

4.3.6 Tourism Resources

The Belvelly Port Facility site is an industrial site and has no intrinsic tourism or amenity value; however there are a number of important tourism and amenity resources in proximity to the site, most notably Fota Island Resort and Golf Club and Fota Wildlife Park, including Fota House and Gardens to the North, and Cobh Heritage Centre to the south (refer to **Figure 4.5**). Fota House and Arboretum are under the management of the Irish Heritage Trust. The Cork CDP identifies Fota Wildlife Park and Cobh Heritage Centre as “key tourist attractions of national importance and significant visitor numbers”. Fáilte Ireland’s annual lists of Ireland’s most popular visitor attractions identified that Fota Wildlife Park had over 465,000 visitors in 2016, and was one of the top 20 fee paying attractions in Ireland in 2016 and 2017.

Cobh supports a dedicated Cruise terminal of significant economic importance. The Port of Cork Annual Report for 2019 identifies that a total of 100 cruise liners called to the Port of Cork in 2019 carrying in excess of 200,000 passengers and crew to visit the region³. The report also identifies that another 100 cruise liners were scheduled to call to Cork in 2020, however it is noted that cruise traffic declined significantly in 2020 as a result of the Covid-19 pandemic.

Cork Harbour provides a very significant resource both in terms of tourism and leisure activities. The Cork CDP 2014 identifies the Marine Leisure sector as the fastest growing sector within the tourism industry. The world’s oldest yacht club is located in Crosshaven, and Cork Harbour hosts a bi-annual Cork Sailing Week regatta. The Cork CDP also recognises that the maintenance, improvement and in some cases construction of new piers and harbours is essential in coastal and estuarine areas in order to facilitate the activities associated with fishing and tourism (Cork CDP, paragraph 8.4.4).

Objective TO 4-1 of the Cork CDP relates to developing the Marine Leisure Sector, and supporting the development of sustainable recreation and activity-related marine tourism developments at appropriate locations along the coastline.

4.3.7 Health

The 2016 Census provides information on the perceived health of individuals, which can provide an overview of the health of the general population. Information on the health of the populations of the Eds of Monkstown Urban, Cobh Rural and Cobh Urban are presented in **Table 4.7**. Data for the State, Cork City and Cork county is provided for comparison.



³ <https://www.portofcork.ie/index.cfm/page/annualreports1> 2019 Annual Report

Table 4.7 General Health of population (based on 2016 Census results)

General Health	State	Cork County	Cork City	Cobh Rural	Cobh Urban	Monkstown Urban
Very good	59.4%	63.1%	54.1%	65.7%	57.7%	63.8%
Good	27.6%	26.4%	29.5%	24.6%	27.9%	26.5%
Fair	8.0%	6.9%	10.0%	5.7%	9.6%	7.0%
Bad	1.3%	1.0%	1.8%	0.8%	1.8%	1.0%
Very bad	0.3%	0.2%	0.4%	0.2%	0.3%	0.3%
Not stated	3.3%	2.3%	4.2%	3.0%	2.6%	1.3%

In general, the health of the population of Monkstown Urban and Cobh Rural are in line with that for Cork County, and higher than that for the state and for Cork City.

Most people have identified as having Very Good to Good health, with a very low percentage identifying as having Bad or Very Bad Health. The highest percentages identifying as the latter are located in the urban areas of Cork City and Cobh.

4.3.8 Do-Nothing Scenario

4.3.8.1 Agricultural Fertiliser Facility

In the case of the “Do Nothing Scenario”, Goulding Chemicals Limited will remain at its current location within the Cork City south docklands. This would hamper the redevelopment of the city docklands for mixed-use development, and have a negative effect on the planned growth of Cork City. The proposed relocation is in accordance with planning policy, including the Cork City Development Plan 2015 and the City Docks Local Area Plan which is currently in preparation. The Cork County Development Plan 2014 also highlights the strategic potential of Marino Point for harbour related development.

No alternative sites are available in proximity to Cork City that have access to a jetty and port infrastructure, and are suitable for the proposed new agricultural fertiliser facility and additional port operational uses to facilitate cargo vessels. The implementation of the “do nothing scenario” would result in a neutral effect on the Belvelly Port Facility and a long term negative effect on the economic prospects of both Gouldings Chemicals Ltd and the Cork City Docklands.

4.3.8.2 Additional Port Use

A do-nothing scenario would fail to develop the significant potential use of the Belvelly Port Facility and its unique resource of deep water facilities, in keeping with the Tier 1 port status of the Port of Cork. The Port of Cork overall masterplan is dedicated to transferring Port operations from the River to the Sea. By not relocating the port facilities from Cork City to Marino Point, the Project Ireland 2040 plans regarding the Cork City Docklands development and Tivoli development would be jeopardised.

4.4 Likely Significant Impacts

There will be no construction works associated with the additional port operational use of the jetty to facilitate dry bulk cargo. The assessment of construction phase impacts therefore relates to the construction of the agricultural fertiliser facility. Construction works will comprise the following:

- Piling works (CFA piles i.e. continuous flight auger).
- Excavation and groundworks for foundations and installation of services.
- Steel frame erection.
- Building cladding installation.
- Installation of hardstanding areas and carparking.
- Site landscaping.

Construction activities such as excavation and piling works may give rise to emissions to air or surface water, as well as increased noise and vibration. The construction phase of the project will take place over an estimated 12 -18 month period. This includes an estimated four months overlap with the proposed demolition, site infrastructure and utility upgrade works due to take place across the site (Planning Ref. 19/06783). It is envisaged that the work will commence in October 2021 and will be fully complete by December 2022, subject to the necessary statutory approvals.

A temporary construction compound will be established within the red line boundary of the proposed development site. The area of the construction site compound will be defined and enclosed by protective hoarding and will accommodate contractor personnel and visitor parking, porta cabins for site offices, WC and welfare facilities, storage containers and material lay down areas. The compound will be removed upon completion of the works.

The potential effects with regards to construction noise and vibration and air quality and climate are described in detail in **Chapter 9 Air Quality and Climate**, and **Chapter 14 Noise and Vibration**. Potential visual impacts are assessed in **Chapter 11 Landscape and Visual Impact**. A preliminary Construction and Environmental Management Plan (CEMP) has been prepared as part of this application. Please refer to **Appendix 2.3** in Volume 3 of the EIAR.

4.4.1 Construction Phase

Population and Settlement Patterns

No impacts to population and settlement patterns are anticipated as a result of the construction phase of the proposed development.

Economic Activities

The construction phase will take approximately 12 to 18 months and is anticipated to commence in Q4 2021. This phase of the project is likely to result in a slight, short term positive benefit to the local economy, as construction workers and staff may utilise local facilities such as shops, service stations or restaurants. The materials used for the construction of the facility will include standard materials typical of such developments, including imported stone and concrete, and natural fill materials which will be sourced from local quarries, resulting in an additional economic benefit.

Land-use and Amenity

The site is an established industrial site, and does not provide an amenity area for local communities. The pattern of land use will not change as the proposed project comprises is a port-related industrial development, as permitted by the land-use zoning objective X-01. There will be no severances or interferences with existing rights of way or wayleaves.

The construction works may result in temporary neutral to adverse impacts, varying from imperceptible to slight in terms of significance, on nearby receptors and residential development in proximity along the R624 and at Passage West mainly relating to noise from construction plant and traffic.

Machinery and heavy plant will be temporarily visible during construction along the R624 at Belvelly and higher parts of plant will be partly visible from Passage West, parts of Monkstown, higher areas to the west and east, and from the R610 (which is a scenic route), the Cork Harbour Greenway and the Cork-Cobh railway. The movement of heavy plant will have short term slight and adverse visual effects on views from the north of the site along the R624. The Landscape and Visual Impact Assessment (LVIA) (**Chapter 11 Landscape and Visual Resource**) concluded that given the industrial character of the site, the introduction of construction machinery and activity into this landscape for drainage works, loading machinery and storage structures will have a moderate neutral effect on the character of the site itself.

In the wider landscape, the effects of heavy plant movement will have a moderate-high adverse effect on the character of the immediate vicinity of the site, along the R624 and at the access point. These effects will be short term and last for the duration of the construction period of 18 months with an estimated 4 month overlap with the proposed demolition, site infrastructure and utility upgrade works (Planning Ref. 19/06783)

Overall, the LVIA concluded that the construction phase of the project would not result in significant landscape or visual effects.

No impacts on the archaeological, architectural and cultural heritage environment are anticipated (refer to **Chapter 10, Archaeology and Cultural Heritage**).

A noise and vibration assessment has been prepared (refer to **Chapter 14 Noise and Vibration**). A number of locations for noise monitoring were identified as potentially sensitive locations, which include Passage West, Belvelly Village, Carrigaloe and residential development along the R624 (**Figure 14.3, Chapter 14 Noise and Vibration**).

The assessment concluded that given the nature and duration of the works and the distance between the construction site and the receptors no significant construction related noise or vibration impacts will arise.

Noise emissions associated with construction phase personnel will be negligible in the context of R624 traffic. HGV movements may be elevated at times, with up to six trucks per day to and from the site, and up to 12 truck deliveries per day to and from the site. This equates a total of 18 truck movements per day to and from the site, associated with the construction of the agricultural fertiliser facility. However, elevated noise levels will be brief, and not significant.

While no specific mitigation measures are required to reduce impacts of noise and vibration, a number of measures have been proposed to further reduce any potential off-site impacts. These include establishing a liaison officer to maintain communication between the client, local authority and stakeholders, and a complaints procedure for the duration of the construction phase. Any complaints received regarding alleged noise and/or groundborne vibration will be investigated immediately.

Roads and Access

Potential impacts on traffic are assessed in **Chapter 13, Traffic and Transportation**. The main entrance to the site is located just off the R624. This will be the only construction access route. Following consultation with Cork County Council, it is proposed to upgrade the existing site main access junction layout to include an enhanced Stop location and road markings, as part of the separate planning application for the proposed demolition and infrastructure work.

Site personnel would travel to site prior to 8.00 a.m. and depart from site from 6.00 p.m. on weekdays. The peak staff numbers of 65 personnel during the works overlap period would generate approximately 52 car and van trips, both to and from the site each working day, on the basis of an average vehicle occupancy rate of 1.25 personnel per vehicle. Canteen facilities for personnel would be provided on-site.

The proposed hours for the exportation and importation of vehicle loads are 9.00 a.m. to 4.00 p.m., Monday to Friday, and 8.00 a.m. to 5.00 p.m. on Saturdays. These hours are proposed to avoid coinciding with the existing weekday morning and evening peak traffic periods on the R624 and surrounding road network, of 7.00 a.m. to 9.00 a.m. and 4.00 p.m. to 6.00 p.m.

The proposed works weekday daily construction traffic volumes are summarised in **Table 13.29, Chapter 13 Traffic and Transportation**.

Restricting construction traffic movements to periods when there is less commuting traffic will reduce the risk of negative interactions between commuter traffic and construction vehicles.

The additional traffic volumes generated by the proposed works on the R624, at the horizontal bend on the south side of Belvelly Bridge and on Belvelly Bridge, are expected to increase instances of informal vehicle stopping and yielding at these locations, to facilitate large and heavy vehicle movements. Heavy vehicle trucks generated by the proposed construction overlap of all works elements during the off-peak traffic hours (which is a worst-case scenario) would be at the rate of one truck every seven minutes.

Overall, the traffic and transportation assessment found that the proposed agricultural fertiliser facility construction phase would have slight to moderate short-term negative construction traffic effects.

A detailed Construction Traffic Management Plan will be prepared by the main contractor prior to works commencing. This Plan will comprise the construction traffic mitigation measures which are set out in this EIAR and any additional measures which are required by the conditions attached to the Planning Authority's decision. The Construction Traffic Management Plan will also include any specific requirements of Cork County Council during the construction phase including any monitoring and reporting requirements. This Plan will be submitted to and agreed with Cork County Council prior to construction commencement.

Tourism Resources

The construction phase of the project is not likely to result in significant impacts to tourism or tourist-related activities in the surrounding area. The potential impacts of noise and vibration on nearby

receptors have been assessed in **Chapter 14 Noise and Vibration**. Sensitive noise receptors have been identified along the R624, in proximity to Cobh Golf Club, and at the northern annexe of the site, in proximity to Natura 2000 sites (**Figure 14.3** and **Table 14.13, Chapter 14 Noise and Vibration**). Potential impacts have been assessed and there will be no significant impacts to identified tourist sites such as Cobh Golf Course, Fota Wildlife Park and Cobh Town Centre, including Cobh Cruise Terminal are too distant to experience significant negative impacts from noise or vibration associated with construction.

