>		X	Annex IV; WA
Key To Table			
WA - The Wildlife Acts			
Annex IV - Annex IV of The Habitats Directive			

Additional species of conservation concern identified in the data trawl include:

- Sharp-leaved Fluellen *Kickxia elatine* (Endangered);
- Winter Heliotrope *Petasites fragrans* (Invasive) and;
- Wall Brown *Lasiommata megera* (Endangered).

15.3.3 Existing Bat Records

A review of existing bat records held by Bat Conservation Ireland (National Bat Records Database) within 10km of the proposed alterations revealed that seven out of the ten known Irish bat species have been recorded locally. These include common *Pipistrellus pipistrellus* and soprano *P. pygmaeus*

pipistrelle, Leisler's *Nyctalus leisleri*, brown long-eared *Plecotus auritus*, Daubenton's *Myotis daubentonii*, Natterer's *M. nattereri* and whiskered *M. mystacinus* bats as shown in Table 15.2 below.

Table 15.2: Adjudged status of Irish Bat Species in the Immediate Area

Common name	Scientific name	Presence	Local roosts	Source
Common pipistrelle	<i>Pipistrellus pipistrellus</i>	Present	None known	BCIreland
Soprano pipistrelle	<i>Pipistrellus pygmaeus</i>	Present	2 known	BCIreland
Nathusius' pipistrelle	<i>Pipistrellus nathusii</i>	Potential	None known	BCIreland
Leisler's bat	<i>Nyctalus leisleri</i>	Present	2 known	BCIreland
Brown long-eared bat	<i>Plecotus auritus</i>	Present	1 known	BCIreland
Lesser horseshoe bat	<i>Rhinolophus hipposideros</i>	Absent	None known	BCIreland
Daubenton's bat	<i>Myotis daubentonii</i>	Present	None known	BCIreland
Natterer's bat	<i>Myotis nattereri</i>	Present	None known	BCIreland
Whiskered bat	<i>Myotis mystacinus</i>	Present	None known	BCIreland
Brandt's bat	<i>Myotis brandtii</i>	Potential	None known	BCIreland

The remaining Irish bat species; lesser horseshoe *Rhinolophus hipposideros*, Nathusius' pipistrelle, *P. nathusii* and Brandt's *M. brandtii* bat have not been recorded in the local area to date. The lesser horseshoe bat is largely confined to the west of the county and the nearest known record is adjacent to the town of Ballincollig, approximately 20km to the west. The latter two species are both rare and may occur in the area occasionally.

15.3.4 Existing Waterbird Records

The Irish Wetland Bird Survey (I-WeBS) is a joint survey scheme between BirdWatch Ireland (BWI) and NPWS which aims to monitor wintering waterbirds in Ireland. The survey runs from September to March each winter, with over 800 wetland sites surveyed including estuaries, coastlines, bays, rivers, turloughs, lakes, streams and flooded fields. BWI provided RPS with 5-years of I-WeBS counts for sub-sites within 2km of the proposed alterations, and the data is presented in Appendix 15.2.

With the exception of Cormorant, the peak mean counts suggests the sub-site is of relatively low importance to wintering waterbirds in the context of Cork Harbour as it is supporting low percentages of the overall Cork Harbour waterbird assemblage. The significance of the Ringaskiddy sub-site (OL655) for Cormorants is likely related to the presence of a key roost site on the ADM Jetty located 640m north of the marine works of the proposed alterations.

The purpose of the NPWS 2010/11 waterbird survey programme was designed to complement I-WeBS and to investigate how waterbirds are distributed across Irelands coastal wetland sites during the low tide period (Cummins & Crowe, 2011) rather than at high tide when I-WeBS counts are undertaken. Ringaskiddy Port is subsite (OL528) which includes the marine and intertidal areas of the Ringaskiddy Basin.

With the exception of Gulls, counts of waterbirds within Ringaskiddy Port were negligible. Eight species which are SCIs of Cork Harbour SPA were recorded, with the sub-site being of most importance to Black-headed Gull and Oystercatcher. The peak count of 38 Black-headed Gulls during low-tide conditions equated to ~4% of the SPA qualifying population, with the peak count of 34 Oystercatcher also equating to ~4% of the SPA qualifying population. No counts of waterbird species exceeded the thresholds for national or international importance. The data from this subsite is presented in Appendix 15.2.