Traffic during the construction phase is not anticipated to result in negative impacts on tourism as the traffic and transportation assessment found that the proposed agricultural fertiliser facility construction phase would have slight to moderate short-term negative construction traffic effects.

Human Health

Potential impacts to human health may include negative effects as a result of a reduction in air quality due to emissions of dust, pollution of soils and surface water, and inappropriate disposal of waste.

The air quality assessment identified that the predominant emission of concern from the construction phase of the proposed development will be from the generation of dust. A number of sensitive receptors were identified, including residents in Passage West, Belvelly Village and along the R624 (**Figure 9.6, Chapter 9 Air Quality and Climate**). The assessment found that significant impacts as a result of emissions of dust to air are not anticipated as the nearest residential receptors are more than 500 m from construction activities at the proposed development, and construction activities are expected to occur over a relatively short period. In addition, a range of dust management measures are proposed in the preliminary CEMP, which will be similar to the controls proposed during the construction phase of the proposed demolition, site infrastructure and utility upgrade works (planning application 19/6783).

During construction, soil erosion and pollution will be minimised by the implementation of good construction practices.

Potential impacts to surface water are assessed in **Chapter 7 Hydrology**. During construction there may be potential impacts if there is a decline in surface water quality from de-watering activities, generation of silts, spills of hydrocarbons and potentially existing contamination. However, overall the assessment found that the risk of significant impacts as a result of construction activities is minor.

Waste construction materials, including excavated material and pile arisings will be managed, segregated, stored and tested in accordance with the procedures set out in the CEMP and will be collected and disposed of by a licensed waste operator in accordance with the relevant waste legislation and waste classification requirements.

Construction sites in general pose potential risk to the health and safety of the public. However, access by the public would be considered trespassing on private property. Assuming observance of private property, no health and safety impacts to the public as a result of construction accidents would be anticipated.

A preliminary CEMP is provided in **Appendix 2.3** which will be further detailed by the appointed contractor in advance of works commencing. To reduce the potential for health and safety risks, the project developer will require that all contractors prepare a site-specific health and safety plan before initiating construction activities. The plan will inform those on site of the measures to take in the event of an emergency and will be maintained for the duration of the construction phase.

No significant negative impacts to human health and safety are anticipated.

4.4.2 Operational Phase

4.4.2.1 Agricultural Fertiliser Facility

The agricultural fertiliser facility will operate all year-round with working times varying depending on market demand, and noise emissions will arise throughout the operating hours. Normal hours of operation are 7.00 a.m. to 5.00 p.m. Monday to Friday. During peak demand, which is typically between February and April, fertiliser blending and bagging operations will occur between 7.00 a.m. and 12.00 midnight, and HGV distribution of finished fertiliser product from the facility by road will occur between 7.00 a.m. to 7.00 p.m. Monday to Saturday.

Population and Settlement Patterns

No impacts to population and settlement patterns are anticipated as a result of the operation of the agricultural fertiliser facility. However, the move from the Cork Docklands will allow for the redevelopment of the south docklands for mixed use development in accordance with the South Docks Local Area Plan (LAP) 2008. An updated LAP is currently being prepared by Cork City Council. Origin Enterprises have conditionally agreed the sale of their 31 acre site in the city. The proposed relocation would therefore allow for the redevelopment of the city site for residential and commercial enterprises, and will have a long term positive impact on population and settlement patterns within the Docklands.

Economic Activity

This relocation is in line with the objectives of the Cork City Development Plan and the Cork Area Strategic Plan 2001 – 2020 to develop the Marino Point site for industrial and port related uses. The relocation will also include the transfer of the ships that currently deliver the Gouldings bulk granular fertiliser materials to the City Quays to the Marino Point jetty.

In addition, the existing Goulding's site in Cork City has limited space for the storage of product. The proposed relocation to Marino Point will allow for the development of a modern, up-to-date facility with adequate storage space. The existing operational jetty at the Belvelly Port Facility will also allow Gouldings to import raw materials by sea directly to the facility.

Once the facility is operational an average of 17 personnel will be employed on site at any one time, with a maximum of 30 at peak times. Overall, the proposed development of the agricultural fertiliser facility is anticipated to have a slight positive long term effect on economic activity within the study area.

Land-use and Amenity

The pattern of land use will not change as the proposed project comprises a port-related industrial development.

The LVIA found that the proposed new agricultural fertiliser facility and increased jetty use for the importation of raw fertiliser materials will represent a continuation of the existing character of Marino Point, and bring existing infrastructure into greater use. The retention of all boundary vegetation and the planting of new vegetation along boundaries as part of the pending demolition, site infrastructure and utility upgrade works (Planning Ref. 19/06783) at Marino Point will retain and enhance the character of the site as experienced from the surrounding areas.

Overall, the LVIA found that the proposed development would have a moderate neutral effect on landscape character as the proposal will represent a continuation of the nature of use of the site.

The operational noise assessment for the Gouldings operations included the carrying out of a noise assessment at the existing Gouldings Facility at Cork City Docklands. Noise emissions from operational activities including loading/unloading, bagging, blending, etc, will arise throughout operating hours at the Gouldings facility. The facility will operate all year-round, with working times varying depending on market demand. Normal hours of operation are 7.00 a.m. to 5.00 p.m. Monday to Friday.

During peak demand, which is typically between February and April, fertiliser blending and bagging operations will occur between 7.00 a.m. and 12.00 midnight, and HGV distribution of finished fertiliser product from the facility by road will occur between 7.00 a.m. to 7.00 p.m. Monday to Saturday. Up to 20 truck-loads per day are expected on average from the fertiliser facility, increasing to 45-50 during peak periods.

No negative impacts relating to noise from Gouldings operational traffic on the R624 are anticipated.

Noise from the jetty unloading operations will be mainly generated from the use of cranes and mobile hopper. The noise assessment found noise emissions from unloading and operations at the facility will not be significant, with noise levels lower than the EPA limits of 55db at all receptors. No significant impacts on amenity as a result of noise are anticipated.

Roads and Access

During operation it is proposed that all exportation and importation vehicle loads would travel via the R624 north of the existing site access junction. The traffic and transportation assessment identified a peak period for the proposed agricultural fertiliser facility, (months of February, March and April) and an off-peak period (months of January and May to December inclusive).

Overall, the assessment found that the operation of the proposed agricultural fertiliser facility and additional port operational phase would have slight to moderate negative effects.

Human Health

Potential impacts to human health during the operation of the Goulding's facility include reduction in air quality as a result of emissions of dust, discharge of chemicals used in the blending process to ground water or surface water, production and disposal of waste, and risk of on-site accidents.

There will be some emissions to air from Gouldings operations, which include the following;

- Combustion of diesel fuel in ship engines and boilers
- Combustion of diesel in forklifts, loaders and haulage tractors
- Potential slight wheel generated dust from vehicle movements
- Coarse dust from:
 - Transfer of bulk fertiliser ingredients from ships to trailers at the jetty
 - Transfer of bulk fertiliser ingredients to the enclosed building using tractors and enclosed trailers
 - Storage, handling, blending and bagging of bulk fertiliser products in the enclosed storage and processing area.

The proposed development will result in a less than 10% increase in the number of ships that currently dock in the Port of Cork. Those ships are, therefore, likely to contribute less than 10% of total shipping emissions in the Port of Cork, and the risk from emissions from the increased no. of vessels proposed at the Belvelly Port Facility resulting in significant negative impacts on air quality are considered to be negligible.

The air quality assessment found that the operational procedures employed will ensure that there are no adverse effects to air quality from the proposed Goulding's development. The nearest receptors are more than 500 m from the Belvelly Port Facility, covered trailers will be used for transport, and all unloading, blending and bagging will take place in an enclosed building. The air quality assessment also notes that;

"Gouldings operates an existing agricultural fertiliser mixing and bagging facility at a site that is less than 1 km from Cork city centre and within 40 m of a residential housing estate. There are no reported air quality issues from this facility. The proposed agricultural fertiliser facility will be designed and operated to current best industrial standards"

Potential impacts associated with the operations of the agricultural fertiliser facility are the release of materials/chemicals that could leach into the underlying soil. Following construction, all operations will take place on impermeable hardstanding. Adequate containment and bunding will be installed prior to operation. A stormwater collection system treated by a full retention interceptor prior to discharge to Cork harbour will be in place. No significant negative impacts on soils or groundwater are anticipated.

It is anticipated that the surface water and foul drainage networks proposed as part of planning application ref. no. 19/06783 will be fully installed prior to the operation of the proposed agricultural fertiliser facility. This will allow the proposed facility to connect into the new foul network. No significant impacts to the sites hydrological regime and the water quality of Lough Mahon are expected as a result of the operational phase of the proposed development.

Plastic packaging will be the main operational waste produced by the proposed fertiliser facility, with approximately 150 tonnes of plastic generated per annum. All plastic packaging waste will be segregated, baled and collected for recycling by approved waste management collectors. Approximately 100 tonnes of timber pallet waste is produced per annum which is segregated and

recycled. Remaining wastes will comprise domestic waste from the staff canteen etc. This will be managed in accordance with the Waste Framework Directive waste hierarchy. Domestic waste will be stored in a skip and removed off-site to a licensed facility.

4.4.2.2 *Additional Port Use of the Jetty*

The jetty at the Belvelly Port Facility site is currently used to export dry cargo (wooden logs), the importation of Methanol for MarinoChem, as a stand-by berth for Port work vessels, and to moor occasional vessels for lay-by or minor maintenance work. The proposed additional port operational use of the jetty will consist of servicing other cargo vessels, which will include the relocation of vessels displaced from the Cork City Quays. The additional cargo types proposed will include woodchip, machinery parts, deep sea maintenance & exploratory vessel engineering cargo, and other miscellaneous dry cargo.

Approximately 40 additional port related cargo ships will berth at the jetty each year. The size and frequency of cargo vessels will be variable and subject to the various customers' needs. On average, ships will be berthed for 1 to 2 days to offload / load cargo but may be longer depending on cargo size and weather conditions.

During February, March and April, it is expected there will be 10 HGVs per day, both to and from the site in order to facilitate distribution of goods nationwide by road. It is expected that there will be up to 30 HGVs per day, both to and from the site to facilitate the distribution of goods, during the nine months period from May to January. Accordingly, peak daily HGV trips generated by the additional Port operational uses of the jetty will be managed so as not coincide with peak daily HGV trips generated by the proposed agricultural fertiliser facility.

Economic Activities

Marino Point has been identified in planning policy as a strategic site, with potential to accommodate large employment projects and to support port-related development. The jetty is of strategic economic importance as it will provide a complimentary berth to the deep water berth at Ringaskiddy for opportune general cargo. It will also provide an alternative berth from the city quays in line with the overall Port of Cork masterplan from moving the port from river port to a sea port. This will provide a berthing facility for visiting vessels, such as deep sea research vessels/ maintenance vessels or vessels looking for safe harbour or minor maintenance. The broadening of the permitted categories of use of the jetty will therefore be necessary to accommodate a range of cargoes and vessels, and support further port-development at the Belvelly Port Facility, in line with the X-01 zoning objective. The effects will be long term, positive and significant.

Land-use and Amenity

Noise from loading/unloading operations at the jetty has the potential to impact negatively on amenity of residents in proximity. It is proposed to carry out loading and unloading operations at the jetty during the period 07:00-19:00 h Monday-Saturday, although there may be the rare occasions where loading/unloading may need to take place outside these times for operational and safety reasons. Port related HGV traffic will generally operate 8.00 a.m. to 6.00 p.m., Monday to Saturday. There will be no operations on Sundays, or Bank Holidays.

No other jetty noise sources of significance are proposed, apart from a road sweeper used as required during unloading of materials. The sweeper will operate only on the jetty and jetty access road. Significant impacts on amenity as a result of noise are not anticipated.

With regard to visual impact, the assessment found that the additional port operations in the jetty will bring more maritime activity to this part of Cork harbour with an increase in ships moving to and mooring at the jetty. This is in line with the general maritime character of Cork Harbour with overall landscape impact that is moderate, intermittent and neutral.

Roads and Access

The proposed additional operational use of the jetty will consist of the docking of cargo vessels. On average, ships will be berthed for one to two days to offload/load cargo, which may be longer depending on cargo size and weather conditions.

It is proposed that all exportation and importation vehicle loads would travel via the R624 north of the existing site access junction. The proposed additional operational uses of the jetty would have up to eight operational employees on site, which would generate approximately six car and van trips, both to and from the site each working day.

During peak periods, the operation of the agricultural fertiliser facility and the additional Port operational use of the jetty will increase morning and evening peak hour traffic volumes on all roads (R624 as well as National Roads). On the basis of the EPA Guidelines, the proposed agricultural fertiliser facility and additional port operational phase would have slight to moderate negative effects.

Human Health

No potential impacts on human health are anticipated as a result of the additional port related use of the jetty. The cargo will mainly be dry, including wood chip, logs and machinery parts. Materials will be handled in a manner that minimises emissions from operations on-site as far as practicable. Awareness training of site personnel on the importance of adherence to the handling procedures will be conducted. Dust control procedures will be in place during all handling procedures, with additional mitigation measures implemented during unfavourable weather conditions. No emissions to air are anticipated.

The jetty will be served by its own storm water system, which is proposed as part of planning application ref. no. 19/06783 and which is anticipated to be fully installed prior to operation of the additional use proposed at the jetty. If there is a risk of a contamination incident due to the type of cargo being handled at the jetty, surface water will be diverted to a retention tank for testing prior to discharge or disposal as deemed appropriate. No significant impacts to surface water or to the water quality of Lough Mahon are anticipated.

There will be no operational waste associated with the additional operational port use of the jetty. The necessary management and disposal of waste will be the responsibility of the individual jetty user.

In terms of noise, during the operational phase impacts will be neutral at distant receptors, increasing to slight adverse during evening or night-time arrival/departure of larger vessels. Otherwise any impacts will be neutral during night-time hours.

4.5 Cumulative Effects

Potential cumulative impacts mainly relate to a temporary increase in traffic on the R624 and surrounding national road network during the construction phase of the agricultural fertiliser facility and increased traffic during the operational phase of both the agricultural facility and the additional port use of the jetty. However, the traffic and transportation assessment has noted the following in assessing potential cumulative effects;

“The Government’s Economic and Social Research Institute (ESRI) envisage that the current Coronavirus (Covid-19) restrictions and measures will result in an economic recession. During the last economic recession, traffic volumes reduced year-on-year on National and Regional Roads. Accordingly, it is envisaged that the TII predicted high sensitivity growth scenario used in this assessment may not occur, and future baseline traffic volumes will be lower than predicted”.

The following assessment of cumulative effects is based on all projects proceeding as planned, and does not take into account delays or postponements occurring as a result of Covid-19 restrictions.

4.5.1 Construction Phase

The construction phase of the agricultural facility will take place over an estimated 12 -18 month period. This includes an estimated four months overlap with the proposed demolition and site infrastructure works due to take place across the site (Planning Ref. 19/06783). It is envisaged that the work will commence in the October 2021 and will be fully complete by December 2022, subject to the necessary statutory approvals.

A search of the Cork County Council Planning register identified the following permitted and proposed developments which may result in cumulative impacts when considered together with the construction phase of the proposed project. Refer to **Table 4.8**.

Table 4.8 Projects included in cumulative impact assessment

Planning Application Reference	Description of Proposed Development	Possible cumulative impacts
20/5135 Oscar Fusion Ltd Newtown, Ringmeen, Cobh, Co. Cork. ABP Ref: 308434	The construction of 21 no. apartments in 5 no. three-storey buildings (block A,B,C,E & G); 6 no. apartments in 1 no. three/four storey building (block F); and 3 no. two-storey townhouses (block D), together with all associated services and site development works	Potential overlap of construction phase with operational phase of proposed Gouldings facility, resulting in increased traffic and HGVs on R3624.
*19/6783 Belvelly Marino Development Company DAC, Belvelly Port Facility, Marino Point, Cork Lodged on 22 Nov 2019	Demolition, site infrastructure improvements, and utility upgrade works to stabilise the existing site and to provide capacity for future industrial	Overlap of demolition and construction phase of Belvelly Port Facility works with construction phase of proposed Gouldings facility.

Planning Application Reference	Description of Proposed Development	Possible cumulative impacts
ABP Ref 307938	development proposals at the Belvelly Port Facility.	
19/5607 Cork Dockyard Holdings, Rushbrooke, Cobh. (Extension of duration 195607 Permitted on 13 th August 2019)	Development of two waste facilities; a metal recycling facility and a recovered waste storage facility. The finished product will be transported either in bulk load or in containers from the waste recovery facility.	Potential increased movements of HGVs on R624 during operation of waste facilities may overlap with construction and operational phases of subject application .
*19/5706 Amarenco Solar Cobh Ltd Ballynacrusa, Cobh. Permitted 22 nd January 2020 ABP Ref: 305481-19	A 5 MW solar farm comprising approximately 22,200 photovoltaic panels on ground mounted frames within a site area of 12 hectares,	Potential overlap of construction phases or overlap with operational phase of Gouldings Facility, which may lead to increased traffic on R624.
19/4692 Sorenson Civil Engineering Ltd Ballyleary, Cobh. Permitted 8 th January 2020.	The importation of soil & stone for the raising of an agricultural field in order to improve the agricultural output of the field and the construction of a temporary haul road.	Potential overlap of construction phases or overlap with operational phase of Gouldings Facility, which may lead to increased traffic on R624.
19/4261 Mijos Developments Limited Cooline, Ballyvoloon, Cobh. Extension of duration, permitted on 2 nd April 2019.	Demolition of sports pavilion and construction of 280 no. dwelling houses, creche, sports pitch, 3 no. recycling facilities, 2 no. ESB substations and associated site works - Extension of duration of permission granted under Planning Reg. No. 05/2345 and 14/4847.	Potential overlap of construction phases or overlap with operational phase of Gouldings Facility which may lead to increased traffic on R624 .
*18/6935 Xiu Lan Hotels Ltd Fota Island Resort, Foaty, Cork. Permitted on 14th Feb 2019	Retention of an existing playing field, and permission to demolish an existing metal shed and construct 92 No. two-storey lodges and ancillary development	Potential overlap of construction phases or overlap with operational phase of Gouldings Facility which may lead to increased traffic on R624 and at Cobh Cross. Also potential increase in traffic during operational phase on R624 and Belvelly Bridge.

*Information on traffic management is available on the planning register. The assessment assumes these developments have not yet commenced.

The Traffic and Transportation Assessment (**Chapter 13**) prepared for this EIAR proposes hours for the exportation and importation of vehicle loads (Construction Phase); 9.00 a.m. to 4.00 p.m., Monday to Friday, and 8.00 a.m. to 5.00 p.m. on Saturdays. These hours are proposed to avoid HGV movements coinciding with the existing weekday morning and evening peak traffic periods on the R624 and surrounding road network. This will restrict the construction traffic movements to off peak hours when there is less commuting traffic and less risk of negative interactions between commuter traffic and construction vehicles. A Construction Traffic Management Plan will be put in place and agreed

with Cork County Council prior to commencement of development of the agricultural fertiliser facility, and that construction traffic will be subject to constraints relating to peak traffic and the capacity of the R624. Once the proposed traffic management measures are put in place there will be no risk of significant construction phase cumulative impacts with other proposed developments.

4.5.2 Operational Phase Impacts

The traffic and transportation assessment undertaken for the proposed agricultural fertiliser facility and additional port operational phase concluded that the development would have slight to moderate short-term negative effects on the surrounding road network. These would relate to heavy vehicle traffic movements at off peak times.

Planning Ref: 20/5135 and ABP Ref: 308434 – Construction of 21 no. apartments and 3 no. two-storey townhouses (currently subject to an appeal).

- **Operational impacts:** the development residential and is located within the urban area of Cobh. No significant operational impacts are anticipated.

Planning Ref: 19/6783 and ABP Ref: 307938 – Site development works at the Belvelly Port Facility (currently subject to an appeal).

- **Operational Impacts:** No operational impacts will occur.

Planning Ref: 19/5607 – Solar Farm at Ballynacrusa, Cobh.

- **Operational Impacts:** No operational impacts will occur.

Planning Ref: 19/4692 Sorenson Civil Engineering Ltd - the raising of an agricultural field.

- **Operational Impacts:** No operational impacts will occur.

Planning Ref: 19/4261 - Mijos Developments Limited

- **Operational Impacts:** this development will be constructed in phases, resulting in a gradual increase in traffic on the surrounding road network over time. Significant cumulative impacts are not considered likely.

Planning Ref: 18/6935 – Xiu Lan Hotels Ltd - Permission to construct 92no. 2 storey lodges and ancillary development.

- **Operational Impacts** A junction capacity assessment report was prepared by Barry Transportation and submitted as an appendix to the engineering report. The report analysed the capacity of the junction of the R624 and the entrance to Fota resort and golf club, which is located approximately 6km to the north east of the main entrance to the Belvelly Marino Facility. This assessment focused on the operational impacts, with an opening year of 2024, and concluded that there was sufficient capacity at the junction to accommodate the proposed development. Cumulative impacts are therefore not considered likely.

4.6 Mitigation

Potential impacts to human health have been identified elsewhere in this EIAR and mitigation measures proposed where considered appropriate. Mitigation measures and monitoring where appropriate are identified in **Chapter 14 Noise and Vibration, Chapter 11 Landscape and Visual Resource, Chapter 13 Traffic and Transportation, Chapter 8 Air Quality and Climate, Chapter 6 Land and Soils, Chapter 7 Hydrology and Chapter 8 Hydrogeology** and Mitigation measures are also proposed as part of the preliminary CEMP provided in **Appendix 2.3** in Volume 3. No further mitigation measures are proposed with respect to Population and Human Health.

4.7 Residual Impacts

Following the implementation of mitigation measures, there may be some residual impacts relating to noise. These are anticipated to be neutral to slight negative, and temporary for the duration of the construction phase, and neutral to slight negative during operation.

Residual impacts relating to construction traffic will be short term, slight to moderate negative, as a result of heavy vehicle traffic movements during daily off-peak traffic periods. During operation of the agricultural facility and additional port operational phase heavy vehicle traffic movements will have slight to moderate short-term negative effects.

No further residual impacts to population and human health are anticipated.

4.8 References

Central Statistics Office www.cso.ie Statbank, and Population and Labour Force Projections 2018

Port of Cork www.portofcork.ie

Gouldings Chemicals Limited www.gouldings.ie

Marino Point Masterplan - Unpublished Document

Environmental Protection Agency www.epa.ie

Health and Safety Authority www.hsa.ie

5. BIODIVERSITY

5.1 INTRODUCTION

This chapter of the EIAR describes the biodiversity of the proposed development, with an emphasis on designated sites, habitats, flora, fauna and water quality. The information provided describes the baseline ecological environment; provides an accurate prediction of the likely effects of the proposed development on biodiversity; prescribes mitigation as necessary; and describes any residual ecological effects.

While areas designated for nature conservation are considered in this chapter, a Natura Impact Statement (NIS) report which considers the potential impacts on the integrity of Natura 2000 site(s) of the proposed project, either alone or in combination with other plans or projects, with respect to the Conservation Objectives of Natura 2000 sites in question, has also been prepared. The NIS is provided as a standalone document in the planning application.

5.1.1 Scope of Assessment

The specific objectives of this assessment are to:

- Undertake baseline ecological surveys of the development site;
- Evaluate the conservation importance of the ecological resources recorded using a scientifically robust methodology based on current international best practice;
- Assess the direct, indirect and cumulative ecological implications or impacts of the project during its lifetime;
- Where necessary propose mitigation measures to remove or reduce those impacts at the design and construction stage; and
- Achieve the best possible biodiversity outcome of the change from current land use.

This ecological assessment was carried out with regard to *inter alia*, the following publications:

- Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (EPA, 2017);
- Guidelines for Ecological Impact Assessment in the UK And Ireland: Terrestrial, Freshwater, Coastal and Marine (CIEEM, 2018); and
- Guidelines for Assessment of Ecological Impacts of National Road Schemes (NRA, 2009).

Cognisance was also taken of the following legislative framework:

- The Habitats Directive: Council Directive No. 92/43/EEC;
- The Birds Directive: Council Directive No. 09/147/EC;
- The Wildlife Acts 1976 - 2012; and
- The Planning and Development Act (2000) (as amended).

Methodology

This section describes the methodologies followed in the compilation of this chapter. Recognised guidelines were followed in relation to every aspect of the scoping, surveying and assessment.

5.1.1.1 Consultation

Pre-application consultation was undertaken on behalf of Goulding Chemical Limited and Belvelly Marino Development Company DAC (BMDC) with the relevant statutory. Feedback received is summarised as follows.