15.3.5 Flora and Habitats

EIS Figure 3.28 illustrates the location of additional lands within the proposed alterations to the permitted development. Figure 15.2 illustrates the terrestrial habitats contained within that area.

Habitats where alterations to landside container handling are proposed (EIS Figures 3.10, 3.14 and 3.16) remain the same as for the permitted development. That is to say they comprise dry calcareous or neutral grassland with gorse scrub (Heritage Council codes GS1 and WS1 respectively).

Habitats where alterations to the entrance and interchange area are proposed (EIS Figures 3.22 and 3.27) remain the same as for the permitted development. That is to say they comprise artificial surfaces and scattered trees/parkland on amenity grassland (Heritage Council codes BL3, WD5 and GA2 respectively).

Habitats where alterations comprising the maintenance, office and customs building are proposed (EIS Figures 3.22 and 3.23) remain the same as for the permitted development. That is to say they comprise artificial surfaces and scattered trees/parkland on amenity grassland (Heritage Council codes BL3, WD5 and GA2 respectively). A non-native hedgerow (WL1) is positioned between the grassland and the terminal building road, and a surfaced area (old car park) (BL3) is positioned in the middle of the two areas of scrub and grassland.

Habitats where alterations to the container berth 1 geometry, dredging and mooring dolphins are proposed (EIS Figure 3.20) are intertidal and subtidal habitats and are described in EIS Section 14.1.3.1.

There is no change to this aspect of the receiving environment.

15.3.6 Mammals

Mammal surveys in 2012, 2013, 2014 and 2016 have confirmed that there are no protected mammal structures where the proposed alterations are located.

There is no change to this aspect of the receiving environment.

15.3.7 Ornithological Survey Results

15.3.7.1 Breeding Bird Survey

Breeding Common Tern is a Special Conservation Interest (SCI) of Cork Harbour SPA, with a mean of 69 pairs for the period 1998-2000 and a maximum of 102 pairs in 1995 (NPWS, 2008). Common Terns have nested in a number of locations within Cork Harbour since c.1970, and since 1983 have chosen various artificial structures as nest sites, including –

- derelict steel barges close to Marino Point until these were removed c.1999;
- the roof of a Martello Tower adjacent to the railway line between Great Island and Fota Island; and
- mooring dolphins within Ringaskiddy Port since 2010.

In 2012 the total population of Common Terns which nested within Cork Harbour was between 85 and 95 pairs, close to the maximum recorded population of 102 pairs in 1995 (NPWS, 2008). This represents c.2.1% of the all-Ireland population estimated at 4,189 during Seabird 2000 (Mitchell *et al.*, 2004).

Additional recent nesting sites within close proximity to Ringaskiddy Port include the ADM Training Wall to the west of the DWB, an island within a lake of the Pfizer owned Rafeen Creek Golf Course and a rocky island within Lough Beg.

Between 45 and 50 pairs of Common Tern nested in 2012 and 2013 on the mooring dolphins within the Port. These are the three dolphins on the south side of the ferry terminal, adjacent to the existing security gate and truck weighbridge. The terns experience extra-ordinarily high levels of disturbance, which they have seemingly habituated to, and are relatively tolerant of a range of human activity in very close proximity to the colony. The colony is located 25m from a visual barrier between them and

the permitted link road, constructed as part of the permitted development described in Section 3.3 of this EIS.

Common Tern colony monitoring in 2014-2016 (at Appendix 15.4) replicated the methodology of the previous four surveys conducted between 2011 and 2013 for the permitted development, to facilitate a direct comparison of results with those obtained previously.

Survey revealed a maximum of 75 pairs in 2015 at the Deepwater Berth mooring dolphins (to the south of the dolphins circled in red in EIS Figure 3.17). Pairs are estimated as apparently occupied nests (AONs). 55 pairs were estimated in 2016. This is a reduction on 2015 numbers but maintains the slight upward average trend of recent years (52 pairs in 2014, 48 in 2013 and 50 in 2012).

134 deserted nests were observed in July 2015 including 33 with cold eggs, principally due to predation by Grey Heron. In 2014, 113 nestlings were ringed in July (as part of a separate study). By comparison, only 34 nestlings were ringed in 2016. It is estimated that of these, only five survived to fledging in 2016. The sub-colony failed to fledge any young in 2015 or 2014. Once again predation by Grey Herons is thought to be the most likely cause.