Heritage and Ecology Officer, Cork County Council:

- Have regard to the further information request ecology items on Planning Application Ref. 196783 in completing and compiling this application.
- Ensure that any mitigation proposals to prevent disturbance to the breeding sites or resting places of protected species are detailed; and
- Provide details of all survey methodologies and details of all species surveys are presented in full.
- Where creation of alternative breeding habitat for any particular species is required, it would be expected that this would be put in place prior to commencement of works.
- Ensure that the impact assessment (in EIAR and NIS) will take account of all potential impacts on habitats and species. This should include potential impacts arising from both construction and the operational phases of the project and are likely to include:
 - potential disturbance related impacts to species (noise, light, visual disturbances);
 - potential for activities to give rise to habitat loss or damage;
 - potential for activities to give rise to negative impacts on water quality;
- Provide scientific evidence to support any impact assessment conclusions made, as well as any scientific information that can be provided in relation to the likely efficacy of mitigation proposed.
- Comprehensively address likely 'in combination' effects of the proposed project. To that end, consideration should be given to the current conservation condition of the relevant European sites, and should take account of all plans and projects with potential to act in combination with the proposed project (not just those with planning consent) on key ecological receptors.

Inland Fisheries Ireland

- Potential conflicts with other water users and uses e.g. existing fisheries and fishermen, recreational users etc.
- Treatment and disposal of ballast waters and the potential for the introduction of alien species.
- General vessel biosecurity.
- Prevention of escapement of fertilizer or other products to waters either at the loading/unloading stage or from general site surface runoff.
- Treatment and disposal or any on site waste materials.

Consultation with these statutory bodies was also undertaken as part of the proposed demolition and site infrastructure works due to take place across the site (Planning Ref. 19/06783). All relevant feedback and information from that application of relevance to this proposed development is addressed in this chapter.

5.1.1.2 Statement of Authority

Information provided and prepared for this report was compiled by ecologists from Malachy Walsh & Partners in addition to outside contributing authors;

Monica Kane BSc MSc - Monica is a Senior Environmental and Ecological Consultant (MWP) with over 14 years consultancy experience. She is also an environmental impact assessment practitioner having managed and been a contributing author on a number of EIA and AA projects.

Ian McDermott BSc MSc - Ian is an experienced ecologist (MWP) with particular expertise in surveying for invasive species, mammal and bird surveys. He has carried out ecological surveys for a range of projects including industrial developments, pipelines, quarries, agricultural units etc.

Pat Ryan BSc - at Ryan has over 10 years' experience working as an ecologist for Malachy Walsh and Partners. He has extensive experience in a broad range of projects including in the completion of Appropriate Assessment Stages 1 and 2, Habitat surveying and mapping techniques, field surveying methodologies and bat roost and bat activity surveys.

Gerard Hayes BA.Sc. - Gerard is a Senior aquatic ecologist (MWP) with over 13 years' experience in environmental consultancy. He is a member of the Chartered Institute of Ecology and Environmental Management (MCIEEM) and the Freshwater Biological Association (FBA). Gerard has a diverse ecological profile, with Phase 1 habitat, mammal (including bats), bird, amphibian, macroinvertebrate, and tree survey experience. He is co-author and/or carried out surveys for NPWS Irish Wildlife Manual Nos. 15, 24, 26, 37, 45.

Ciaran Cronin PGDip (MCIEEM) of Wildeye, is a highly experienced ornithologist and ecologist. He has over 30 years of bird identification experience, 20 years as a professional ornithologist and 12 years as a self employed ecologist and ornithological specialist. Ciaran has wide ranging experience in developing and applying bird survey techniques, and has contributed to numerous Environmental Assessments. He has conducted wetland bird surveys at a number of development sites in Cork Harbour over the last 12 years. Refer to **Chapter 1** for full details.

5.1.1.3 Desk Study

A desktop review of the information available for the study area was undertaken. The study area includes lands directly affected by the proposed development (areas on which the components of proposed development occur), as well as habitats that may be geographically distant from the proposed development but whose ecological interests may be indirectly affected by the construction and operation of the proposed development.

The desk study undertaken for this assessment included a thorough review of the available ecological data including, *inter alia*, the following:

- Online resources:
 - OSI Aerial photography and 1:50000 mapping, and other mapping sources (online);
 - National Parks and Wildlife Service (NPWS);
 - National Biodiversity Data Centre (NBDC);
 - Teagasc, Environmental Protection Agency (EPA), Water Framework Directive Ireland;
 - Geological Survey of Ireland (GSI).
- Marino Point Master Plan, 2018
- Belvelly Port Facility Demolition and Site Infrastructure Works Environmental Impact Assessment Report (EIAR) & Natura Impact Statement (NIS) (MWP, 2019)
- Breeding Bird and Mammal Surveys, Marino Point (Wildeye, 2019)
- Port of Cork Bird Surveys: Report on the Winter 2012/2013 Bird Survey at Marino Point (RPS, 2013)
- BirdWatch Ireland data for Cork Harbour
- Rare and Protected Species records retained by NPWS for the hectads which overlap with the study area received in response to a Data Request

Prior to conducting field surveys, a review of available atlases and databases was conducted. Previously completed faunal survey reports were reviewed. OSI mapping and ortho-photography was reviewed to determine the range of habitats with potential to support protected fauna within the study area, including ecological connecting features in the landscape (e.g. hedgerows/tree-lines, woodland edge habitat and watercourses). The NPWS were consulted regarding records of rare and protected species from the hectads which overlap with the current study area.

5.1.1.4 Field Surveys

Multidisciplinary ecological surveys were conducted at the overall Belvelly Port Facility site during the spring and summer of 2019 with additional ecological walkovers of the proposed development site conducted in January and February 2020 (See **Figure 5.2** below). The surveys were designed to provide comprehensive information on all ecological resources at the site (See **Appendix 5.1**). The following surveys were carried out at the site:

- Habitat surveys of the existing ecology of the Belvelly Port Facility site were carried out during June 2019 with additional surveys of the proposed development site carried out in January and February 2020. Habitats were mapped according to the classification scheme outlined in the Heritage Council publication 'A Guide to Habitats in Ireland' (Fossitt, 2000) and following the guidelines contained in 'Best Practice Guidance for Habitat Survey and Mapping' (Heritage Council, 2011). Habitats were cross referenced with Habitats Directive Annex 1 habitats.
- Surveys of surface waterbodies within the Belvelly Port Facility site consisted of plant and macroinvertebrates identification. Biological sampling of macroinvertebrates was carried out using methodology in Irvine et al. (2001) and macroinvertebrates were identified on site

with reference to Barnes (1994). It is noted that there are no waterbodies within the proposed development site.

- Mammal walkover surveys (non-bat species) were conducted by Wildeye wildlife surveyors. The aim of the surveys was to determine a species list and the general pattern of usage of the development site and adjacent habitats by non-bat mammal species. A multi-disciplinary approach was taken, with the following survey methods employed:
 - Walked Transects Surveys
 - Remote Camera Trapping Surveys
 - Hinterland Otter Survey
- Bat surveys - A Preliminary Roost Habitat Assessment (PRHA) and structural survey comprising a daylight inspection of each building was carried out, by a staff ecologist from MWP. The survey methodology was conducted as per Aughney *et al.* (2008) and Collins (2016). Additionally, a Passive Automated Bat Survey (PABS), was conducted to sample and record bat activity within the Belvelly Port Facility site.
- Wintering bird surveys were completed during 2018/2019 on a monthly basis between November and March inclusive, by Mr. Ciarán Cronin of Wildeye. Low water counts broadly followed the count methodology used in the national I-WeBS surveys. Counts were conducted within 3 hours either side of Low Water at a number of locations (See **Appendix 5.4** for details). High water counts focused on the main development site and immediate surrounds, with a view to recording roosting birds displaced by the high tide.
- General breeding bird surveys were conducted, between April and September 2019. In addition, specific surveys were conducted for a small number of species which could potentially breed on site. These species were Peregrine, Barn Owl and Kingfisher. As the site is relatively small and self-contained, surveys utilised a 'Roving Records' survey methodology, similar to that used in the Bird Atlas 20017-11 (Balmer et al 2013) whereby the entire site (including a 500m buffer area) was covered on each visit (See **Appendix 5.3** for details).
- Wader Surveys were conducted between July and October 2018. This period extends beyond the standard I-WeBS (national waterbird census) count period of September to March, with a view to detecting the first arrival of waders returning in July.

Refer to **Appendix 5.1** of Volume 3 of this EIAR for full details of the surveys completed. A report on breeding birds and protected mammals is also contained in **Appendix 5.3** of Volume 3 of this EIAR. **Appendix 5.4** contains the winter bird survey report.

5.1.2 Impact Assessment Criteria

An assessment of the likely significant impacts or effects of the proposed development on the identified key ecological receptors is completed in **Section 5.3** below. This is carried out with regard to the criteria outlined in various impact assessment guidelines (CIEEM 2018, IEEM 2006; NRA, 2009; EPA, 2017) that set down a number of parameters, such as approximate magnitude, character, duration and reversibility that should be considered when determining which elements of the proposed development could constitute impact or sources of impacts. Once impacts are defined, their significance are categorised using EPA Guidelines.

5.1.3 Evaluation

The value of the ecological resources and features recorded at the site was determined as per the National Roads Authority (NRA) Ecological Assessment Guidelines as outlined in **Appendix 5.2**. This evaluation scheme seeks to provide value ratings for locations based on the collective of habitats and species present with values ranging from Locally to Internationally important. This evaluation scheme has been adapted here to assess the value of the individual habitats and fauna within the proposed development site. The value of habitats is assessed based on condition, size, rarity, conservation and legal status. The value of fauna is assessed on biodiversity value, legal status and conservation status. Biodiversity value is based on its national distribution, abundance or rarity, and associated trends.

5.1.4 Assessing Impact Significance

Once the value of the identified ecological receptors (features and resources) is determined, the next step is to assess the potential effect or impact of the proposed development on the identified key ecological receptors. This was carried out with regard to the criteria outlined in various impact assessment guidelines (NRA, 2009; CIEEM 2018, IEEM, 2006). The impacts were assessed under a number of parameters such as magnitude, extent, duration and reversibility. Once impacts are defined, their significance was categorised using EPA Guidelines.

In line with the EPA Guidelines (EPA, 2017), the following terms are defined when quantifying duration:

- Momentary: few seconds to minutes;
- Brief: less than a day;
- Temporary: up to 1 year;
- Short-term: from 1-7 years;
- Medium-term: 7-15 years;
- Long-term: 15-60 years;
- Permanent: over 60 years;
- Reversible: effects that can be undone;
- Frequency: once, rarely, occasionally, frequently, constantly – or hourly, daily, weekly, monthly, annually;
- Irreversible: character, distinctiveness, diversity, or reproductive capacity of an environment is permanently lost
- Residual: Degree of environmental change that will occur after the proposed mitigation measures have taken effect
- Synergistic: Where the resultant effect is of greater significance than the sum of its constituents
- Worst Case: The effects arising from a development in the case where mitigation measures substantially fail.

The criteria used to assess the potential significance follows EPA guidance (EPA, 2017). See **Table 5.1**.

Table 5.1 Significance of Effects (definitions) [adapted from EPA (2017)]

Significance of Effects	Definition
Imperceptible	An effect capable of measurement but without significant consequences.
Not significant	An effect which causes noticeable ¹ changes in the character of the environment but without significant consequences
Slight Effects	An effect which causes noticeable changes in the character of the environment without affecting its sensitivities.
Moderate Effects	An effect that alters the character of the environment in a manner that is consistent with existing and emerging baseline trends.
Significant Effects	An effect which, by its character, magnitude, duration or intensity alters a sensitive aspect of the environment.
Very Significant	An effect which, by its character, magnitude, duration or intensity significantly alters most of a sensitive aspect of the environment.
Profound Impact	An effect which obliterates sensitive characteristics.

5.1.5 Cumulative Effects

The cumulative impacts of the proposed development are also assessed in **Section 5.3.8** by discussing the impact of the proposed development, in terms of other developments that have planning permission, that are under construction, or are in existence in the area. A cumulative impact assessment has also been undertaken of the concurrent construction phases for the proposed demolition and site infrastructure works due to take place across the site (Planning Ref. 19/06783) and the proposed agricultural fertiliser blending and bagging facility.

5.1.6 Mitigation: Rationale and Design

Where potential effects are assessed to be significant, mitigation measures have been incorporated into the project design to remove or reduce these effects. These are outlined in **Section 5.4** below. The residual effects after mitigation are then assessed in **Section 5.5** below.

5.2 EXISTING ENVIRONMENT

5.2.1 Site Location

The development site, shown in **Figure 5.1** below, is located in the townland of Marino on a small peninsula located on the west of Great Island i.e. the Belvelly Port Facility site. It is approximately 5 km north of Cobh, 5.5 km south-west of Blackrock and 10 km south-west of Cork City centre. The eastern boundary of the Belvelly Port Facility site is formed by the Cork-Cobh railway and the regional road from Cork to Cobh (R624). The site is bounded by Lough Mahon to the north, south

¹ for the purposes of planning consent procedures

and west. Passage West is approximately 1.0 km from the centre of the Belvelly Port Facility site on the opposite side of the harbour (west). Cobh Golf Club is located to the east, on the eastern side of the R624.



Figure 5-1 Site Location

5.2.2 Description of the Development Site

The proposed development site sits within the overall Belvelly Port Facility site, which currently stands largely derelict having been formerly occupied since 1974 by Irish Fertiliser Industries (IFI), a fertiliser manufacturing plant that produced ammonia and urea. The ownership area of the Belvelly Port Facility site covers approximately 46 hectares. The area within the planning boundary is approximately 7.6 hectares. It is a predominantly flat brownfield site situated adjacent to the sea within Cork Harbour. The proposed Goulding agricultural fertiliser facility site area is approximately 6 hectares and the jetty which serves the site measures approximately 240m x 20m with a shore access viaduct.

5.2.3 Proximity of Designated Conservation Sites and Other Ecologically Significant Areas

5.2.3.1 Natura 2000 Sites

Natura 2000 sites are sites of international importance, protected under European legislation. Two types of sites are incorporated within the Natura 2000 network; Special Areas of Conservation (SACs) which are protected under the European Union (EU) Habitats Directive (92/43/EEC) and Special

Protection Areas (SPAs) which were initially designated under Directive 79/409/EEC on the Conservation of Wild Birds, commonly known as the Birds Directive, and are now protected as Natura 2000 Sites under the EU Habitats Directive. **Table 5.2** below lists the two Natura 2000 sites within 15 km of the development site.

Table 5.1 Natura 2000 sites within 15km of the development site

Natura 2000 site	Distance from designated site to location of proposed development	Qualifying features of Special Conservation Interest ²
Great Island SAC (001058)	Circa. 30m north of the development site. (See Figure 5.2)	<p>Habitats</p> <ul style="list-style-type: none"> – Mudflats and sand flats not covered by seawater at low tide [1140] – Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>) [1330]
Cork Harbour SPA (004030)	Circa. 30m north of the development site. (See Figure 5.2)	<p>Species</p> <ul style="list-style-type: none"> – Little Grebe (<i>Tachybaptus ruficollis</i>) [A004] – Great Crested Grebe (<i>Podiceps cristatus</i>) [A005] – Cormorant (<i>Phalacrocorax carbo</i>) [A017] – Grey Heron (<i>Ardea cinerea</i>) [A028] – Shelduck (<i>Tadorna tadorna</i>) [A048] – Wigeon (<i>Anas penelope</i>) [A050] – Teal (<i>Anas crecca</i>) [A052] – Pintail (<i>Anas acuta</i>) [A054] – Shoveler (<i>Anas clypeata</i>) [A056] – Red-breasted Merganser (<i>Mergus serrator</i>) [A069] – Oystercatcher (<i>Haematopus ostralegus</i>) [A130] – Golden Plover (<i>Pluvialis apricaria</i>) [A140] – Grey Plover (<i>Pluvialis squatarola</i>) [A141] – Lapwing (<i>Vanellus vanellus</i>) [A142] – Dunlin (<i>Calidris alpina</i>) [A149] – Black-tailed Godwit (<i>Limosa limosa</i>) [A156] – Bar-tailed Godwit (<i>Limosa lapponica</i>) [A157] – Curlew (<i>Numenius arquata</i>) [A160] – Redshank (<i>Tringa totanus</i>) [A162] – Black-headed Gull (<i>Chroicocephalus ridibundus</i>) [A179] – Common Gull (<i>Larus canus</i>) [A182] – Lesser Black-backed Gull (<i>Larus fuscus</i>) [A183] – Common Tern (<i>Sterna hirundo</i>) [A193] <p>Habitat & Species Complex</p> <ul style="list-style-type: none"> – Wetland and Water birds [A999]

² Asterisk denotes priority habitat types considered to be in danger of disappearance

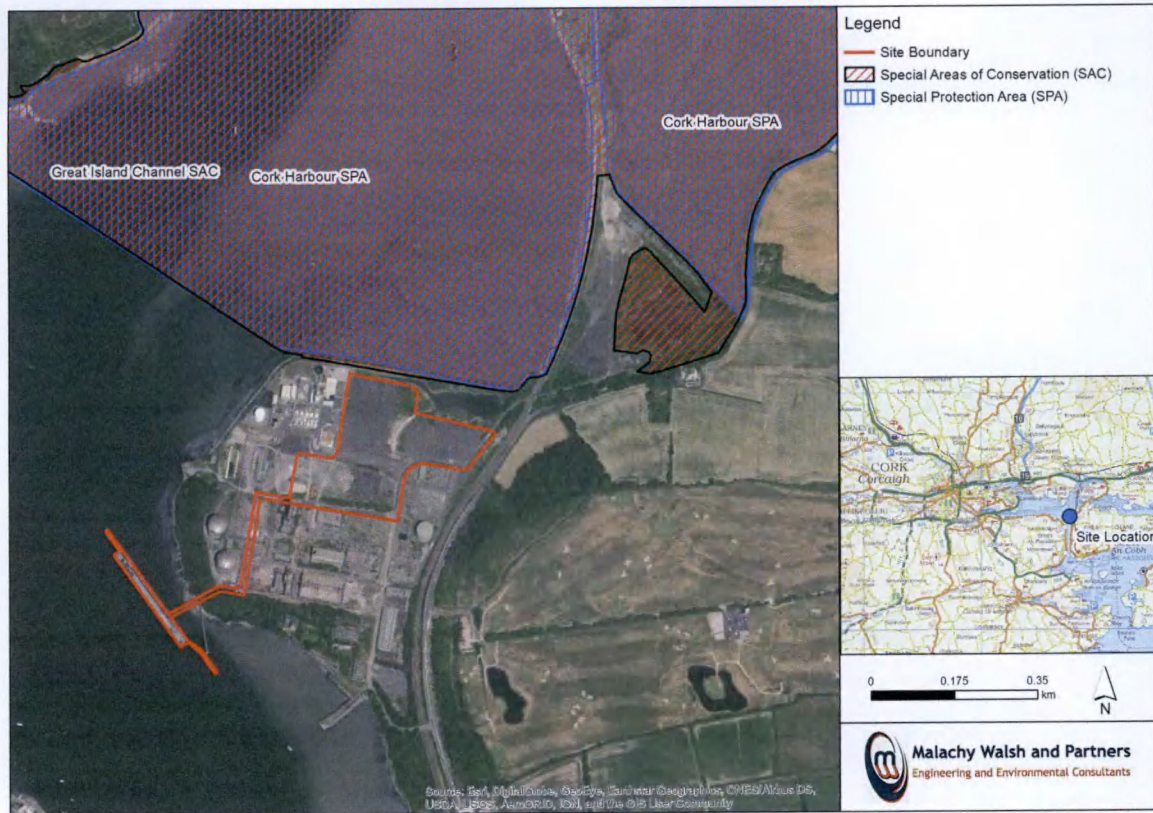


Figure 5-2 Site in relation to the Great Island Channel SAC & Cork Harbour SPA.

Potential impacts on designated Natura 2000 sites (SAC/cSAC/SPA) are specifically addressed in a Natura Impact Statement which has been submitted as part of this application. The Natura Impact Statement notes that following a comprehensive evaluation of the potential direct, indirect and cumulative impacts on the qualifying interests and conservation objectives for Natura 2000 sites, it has been concluded that the proposed development will not have an adverse effect on the integrity of Natura 2000 sites.

5.2.3.2 International Bird Areas

The Important Bird Areas (IBA) Programme is a BirdLife International initiative aimed at identifying and protecting a network of critical sites for the conservation of the world's birds. There are 156 IBAs in Ireland including 140 in the Republic of Ireland and 16 in Northern Ireland, 122 of which support wintering water birds. These sites are important for breeding seabirds and for wintering wildfowl.

5,950 ha of the Cork Harbour waters are designated as an IBA (Site Code: IE088) for the conservation of important wetland, breeding and migratory bird populations. Cork Harbour regularly supports over 20,000 waterfowl which includes: various breeding water birds, internationally important numbers of wintering and spring staging water birds, and provides important feeding areas for waders. It is one of the most important sites in Ireland for breeding tern and for wintering great crested grebe, red-breasted merganser, oystercatcher, and lapwing, as well as for staging whimbrel. Several other species also occur in numbers of national importance, including cormorant, shelduck,

wigeon, teal and golden plover³. The IBA overlaps with Cork Harbour SPA and Ramsar sites⁴ and, with the exception of whimbrel, the species occurring in the IBA site in important numbers are included as SCI species for which the SPA site is selected.

5.2.3.3 Ramsar Sites

The Ramsar Convention on Wetlands of International Importance, especially as Waterfowl Habitat, is an international treaty that was established for the conservation and sustainable use of wetlands. The Ramsar Convention was ratified by Ireland in 1984 and came into force for Ireland on 15 March 1985. Ireland presently has 45 sites designated as Wetlands of International Importance, with a surface area of 66,994 hectares.

Within its 1,436 ha, Cork Harbour Ramsar site (site no. 837) supports various breeding water birds, internationally important numbers of wintering and spring staging water birds, and provides important feeding areas for waders⁵. The site comprises two sections one of which is located in the north east corner of the harbour encompassing the area from Little Island to Midleton, with its southern boundary being formed by Great Island; the other is in the west of the harbour encompassing the intertidal flats of Lough Mahon. The site is a wetland of international importance for its wintering populations of black-tailed godwit, curlew and redshank and its spring migration numbers of whimbrel; while twelve species occur at nationally important levels⁶. The Ramsar site overlaps with Cork Harbour SPA and IBA sites and, with the exception of whimbrel, the species identified in site documentation⁶ as occurring in the Ramsar site in important numbers are included as SCI species for which the SPA site is selected.

5.2.3.4 Sites of National Importance

The basic designation for wildlife in Ireland is the Natural Heritage Area (NHA). This is an area considered important for the habitats present or which holds species of plants and animals whose habitat needs protection. In addition to 148 NHAs, there are 630 proposed Natural Heritage Areas (pNHA) which have not yet been statutorily proposed or designated. Prior to statutory designation, pNHAs are subject to limited protection including in the areas of Agri-environmental farm planning schemes, certain Forest Service requirements pertaining to payment of afforestation grants and recognition of the ecological value of pNHAs by Planning and Licencing Authorities. There are no NHAs and 15 pNHAs within 15km of the development site; the latter are listed in **Table 5.3** below.