Common Terns forage extensively both in the Deepwater Basin and further afield. In general, foraging is concentrated either side of the main channel; in the wake of vessels including those moored on the DWB; and in close proximity to the mooring dolphins.

The Ringaskiddy Deepwater Berth subcolony of Common Terns remains active in the operational port, and is under threat of predation. In that sense, there is no change to this aspect of the receiving environment.

15.3.7.2 Wintering Wetland Bird Survey

Surveys associated with the permitted development revealed that Ringaskiddy Port contains a good proportion of Cormorant, Grey Heron, Black-headed Gull, Common Gull, Great Black-backed Gull, Herring Gull and Lesser Black-backed Gull. These species are all components of the overwintering species assemblage of Cork Harbour SPA. This is largely due to four key roosting locations for these species within the wider port area –

- Training Wall
- ADM Jetty
- Ringaskiddy DWB Buildings and Mooring Dolphins
- trees on the southern shore of Monkstown Creek

The area where marine components of the proposed alterations occur is one of the least used parts of the wider area surveyed in 2011/12 and 2013/14. Overwintering waterbird counts in 2015/16 (at Appendix 15.5) replicated the methodology of previous surveys conducted in 2011/12 and 2013/14 to facilitate a direct comparison of results with those obtained previously. Survey results revealed similar trends and peak counts at high and low tidal states in the Ringaskiddy Port area.

There is no change to this aspect of the receiving environment.

15.4 Impact Assessment

15.4.1 Landside Container Handling

As outlined in the Project Description Chapter 3 of this EIS, it is proposed that container handling operations will be altered from a system using rubber tyre gantry cranes (RTG's) as assessed in the EIS for the proposed Ringaskiddy Port Redevelopment to a system using both railed mounted gantries (RMT's) and straddle carriers (SC's). This alteration to RMG's and SC's will result in four changes relevant to the ecological assessment; (i) the change from RTG's only to RMG's and SC's; (ii) the change in container stack height that decreases from 5 high to 3 high in places; (iii) an increase in the

footprint of the container storage area and moves containers further south as well; and (iv) alterations to the positions of lighting columns and noise barriers.

15.4.1.1 Construction phase

There is no material difference between constructing the permitted development layout of landside container handling area and the proposed alterations layout. An area of dry calcareous grassland with gorse scrub shall be transformed into hardstanding under both scenarios. There are no protected mammal structures located in this area. There is no significant use of this area by avifauna. A strip of amenity tree 7 shrub planting shall be removed to accommodate the alterations to container storage area. These habitats are of low local value only. No significant ecological effects are predicted to occur for the proposed alterations.

15.4.1.2 Operational phase

The proposed Landside Container Handling alterations are 170m from the Common Tern nesting dolphins, and in excess of 500m from Cork Harbour SPA. This area was previously proposed for general cargo / RoRo and container operations. The locations of lighting masts as a result of the proposed alterations are illustrated in EIS Figure 3.28. The layout of lighting masts is simply altered with no appreciable difference. Changing the landside container operations results in no significant ecological effects.

15.4.2 Maintenance, office and customs building

It is proposed as part of an alternative handling operating system to have a new dedicated building immediately south of the existing ferry terminal access road. The building will consist of a terminal office, maintenance workshop, stores and workshops/terminal office. Most of these buildings were included in the permitted development and where located immediately north of the existing ferry terminal access road.

15.4.2.1 Construction phase

An area of artificial surface, non-native hedgerow, scattered trees/parkland on amenity grassland and a non-native hedgerow (WL1) is positioned between the grassland and the terminal building road, and areas of scrub shall be transformed into hardstanding in both scenarios. There are no protected mammal structures located in this area. There is no significant use of this area by avifauna. No significant ecological effects are predicted to occur during the construction phase for the proposed alterations to the buildings.

15.4.2.2 Operational phase

The proposed maintenance office and customs building alterations are located 440m from the Common Tern nesting dolphins, and in excess of 1km from Cork Harbour SPA. Although the building locations and designs are altered they are still located inside an operational port area. Changing the location of the maintenance, office and customs buildings and developing a fraction more land within Ringaskiddy East results in no significant ecological effects.