³ Except for whimbrel all of the birds listed in this paragraph are Special Conservation Interest species for the SPA

⁴ <http://datazone.birdlife.org/site/factsheet/cork-harbour-iba-ireland/text>

⁵ <https://www.ramsar.org/wetland/ireland>

⁶ <https://rsis.ramsar.org/RSapp/files/RSrep/IE837RIS.pdf>

Table 5.3 pNHA sites located within 15km of the proposed development

Site name and code	Distance from pNHA site to development site	Features of Interest
Great Island Channel (001058)	pNHA is approx. 30m north of the subject site	pNHA site code, site area and features of interest correspond to those of the Great Island Channel SAC i.e. Mudflats and sand flats not covered by seawater at low tide [1140] & Atlantic salt meadows (<i>Glauco-Puccinellietalia maritima</i>) [1330]
Douglas River Estuary (001046)	pNHA is 1.3 km west of subject site	The site is of ornithological importance and forms an essential part of the Cork Harbour SPA (004030) complex
Rock Farm Quarry, Little Island (001074)	pNHA is 1.4 km northwest of subject site	The site is site is of considerable interest botanically because of its species diversity and presence of 'rarities' for the region. Numerous habitat types exist within e.g. lowland dry grassland, rich calcareous grassland and scrub woodland.
Monkstown Creek (001979)	pNHA is 3.2 km south west of subject site	The main interest of the site is ornithological, with the mudflats acting as winter refuge to at least locally important numbers of waterfowl, including shelduck, teal, redshank and dunlin. Site encompassed within Cork Harbour SPA (004030)
Cuskinny Marsh (001987)	pNHA is 3.6 km south east of subject site	The main interest of the site is ornithological, with the lake supporting locally important numbers of dabbling ducks and Mute Swans.
Dunkettle Shore (001082)	pNHA is 4.7 km north west of subject site	The site is of ornithological importance and forms an essential part of the Cork Harbour SPA (004030) complex.
Lough Beg Cork (001066)	pNHA is 5.8 km south of subject site	The site is of ornithological importance due to the presence of feeding waders and wildfowl. However, the site is mainly used as a high tide roost. Site encompassed within Cork Harbour SPA (004030)
Templebreedy National School (000107)	pNHA is 5.8 km south of subject site	This is a nursery roost for Leisler's Bats which roost in the attic of a Church of Ireland primary school building.
Glanmire Wood (001054)	pNHA is 6.3 km north west of subject site	This site is of interest because this type of woodland is rare in east Cork; mixed broad-leaved woodlands dominated by oak (<i>Quercus spp.</i>), Beech (<i>Fagus sylvatica</i>) and Sycamore (<i>Acer pseudoplatanus</i>) with a few conifers, especially European Silver-fir (<i>Abies alba</i>). Terrestrial site with riparian element that partially overlaps with Cork Harbour SPA (004030)
Whitegate Bay (001084)	pNHA is 6.8 km south east of subject site	The site is of ornithological importance and forms an essential part of the Cork Harbour SPA (004030) complex
Owenboy River (001990)	pNHA is 6.6 km south west of subject site	The site is of ornithological importance and forms an essential part of the Cork Harbour SPA (004030) complex.
Rostellan Lough, Aghada Shore & Poul nabibe Inlet (001076)	pNHA is 8.2 km south east of subject site	The site is of ornithological importance and forms an essential part of the Cork Harbour SPA (004030) complex.
Fountainstown Swamp (000371)	pNHA is 10.4 km south west of subject site	Once a former lake or inlet of the sea, this site has been grown over by a mixture of marsh plants and woodland, giving rise to a quaking swamp of unusual character. The undisturbed nature of the site means that bird numbers are quite high.
Carrigshane Hill	pNHA is 12.8 km	This area is important as a representative of the herb-rich

Site name and code	Distance from pNHA site to development site	Features of Interest
(001042)	north east of subject site	community found near the exposed limestone, a habitat under threat from quarrying. The presence of Thick leaved Stonecrop adds further interest to the site as this is one of the few locations for this plant in the county where it appears native.
Minane Bridge Marsh (001966)	pNHA is 13.0 km south west of subject site	Mineral character grassland and marshes/unusual vegetation plants

5.2.4 Data Retrieved from Database Searches

The following sections give an overview of the desk study sources consulted and results obtained during the desk study assessment.

5.2.4.1 National Biodiversity Data Centre Protected Species Records

Biodiversity Maps, the online mapping resource of the NBDC⁷, allows users to search 4 million records that are retained across 22 dataset groups. Data analysis tools enable users to refine database searches using eight different search criteria including 1km, 2km or 10km grid squares on an interactive map. All species records retained for the selected grid square are then available for download in 'Excel' spreadsheet format. The results of the database search for records of protected fauna and flora recorded from hectad W76 are provided below in **Tables 5.4 to 5.7**.

Table 5.4 Records retained for hectad W76 of faunal species protected under European and National legislation

Common Name	Scientific Name	Legislative Protection
Terrestrial / Freshwater Aquatic		
Brown long eared bat	<i>Plecotus auritus</i>	Annex IV ⁸ , WA 1976-2012 ⁹
Daubenton's bat	<i>Myotis daubentonii</i>	Annex IV, WA 1976-2012
Leisler's bat	<i>Nyctalus leisleri</i>	Annex IV, WA 1976-2012
Natterer's bat	<i>Myotis nattereri</i>	Annex IV, WA 1976-2012
Common pipistrelle	<i>Pipistrellus pipistrellus</i>	Annex IV, WA 1976-2012
Soprano pipistrelle	<i>Pipistrellus pygmaeus</i>	Annex IV, WA 1976-2012
European otter	<i>Lutra lutra</i>	Annex II & IV, WA 1976-2012
Badger	<i>Meles meles</i>	WA 1976-2012
Hedgehog	<i>Erinaceus europaeus</i>	WA 1976-2012
Pygmy shrew	<i>Scorus. minutus</i>	WA 1976-2012
Red squirrel	<i>Scurius vulgaris</i>	WA 1976-2012
Irish Stoat	<i>Mustela erminea hibernica</i>	WA 1976-2012
Irish Hare	<i>Lepus timidus subsp. hibernicus</i>	WA 1976-2012

⁷ Available at <https://maps.biodiversityireland.ie/Map>

⁸ Annexed species are those listed under the EU Habitats Directive (92/43/EEC)

⁹ WA 1976-2012 refers to species protected under the Wildlife Acts

Common Name	Scientific Name	Legislative Protection
Fallow Deer ¹⁰	<i>Dama dama</i>	WA 1976-2012
Sika Deer	<i>Cervus nippon</i>	WA 1976-2012
Red Deer	<i>Cervus elaphus</i>	WA 1976-2012
Common frog	<i>Rana temporaria</i>	Annex II, IV, WA 1976-2012
Marine Aquatic		
Northern bottlenose whale	<i>Hyperoodon ampullatus</i>	Annex IV, WA 1976-2012
Common dolphin	<i>Delphinus delphis</i>	Annex IV, WA 1976-2012
Killer whale	<i>Orcinus orca</i>	Annex IV, WA 1976-2012
Common seal	<i>Phoca vitulina</i>	Annex II & V, WA 1976-2012
Grey seal	<i>Halichoerus grypus</i>	Annex II & V, WA 1976-2012
Common porpoise	<i>Phocoena phocoena</i>	Annex IV, WA 1976-2012
Northern bottlenose whale	<i>Hyperoodon ampullatus</i>	Annex IV, WA 1976-2012
Risso's dolphin	<i>Grampus griseus</i>	Annex IV, WA 1976-2012
White whale	<i>Delphinapterus leucas</i>	Annex IV, WA 1976-2012
Leathery Turtle	<i>Dermochelys coriacea</i>	Annex IV, WA 1976-2012

Table 5.5 below, lists the records retained for hectad W76 of birds of conservation interest and those protected under the Wildlife Act 1976-2012. Birds which breed and/or winter in Ireland are classified, in Colhoun *et al.* (2013), into three separate lists (Red, Amber and Green), based on the conservation status of the bird and hence conservation priority. Specific criteria are used to classify a bird into one of these three categories.

Birds on the Red List are those of highest conservation concern, Amber List birds are of medium conservation concern and the Green List birds are not considered threatened. Red listed species are species whose population/range has declined significantly over time and who need urgent action to reduce threats faced and to maintain and support these vulnerable populations. Amber listed species are species whose population or range has been in decline over recent years, which makes them vulnerable/threatened species.

Table 5.5 Records retained for hectad W76 of bird species protected under the Wildlife Acts 1976-2012

Common Name	Scientific Name	Conservation Status
Barn owl	<i>Tyto alba</i>	Red Listed
Black-headed gull	<i>Larus ridibundus</i>	Red Listed
Common redshank	<i>Tringa totanus</i>	Red Listed
Goldeneye	<i>Bucephala clangula</i>	Red Listed
Grey wagtail	<i>Motacilla cinerea</i>	Red Listed
Corn Crake	<i>Crex crex</i>	Red Listed
Dunlin	<i>Calidris alpina</i>	Red Listed
Curlew	<i>Numenius arquata</i>	Red Listed

¹⁰ Fallow and Sika deer are non-native, invasive species protected under the Wildlife Acts

Common Name	Scientific Name	Conservation Status
Wigeon	<i>Anas penelope</i>	Red Listed
Woodcock	<i>Scolopax rusticola</i>	Red Listed
Golden Plover	<i>Pluvialis apricaria</i>	Red Listed
Herring gull	<i>Larus argentatus</i>	Red Listed
Long-tailed Duck	<i>Clangula hyemalis</i>	Red Listed
Meadow pipit	<i>Anthus pratensis</i>	Red Listed
Northern Lapwing	<i>Vanellus vanellus</i>	Red Listed
Pintail	<i>Anas acuta</i>	Red Listed
Shoveler	<i>Anas clypeata</i>	Red Listed
Tufted Duck	<i>Aythya fuligula</i>	Red Listed
Yellowhammer	<i>Emberiza citrinella</i>	Red Listed
Barn swallow	<i>Hirundo rustica</i>	Amber Listed
Barnacle goose	<i>Branta leucopsis</i>	Amber Listed
Black guillemot	<i>Cepphus grylle</i>	Amber Listed
Black-legged kittiwake	<i>Rissa tridactyla</i>	Amber Listed
Black-tailed godwit	<i>Limosa limosa</i>	Amber Listed
Bar-tailed godwit	<i>Limosa lapponica</i>	Amber Listed
Brent goose	<i>Branta bernicla</i>	Amber Listed
Common kestrel	<i>Falco tinnunculus</i>	Amber Listed
Common linnet	<i>Carduelis cannabina</i>	Amber Listed
Common sandpiper	<i>Actitis hypoleucos</i>	Amber Listed
Common shelduck	<i>Tadorna tadorna</i>	Amber Listed
Common starling	<i>Sturnus vulgaris</i>	Amber Listed
Common swift	<i>Apus apus</i>	Amber Listed
Common Coot	<i>Fulica atra</i>	Amber Listed
Common Tern	<i>Sterna hirundo</i>	Amber Listed
Chough	<i>Pyrrhocorax pyrrhocorax</i>	Amber Listed
Oystercatcher	<i>Haematopus ostralegus</i>	Amber Listed
Eurasian tree sparrow	<i>Passer montanus</i>	Amber Listed
European shag	<i>Phalacrocorax aristotelis</i>	Amber Listed
Gadwall	<i>Anas strepera</i>	Amber Listed
Goldcrest	<i>Regulus regulus</i>	Amber Listed
Great black-backed gull	<i>Larus marinus</i>	Amber Listed
Great cormorant	<i>Phalacrocorax carbo</i>	Amber Listed
Great crested grebe	<i>Podiceps cristatus</i>	Amber Listed
Grey plover	<i>Pluvialis squatarola</i>	Amber Listed
Greylag Goose	<i>Anser anser</i>	Amber Listed
Greenfinch	<i>Carduelis chloris</i>	Amber Listed

Common Name	Scientific Name	Conservation Status
Great Northern Diver	<i>Gavia immer</i>	Amber Listed
Hen Harrier	<i>Circus cyaneus</i>	Amber Listed
House martin	<i>Delichon urbicum</i>	Amber Listed
House sparrow	<i>Passer domesticus</i>	Amber Listed
Kingfisher	<i>Alcedo atthis</i>	Amber Listed
Lesser black-backed gull	<i>Larus fuscus</i>	Amber Listed
Little grebe	<i>Tachybaptus ruficollis</i>	Amber Listed
Little Gull	<i>Larus minutus</i>	Amber Listed
Mediterranean Gull	<i>Larus melanocephalus</i>	Amber Listed
Merlin	<i>Falco columbarius</i>	Amber Listed
Mew gull	<i>Larus canus</i>	Amber Listed
Mistle thrush	<i>Turdus viscivorus</i>	Amber Listed
Mute swan	<i>Cygnus olor</i>	Amber Listed
Northern gannet	<i>Morus bassanus</i>	Amber Listed
Northern goshawk	<i>Accipiter gentilis</i>	Amber Listed
Northern wheatear	<i>Oenanthe oenanthe</i>	Amber Listed
Peregrine	<i>Falco peregrinus</i>	Amber Listed
Razorbill	<i>Alca torda</i>	Amber Listed
Red kite	<i>Milvus milvus</i>	Amber Listed
Robin	<i>Erithacus rubecula</i>	Amber Listed
Red knot	<i>Calidris canutus</i>	Amber Listed
Red-throated Diver	<i>Gavia stellata</i>	Amber Listed
Ruff	<i>Philomachus pugnax</i>	Amber Listed
Sand martin	<i>Riparia riparia</i>	Amber Listed
Sandwich tern	<i>Sterna sandvicensis</i>	Amber Listed
Scaup	<i>Aythya marila</i>	Amber Listed
Skylark	<i>Alauda arvensis</i>	Amber Listed
Slavonian grebe	<i>Podiceps auritus</i>	Amber Listed
Sparrowhawk	<i>Accipiter nisus</i>	Amber Listed
Shag	<i>Phalacrocorax aristotelis</i>	Amber Listed
Spotted flycatcher	<i>Muscicapa striata</i>	Amber Listed
Spotted Redshank	<i>Tringa erythropus</i>	Amber Listed
Stock dove	<i>Columba oenas</i>	Amber Listed
Teal	<i>Anas crecca</i>	Amber Listed

The Flora (Protection) Order (FPO), 2015¹¹, which supersedes orders made in 1980, 1987 and 1999, is a list of plant species protected by Section 21 of the Wildlife Act, 1976. It is illegal to cut, uproot or

¹¹ S.I. No. 356/2015 - Flora (Protection) Order, 2015.

damage the listed species in any way, or to offer them for sale. This prohibition extends to the taking or sale of seed. In addition, it is illegal to alter, damage or interfere in any way with their habitats. This protection applies wherever the plants are found and is not confined to sites designated for nature conservation. The only FPO species for which a record from hectad W76 is retained is included **Table 5.6**.