15.4.3 Entrance and interchange area

The layout of the entrance and interchange area to the terminal is proposed to be altered to accommodate the proposed SC/RMG operating system.

15.4.3.1 Construction phase

An area of artificial surfaces and scattered trees/parkland on amenity grassland shall be transformed into hardstanding in both scenarios. There are no protected mammal structures located in this area.

There is no significant use of this area by avifauna. No significant ecological effects are predicted to occur.

15.4.3.2 Operational phase

The proposed alterations to the entrance and interchange area are in excess of 500m from the Common Tern nesting dolphins, and in excess of 1km from Cork Harbour SPA. The proposed operational changes in this area result in no significant ecological effects occurring.

15.4.4 Container berth 1 and mooring dolphins

EIS Chapter 3 section 3.7 sets out in some detail the marine components of the proposed alterations, but in summary they comprise –

- Alterations to the geometry at the southern end of container berth 1;
- Dredging and disposal at sea of 15,000m³ of seabed material;
- The removal of 18 piles at 2 existing dolphins by cutting at design dredge level;
- The installation of 13 x 1.8m diameter additional tubular steel piles for the quay walls and 24 x 0.9m diameter tubular steel piles for the 3 new dolphins;

Demolition and construction of dolphins will be carried out in the period between September and April inclusive to:-

- avoid interaction with summer ferry terminal operations,
- avoid the breeding tern season
- comply with the seasonal restrictions of the extant planning conditions.

15.4.4.1 Construction phase

Breeding Common Tern

A clear view occurs from the nearest existing dolphin upon which the Common Tern colony nest to the nearest existing dolphin to be removed, at 135m. The furthest seaward existing dolphin is 150m from the nearest nesting dolphin. These structures to be demolished are illustrated in Figure 3.17. The replacement dolphins and walkway infrastructure are illustrated in Figure 3.18 and will be, at their closest point, 110m from the nearest nesting dolphin, and with an unobscured view. The new dolphins will be located at 110m, 130m and 155m from the nearest nesting dolphin. The permitted development quay wall design is located 150m from the nearest nesting dolphin. The proposed alteration quay wall design is located 144m from the nearest nesting dolphin (refer EIS Figure 3.15).

The area where new dolphins are to be located is part of the main feeding area for terns within the dredged Deepwater Basin, but equally feeding also occurs far and wide, beyond the basin in the Lower Harbour.

The proposed alterations require marine demolition and construction and potentially in full view of the tern colony, but these works to demolish and construct dolphins will only occur in the portion of the year when Common Tern is not present in Cork Harbour.

Construction of container berth 1 will occur throughout the summer breeding period and also indeed throughout the overwintering period. Insofar as the Terns are concerned, works in relation to the permitted development access road to the south are already screened from the colony as described in Section 3.3 of the EIS. Quay wall construction to the north is considered to be sufficiently distant from and partially screened from the nesting dolphins by existing port infrastructure.

The conservation objective for Common Tern in Cork Harbour SPA is to “*maintain the favourable conservation condition of Common Tern in Cork Harbour SPA, which is defined by the following list of*

attributes and targets". Those six attributes and targets are described in a Natura Impact Statement accompanying this EIS, at Appendix 15.1. Of these, the target for two (breeding population abundance and productivity rate) is "no significant decline". For disturbance at the breeding site, the target is that "human activities should occur at levels that do not adversely affect the breeding common tern population".

Having been subject to significant predation for the past two years, Common Tern is under a degree of pressure in Cork Harbour. The species is however very resilient, and it is of note that the colony is located in and adjacent to an operational Port. The colony currently co-exists alongside the Port's operations including daily human and shipping presence on the quayside, periodic maintenance dredging, and the amenity and commercial use of the shoreline, basin and channel.

All permitted development dredging and disposal of dredged material at sea is restricted to a period between September and April under EPA Dumping at Sea Permit Reg No. S0021-01. The same seasonal restrictions are appropriate for the proposed alterations to dredging and dumping of an additional 15,000m³ as per the permitted development.

No significant ecological effects are predicted to occur to the population of Common Terns as a result of changes to container berth 1, dredging and disposal of dredged material at sea and demolition and construction of mooring dolphins.