Table 5.2 Species protected under the Flora Protection Order

Common Name	Scientific Name	Conservation Status
Glass-wort feather moss	<i>Scleropodium tourettii</i>	Schedule B, threatened/endangered species
Pennyroyal	<i>Mentha pulegium</i>	Schedule A, threatened/ endangered species
Meadow Barley	<i>Hordeum secalinum</i>	Schedule A, threatened/vulnerable species

Table 5.7 Non-native, Invasive Species protected under National Legislation, NBDC

Common Name	Scientific Name	Conservation Status
Fallow Deer	<i>Dama dama</i>	WA 1976-2012
Sika Deer	<i>Cervus nippon</i>	WA 1976-2012

5.2.4.2 National Biodiversity Data Centre Bat Habitat Suitability Index

The NBDC online mapper¹² also includes a Bat Habitat Suitability Index (BHSI) layer derived from an analysis of the habitat and landscape associations of Irish bats compiled in Lundy *et al.* (2011). The index evaluation ratings range from 0 to 100, with 0 being the least favourable for bats and 100 the most favourable. Index evaluations are available for each individual species and an overall rating is also available for all species in combination. The reference area to which the indices listed in **Table 5.8** below, relates to an approximately 20km² area that encompasses the development site footprint and the geographical area extending away from it. The different ratings for individual bat species are listed at **Table 5.8** below.

Table 5.3 Bat Habitat Suitability Index Rating by Species

Species	Suitability Index Rating
Lesser horseshoe bat (<i>Rhinolophus hipposideros</i>)	0/100
Daubenton's bat (<i>M. daubentonii</i>);	26/100
Whiskered bat (<i>Myotis mystacinus</i>)	23/100
Natterer's bat (<i>M. nattereri</i>)	31/100
Nathusius' pipistrelle (<i>Pipistrellus nathusii</i>)	5/100
Common pipistrelle (<i>P. pipistrellus</i>);	43/100
Soprano pipistrelle (<i>P. pygmaeus</i>)	49/100

¹² <http://maps.biodiversityireland.ie/#/Map>

Species	Suitability Index Rating
Leisler's bat (<i>N. leisleri</i>)	44/100
Brown long-eared bat (<i>P. auritus</i>)	40/100
All bats	29/100

A Preliminary Roost Habitat Assessment (PRHA) and a Passive Automated Bat Survey (PABS), was conducted as part of planning application 19/06783 (see **Section 5.2.5.4.1.2**). It was concluded from these surveys that the Belvelly Port Facility site is unlikely to be a significant resource within the foraging range of any bat species and the existing structures are of low suitability as roosting habitat.

5.2.5 Field Survey Results

5.2.5.1 Terrestrial habitats

Overall Belvelly Port Facility Site

Notwithstanding the active industrial facility owned by MarinoChem Limited (formerly Dynea Ireland Limited) located in the north-west corner of the overall Belvelly Port Facility site, and a more modern office block and security building in the south east corner of the site, along with the jetty area, which receives ships and cargo, the Belvelly Port Facility site primarily comprises disused and derelict buildings and infrastructure.

While the Belvelly Port Facility site does have some natural and semi natural terrestrial habitats such as woodlands and gardens to the south and west, with tree lines bounding the site to the east, these are confined to the boundaries of the facility and outside the proposed footprint of the project.

The now abandoned Marino House with its Orangery¹³ and associated shed type buildings are situated on the southern boundary of the Belvelly Port Facility site, adjacent to the shore. The buildings are surrounded by the original gardens which, while now significantly overgrown, were clearly landscaped when the house was occupied.

While the Marino House retains an open view of the harbour, a mature tree line, including a number of Scots pine (*Pinus sylvestris*), bounds the grounds to the east, effectively concealing the house. Several yew trees (*Taxus baccata*) are also present in the grounds. Mature, primarily broadleaf woodland extends westwards from the house and grounds for approximately 150m and then northwards for approximately 200m along a coastal strip, providing a natural screen from the proposed development site and waters of Lough Mahon. This woodland, which at its widest spans some 40m, does include some conifers along the woodland edge to the north of Marino House.

Broadleaf woodland has been extant on the Marino Point peninsula since at least the mid 19th century, as is evidenced by historic 6" mapping, from the period 1837-1842¹⁴. The mapping clearly shows Marino House with its buildings and gardens surrounded by a considerable area of broadleaf

¹³ a building on the grounds of fashionable residences from the 17th to 19th centuries where orange and other fruit trees were protected during the winter

¹⁴ Available at <http://map.geohive.ie/>

woodland. It is therefore possible that, notwithstanding the conifer component, this woodland has a high degree of naturalness and the broadleaf component may retain some capacity, if managed properly, to self-generate.

Large mature trees (conifer and broadleaved) within this woodland habitat are of particular importance as they can provide essential refuge and breeding sites for many species of mammals and birds, as well as for many invertebrates. By virtue of size, large mature trees provide more food resources and nesting resources than younger trees, in addition, to more protection for flora and fauna from inclement weather, particularly due to the exposed coastal nature of the site. It is noted that this habitat will be unaffected by both this project and that listed under planning application 19/06783.

Proposed Development Site

Field surveys identified six terrestrial habitat types across the proposed agricultural fertiliser development site. The Fossitt (2000) categories and codes for the habitats recorded are listed in **Table 5.9** below; a description of their location within the site is also provided. A current overview of habitats recorded within the site is shown in **Figure 5.3**. The survey results are representative of the habitats within proposed development site and include the dominant and characteristic species of flora. No rare or protected plant species were recorded within the works area during the site survey.

Table 5.4 Fossitt (2000) Habitat Types Recorded within the Proposed Agricultural Fertiliser Development Area.

Habitat	Spatial description within site
Buildings and artificial surfaces BL3	Main area of site
Recolonising bare ground ED3	Various paved areas within main area of site
Scrub WS1	Various including area adjacent to the existing man-made lagoon
Treeline WL2	Southern boundary of the proposed Goulding agricultural fertiliser facility site
Dry meadows and grassy verges GS2	Adjacent to existing man-made lagoon.
Sea walls, piers and jetties CC1	Jetty situated along the south-western boundary of the Belvelly Port Facility site.

The most prominent feature of the proposed development site is the large expanse of an artificial surface i.e. tarmacadam. Refer to **Figure 5.4** below. This is a highly modified and artificial habitat of no intrinsic ecological value.



Figure 5.4 Proposed development site. Marinochem Limited (formerly Dynea Ireland Limited) seen in the background.

Large open bare paved areas, sections with a covering of gravel aggregate and road side edges have become colonised by opportunistic plant species and are now overgrown due to disuse. Refer to **Figure 5.5** below. A significant characteristic of this colonisation is the extent to which butterfly bush (*Buddleja davidii*), a Medium Impact invasive species¹⁵, has become dominant. Due to its ability to colonise bare and disturbed ground very rapidly, butterfly bush has formed large mono-stands within the proposed development site. Due to the natural process of succession butterfly bush has developed into scrub habitat in certain patches of the site. With butterfly bush's capacity to alter the nitrogen and phosphorous amounts in the soil, giving it an advantage that displaces native species, little in the way of typical colonising ground flora such as flowering plants or grasses were found. Species noted include Yellow-wort (*Blackstonia perfoliata*), Willowherb (*Epilobium spp.*), Thistle (*Cirsium vulgare*), Willow (*Salix spp.*) and Figwort (*Scrophularia spp.*).

Scrub in general can be of value to wildlife by providing nesting sites for birds, cover for small mammals and foraging habitat for birds and invertebrates. However, the scrub habitat which will be impacted by the proposed development is of poor quality and dominated by non-native species in comparison to similar habitats in the wider landscape.

¹⁵ <https://invasivespeciesireland.com/wp-content/uploads/wp-post-to-pdf-enhanced-cache/1/amber-list-recorded-species.pdf>

As part of the BMDC application currently under review (Planning Ref. 19/06783), a small corrugated metal shed located at the south-western corner of the proposed Goulding site will be demolished. This shed was deemed to be of 'Low' suitability as a roosting habitat for bats based on the 'The Bat Conservation Trust Guidelines' (Collins, J. (ed.) (2016)).



Figure 5.5 Areas of the proposed development site colonised by ruderals. Note butterfly bush (*Buddleja davidii*) and shed in the foreground.

Situated along the southern boundary of the proposed Gouldings site is a treeline of the non-native species Leyland cypress (*Cupressus × leylandii*). Treelines can provide important habitats for local wildlife such as birds, insects and possibly bats. However, this habitat is of a low ecological value at a local level and is fragmented from similar habitats in the surrounding landscape.

The terrestrial habitats adjacent to the man-made lagoon, situated to the north and outside of the proposed Goulding site, which is described in detail below, comprise scrub patches to the north and south and an area of dry meadow grassland to the west. Dry meadow and grassy verge (GS2) habitat can correspond to the Habitats Directive Annex I habitat: 'lowland hay meadows (*Alopecurus pratensis*, *Sanguisorba officinalis*) (6510)'. However, the dry meadow and grassy verge habitat located within the Belvelly Port Facility site, which is largely located outside the proposed development boundary of the Goulding site, is limited in extent, has a patchy distribution and shows clear saline influences. It does not represent an example of this Annex 1 habitat type.

Gorse (*Ulex* spp.) is dominant in the scrub along the northern shore of the man-made lagoon. The scrub to the south is dominated by butterfly bush (*B. davidii*), a Medium Impact invasive species¹⁴. An area of ca. 35m² adjacent to the southern bank of the man-made lagoon has been colonised by winter heliotrope (*Petasites fragrans*), a Medium Risk invasive species¹⁵. The habitats surrounding the lagoon are illustrated in **Figure 5.3** above and are noted to be of low ecological value.

5.2.5.2 Aquatic habitats

In addition to the terrestrial habitats, there is a large man-made tidal lagoon located adjacent to the proposed development site (Refer to **Figure 5.3** habitat map). The proposed development area is also surrounded by the coastal waters of Cork Harbour to the north and west, and is also bounded by *Great Island SAC* and *Cork Harbour SPA* to the north.

Table 5.5 Fossitt (2000) aquatic habitat types recorded

Fossitt Habitat Type	Location/Distribution on Site
Lagoon and saline lakes CW1	Man-made lagoon.
Estuaries MW4	Section of the River Lee in which the Jetty is located. Situated along the northern, western and south-western boundaries of the Belvelly Port Facility site.

The man-made lagoon located just north of the proposed Goulding's facility site outside the site boundary is classified, per Fossitt (2000), as 'Lagoon and saline lakes CW1'. This is an enclosed body of standing brackish water. It is partially separated from Lough Mahon by a rock embankment that forms the northern boundary of the saline lake. Tidal influence is much reduced by this physical barrier, with tidal ingress occurring through one outfall that is visible at low tide. There is one drain on the site entering the lagoon. The maximum depth of the waterbody was estimated as 1.5m. The bed of the waterbody comprises gravel, sand, silt and clay. An area of ca. 7m X 5m adjacent to the southern bank of the salt-lake has been colonised by Winter heliotrope (*P. fragrans*) a Medium Risk invasive species¹⁴.

The floral community was indicative of brackish conditions. Bladder wrack (*Fucus vesiculosus*) and Sea lettuce (*Ulva lactuca*) were frequent along the rocky margins of the lagoon. At and above the level of the upper tidal influence, Orache (*Atriplex* spp.), Marsh samphire (*Salicornia* spp.) and Sea beet (*Beta vulgaris maritima*) were recorded. Macroinvertebrates recorded were Periwinkle (*Littorina littorea*), Limpet (*Patella* spp.) and Soft-shell clam (*Mya arenaria*), Brittlestars, as well as shrimp (*Gammarus* spp.) and Green shore crab (*Carcinus maenas*). Sand goby (*Pomatoschistus minutus*) was the only fish species recorded. The habitats surrounding this salt-lake are illustrated in the habitat map attached as **Figure 5.3** above.