Overwintering assemblage

Cork Harbour SPA is located 770m NW of the nearest new mooring dolphin and 800m NW of the additional area to be dredged for the proposed alterations. The area where marine components of the proposed alterations occur is one of the least used parts of the wider area surveyed for overwintering waterbirds. No significant ecological effects are predicted to occur to the overwintering waterbird populations as a result of changes to container berth 1 and demolition and construction of mooring dolphins

Evaluation and analysis by the coastal processes and marine ecology assessments in Chapters 12 and 14 reveals that dredging-related sedimentation levels outside of the immediate footprint of the dredging when modelled for the permitted development were extremely low, i.e. fractions of a millimetre in the Monkstown Creek component of Cork Harbour SPA. Clearly, the much smaller dredging effort associated with the proposed alterations (15,000m³), located as it is in the inner part of the Ringaskiddy Basin giving a sheltered nature to the site, coupled with the presence of the breakwater reduces the excursion into Monkstown Creek and the River Lee resulting in negligible additional sedimentation outside of the Deepwater Basin. Chapter 13 of this EIS concludes there will be no significant impact on water quality and Chapter 14 of this EIS concludes that dredging will result in a negligible impact on the SPA and other benthic habitats in Cork Harbour. No significant ecological effects are predicted to occur to the intertidal feeding areas of the overwintering waterbird populations as a result of dredging associated with the proposed alterations.

15.4.4.2 Operational phase

Once construction is completed, potential effects relate only to operational port activity. The proposed container berth 1 and mooring dolphins are located 600m south of the ADM Liquids Jetty and the intertidal mussel bank and 800m south of the Training Wall and Cork Harbour SPA. These locations are where the overwintering population of waterbirds were chiefly recorded roosting and feeding. At these distances and within what is already a busy operational port environment, no significant ecological effects are predicted as a result of the new mooring dolphins and the altered quay wall design.

Regarding the breeding Common Terns, distances between the nesting structures and the proposed alterations are described in Section 15.4.4.1. Bringing the operational quay wall 6m closer to the nesting structures (and now at 144m distance) is an imperceptible change resulting in no significant impact.

15.4.5 Cumulative Impacts

Potential cumulative effects with other projects has been considered in making this assessment.

Permitted Development (Ringaskiddy Port Redevelopment)

The proposed alterations have the effect of increasing the footprint of the planning boundary by 7% compared to that included in the permitted development as a result of –

- The introduction of the mooring dolphins
- The extension of the southern boundary of the container storage area
- The introduction of the maintenance/office building and associated compound and car parking within an area which is currently used for the passenger terminal.

A comparison of the development areas for the permitted development and proposed alterations is illustrated in Figure 3.28. Given the value of the terrestrial habitats recorded on site, and also that no significant negative effects of terrestrial habitat loss were predicted as a result of the permitted development alone, there are no significant cumulative effects upon flora, habitats and fauna as a result of the proposed alterations to the permitted development.

Reconfiguration of container berth 1 will have an imperceptible effect on the marine piling programme as it adds 13 no. piles to approximately 240 marine piles associated with the permitted development, programmed to take one year to complete. Demolition and construction of the dolphins is estimated to take 2-3 months but these works will be undertaken concurrently with other quay construction activities and will not result in an increase in the overall duration of the construction works. Dredging for the permitted development is anticipated to take 3 weeks, and adding the additional dredging required for the proposed alterations will add 3-5 days to that schedule of work. The cumulative effect is that marine piling and dredging will take longer if conducted for both the proposed alterations and the permitted development, but the magnitude of this effect is imperceptible. There are no significant cumulative effects upon flora, habitats and fauna as a result of this aspect of the proposed alterations to the permitted development.

Monkstown Marina

Proposals for a new marina at Monkstown were submitted for planning permission and that application included a NIS. The marina comprises car-parking, retail, office and landscaping, with a requirement to dredge part of the seabed in the shallower parts of the marina and in a band paralleling the shore to enable safe access by craft during all states of the tide. The NIS concluded that the marina at Monkstown will not result in the loss of any feeding areas or roosting sites for wintering waterfowl or waders in Monkstown Creek. Indeed, it will be used predominantly in the summer period. No significant effects upon the flora, habitats and fauna of Ringaskiddy are predicted to act cumulatively between the proposed alterations to the permitted development and the Monkstown Marina.

Marina at Whitepoint, Cobh

The permitted scheme includes for a 74 berth marina at Whitepoint, Cobh and is located 1.1km to the northeast of Ringaskiddy East across the harbour. The NIS for the marina was reviewed and concludes no significant impact on European sites given the small footprint of the proposed project, the use of a point anchoring system, the principal use of the development outside of the overwintering season and no resulting increase in boating activity in the harbour. No significant effects upon the flora, habitats and fauna of Ringaskiddy are predicted to act cumulatively between the proposed alterations to the permitted development and the Cobh marina project.

Cobh Cruise Berth Moorings

This project is located 2.2km northeast of Ringaskiddy East, and across the Harbour at Cobh. Cruise liners currently berth at the deepwater quay in Cobh. The NIS Screening Assessment of the Cobh

Cruise Terminal Upgrade was reviewed. It concluded no significant negative direct or indirect effects on the European sites assessed given the distance between the proposed project and the European sites; the size and scale of the proposed project in the context of existing activity within Cork Harbour, the principal use of the development outside of the overwintering season and absence of the qualifying features within the area of study. No significant effects upon the flora, habitats and fauna of Ringaskiddy are predicted to act cumulatively between the proposed alterations to the permitted development and the Cobh cruise berth moorings project.

East Tip Remediation Project, Haulbowline

The primary objective of this project is to remediate the East Tip thereby ensuring that potential risks to humans and the wider environment are minimised. It is proposed the waste at the site will be contained by constructing an engineered capping system on top of the waste and a perimeter engineered structure around the waste body. The project additionally seeks to widen the access road and construct a slipway and floating pontoon. An NIS was prepared for that application and it was reviewed. No significant effects upon the flora, habitats and fauna of Ringaskiddy are predicted to act cumulatively between the proposed alterations to the permitted development and the East Tip Remediation Project.

M28 Cork to Ringaskiddy Motorway Scheme

This project will upgrade the N28 to motorway standards between Bloomfield Interchange and Ringaskiddy village. It will terminate at the Port entrance. It has not yet been submitted for consent. No significant effects upon the flora, habitats and fauna of Ringaskiddy are predicted to act cumulatively between the proposed alterations to the permitted development and the M28 scheme due to the separation between the schemes.

Ringaskiddy Resource Recovery Centre

This is a project by Indaver Ireland to construct and operate a waste-to-energy facility for the treatment of up to 240,000 tonnes per annum of residual household, commercial and industrial, non-hazardous and suitable hazardous waste at Ringaskiddy. Aerial emission impacts on nearby Lough Beg wetlands (within Cork Harbour SPA) are described as insignificant. Ecotoxicological pathways and bioaccumulation in marine sediments was considered insignificant. No significant effects upon the flora, habitats and fauna of Ringaskiddy are predicted to act cumulatively between the proposed alterations to the permitted development and the Ringaskiddy Resource Recovery Centre.

Hammond Lane Metal Company

Planning permission was granted in 2012 for demolition, new build, upgraded facilities, new processing plant etc at the Hammond Lane Metal Company located adjacent to the N28 opposite the proposed eastern entrance to Port lands at Ringaskiddy. The ecological impact assessment prepared for this project was reviewed. No significant effects upon the flora, habitats and fauna of Ringaskiddy are predicted to act cumulatively between the proposed alterations to the permitted development and the Hammond Lane Metal Company project.

15.5 Mitigation

The mitigation measures that formed part of the An Bord Pleanála approval of the permitted development of the Ringaskiddy Port Redevelopment remain entirely appropriate.

15.6 Residual Impacts

No significant terrestrial ecology or ornithology impacts have been predicted for the proposed alterations. The ecological mitigation measures enshrined in the extant approval for the Ringaskiddy Port Redevelopment remain unchanged by the proposed alterations.

15.7 Conclusion

The conclusion of this Ecological Impact Assessment of the proposed alterations is that these modifications will not result in any significant change to the assessment of environmental effects and conclusions on terrestrial ecology and ornithology as previously presented in the EIA and AA conducted for the permitted development.

The extant planning permission together with the conditions and environmental commitments enshrined therein will have equal force and effect in relation to the proposed alterations and there will be no significant effect on terrestrial ecology and ornithology.