This habitat is rated as being of Local importance (Higher Value). The man-made lagoon is periodically utilised by waterbirds listed as species of conservation interest (SCI) of the adjoining Cork Harbour SPA. However, the lagoon is located outside the SPA and is not deemed to be a critical resource in relation to the SCI species. Higher value habitats utilised by SCI species exist within the nearby SAC/SPA i.e. mudflats and sandflats not covered by seawater at low tide. None of the waterbirds recorded within the man-made lagoon were recorded in high numbers and numbers were extremely low in-comparison to those noted on the nearby mudflat habitats north of Belvelly Port Facility and the wetland area (northern annexe) to the northeast of the proposed development site.

This lagoon is located outside both the boundary of the development site and that of the Great Island Channel SAC and the habitat type is not listed as a qualifying interest of the Great Island SAC. It is proposed to infill a portion of the man-made lagoon for land reclamation under planning application 19/06783, while approximately 0.6 acres, is to be retained, enhanced and maintained where necessary in order to continue to provide an area of high biodiversity at a local level.

5.2.5.3 Invasive Species

Non-native plants are defined as those plants which have been introduced outside of their native range by humans and their activities, either purposefully or accidentally. Invasive non-native species are so-called as they typically display one or more of the following characteristics or features: (1) prolific reproduction through seed dispersal and/or re-growth from plant fragments; (2) rapid growth patterns; and, (3) resistance to standard weed control methods.

Where a non-native species displays invasive qualities, and is not managed it can potentially: (1) out compete native vegetation, affecting plant community structure and habitat for wildlife; (2) cause damage to infrastructure including road carriageways, footpaths, walls and foundations; and, (3) have an adverse effect on landscape quality.

Regulations 49 and 50 of the European Communities (Birds and Natural Habitats) Regulations 2011 make it an offence to plant, disperse, allow dispersal or cause the spread of certain species e.g. Japanese knotweed and Rhododendron, keep the plant in possession for purpose of sale, breeding, reproduction, propagation, distribution, introduction or release, keep anything from which the plant can be reproduced or propagated from the species, without a granted licence and keep any vector material for the purposes of breeding, distribution, introduction or release. Regulation 49 deals with the 'Prohibition on introduction and dispersal' while Regulation 50 deals with the 'Prohibition on dealing with and keeping certain species'. Regulation 50 has yet to be brought into Irish law. Regulation 74 is a transitional provision in relation to Regulation 49 and 50.

The Wildlife (Amendment) Act 2000 states that anyone who plants or otherwise causes to grow in a wild state in any place in the State any species of (exotic) flora, or the flowers, roots, seeds or spores of (exotic) flora shall be guilty of an offence. There is a statutory obligation under S.I. 477 of 2011 of the European Communities (Birds and Natural Habitats) Regulations 2011 to address invasive species in Ireland.

No high-risk invasive species were recorded during the recent site survey. However, the non-native invasive species Butterfly Bush (*Buddleja davidii*), a Medium Impact invasive species¹⁵, was recorded within the proposed development site. See **section 5.2.5.1**. Butterfly Bush is also included in the NRA Guidelines on the Management of Noxious Weeds and Non-native Species on National Roads (NRA, 2010) as this species has been shown to have an adverse impact on landscape quality, native biodiversity or infrastructure; and is likely to be encountered during road schemes. This species is relatively straight forward to control using a mixture of mechanical removal and herbicide treatment.

5.2.5.4 Fauna

5.2.5.4.1 Terrestrial Mammals

This section covers the results of the specific surveys undertaken to ascertain a list of fauna using the proposed development area and overall peninsula of Marino Point, Cork.

5.2.5.4.1.1 Non- Bat Species

The results of the Mammal Survey, which is included in **Appendix 5.1** and **Appendix 5.3** are summarised below. Five non-bat species of mammal were recorded comprising a total of 53 individual observations throughout the proposed development area. These species are:

- Otter (*Lutra lutra*) (droppings, prey remains, trails)
- Badger (*Meles meles*) (trails, prints, droppings & breeding/resting site)
- Red Fox (*Vulpes vulpes*) (droppings & breeding/resting site)
- Rabbit (*Oryctolagus cuniculus*) (breeding/resting site)
- American Mink (*Mustela vison*) (prints)

Otter

Otter was the species of which evidence was recorded most often during the surveys, with the primary evidence comprising spraint. While a single entrance holt was found near the jetty, see **Figure 5.6** below, no evidence of currently occupied holts were found on-site, or within 300m of the site. A trail camera positioned near the entrance to the holt adjacent to the jetty recorded data over 21 nights in May 2019. Otters were recorded on two consecutive nights in May (22nd & 23rd) passing by and sniffing near the entrance, but not entering. A wood mouse was recorded entering the burrow with nesting material on a regular basis. This indicates that this burrow is not in regular use by Otters and is certainly not a current breeding site. No signs of activity at the holt were recorded in January and February 2020. The entrance was noted to be partially clogged with detritus, with gorse the most abundant species noted. Due to the structure of gorse it is presumed that any large mammal entering the cavity would disturb the gorse fragments and drag them within the holt, this was not noted. A fresh spraint was recorded approximately 40m south of the entrance along the upper shore line.



Figure 5.6 Otter Holt in proximity to the existing jetty.

Spraint was found regularly, along most coastal areas but particularly adjacent to the wetlands areas. Particular concentrations of spraint were noted at two locations. The first concentration of spraint was near a marsh habitat, located approximately 250m northeast of the proposed development site (See **Figure 5.8** below). A couch/seat area of flattened grass, where numerous fresh and old spraint are deposited, was also found. A wildlife camera deployed at this location recorded otter activity on only two nights of its 32 day deployment in 2019 which indicates that, notwithstanding that the area is within the territory of an otter, it does not support a breeding site. During a site visit in January and February 2020 numerous otter seats were recorded within this marsh area. In addition, large sections of flattened vegetation were noted in proximity to these otter seats indicating that the area is also used as a couch. See **Figure 5.7** below.



Figure 5.7 Potential otter couch and seat recorded within the marsh area located approx. 250m northeast of the proposed development site

There was also abundant evidence of otter activity around the man-made lagoon, with numerous spraint, prey remains (crustaceans), a slide into the north side of the lagoon and mammal runs, probably maintained by otter. Evidence was strongly biased to the north and east sides of the lagoon. Refer to **Figure 5.8** below. During a winter bird survey of the site and surrounding landscape on the 13th of October 2020, as part of the implementation of mitigation measures set out in the EIAR for the site development works project, a female otter and two young cubs were recorded within the man-made lagoon. The adult was noted to be foraging while both young cubs primarily played, with the adult provisioning the cubs on the surrounding embankments on occasions.

Overall, there is certainly regular otter activity at the site. Activity is concentrated where the wetland areas are adjacent to the edge of the site, and there appears to be significantly more sprainting activity in the winter/early spring than during the summer. The site is clearly used regularly by foraging otters, probably more than one (on 23rd May 2019 single Otters were recorded within 30 minutes of each other near the jetty and the lagoon) and of October 2020 the site is now confirmed as part of a breeding site for otter.

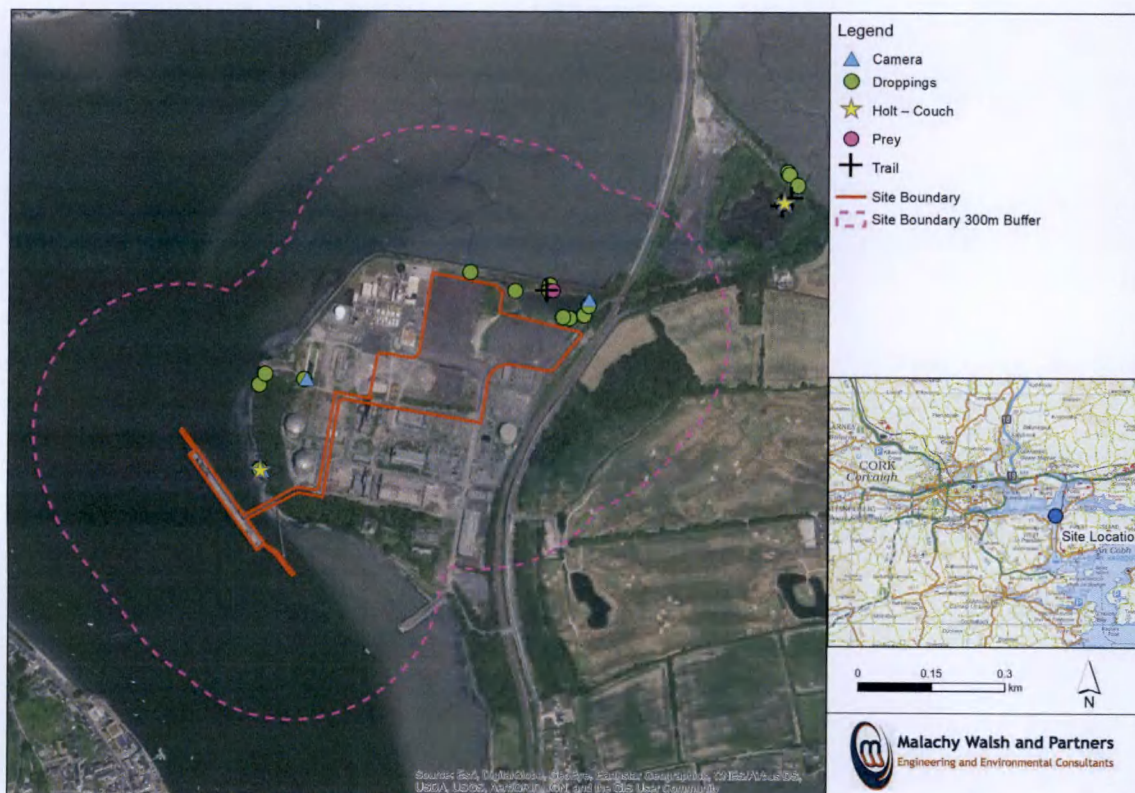


Figure 5.8 Locations of evidence of otter activity [adapted from Cronin, 2019. Also incorporates January and February 2020 findings]

Badger

The survey evidence indicates that there are no breeding Badgers, or occupied Badger setts on the site or within 300m of it. Evidence of badger activity indicates that the activity is restricted to the periphery of the site where natural and semi natural habitats are available and not in the main area of the site where the proposed development works will occur. Observations of trails and droppings

were recorded, as was a confirmed corpse on 27/02/2019. Refer to **Figure 5.9** below. During the 2019 site visits a potential outlier sett was noted within the woodland to the north of Marino House. However, upon further inspections in 2020, both by ecologists from MWP and Wildeye, this was concluded not to be the case. While badgers are likely to use these peripheral areas of the site for occasional foraging, the survey findings indicate that use of the site by badgers is irregular to occasional. No signs of badger were recorded in January and February 2020.



Figure 5.9 Locations of evidence of badger activity [adapted from Cronin, 2019]

Fox, Rabbit & American Mink

Evidence of red fox included droppings and a confirmed breeding/resting site. A single fox was seen traversing the site in January 2020. Signs of Rabbit i.e. droppings and feeding signs, are abundant throughout the site, with live individuals also seen. American mink was recorded once during the survey period in 2019.

The recorded evidence does not suggest that the study area is utilised by populations of any species at a level higher than local significance.

5.2.5.4.1.2 Bats

The proposed development site, the Goulding agricultural fertiliser facility, lacks any potential suitable roost features (PRF's) e.g. suitable buildings and mature trees with holes and cavities in the trunk, branches, loose bark, ivy cover etc. No significant high valued linear features will be affected by the proposed development and the habitats to be removed do not provide high value feeding or commuting resources for bat species.

It is noted that the overall Belvelly Port Facility contains a number of derelict and abandoned buildings. As part of planning application (Planning Ref. 19/06783), a bat survey was conducted to establish the likely negative impacts, if any, that the proposed site demolition and infrastructure works would have on bats.

The survey concluded that while some habitats in the wider area are natural or semi natural, with linear features such as field boundary hedgerows and tree lines which could be used by foraging bats, these are absent in the site itself which comprises primarily paved surfaces and buildings. The absence of these aforementioned features means that the site lacks the high value macroinvertebrate production habitats which could attract foraging bats.

The overall Belvelly Port Facility site is, therefore, unlikely to be a significant resource within the foraging range of any bat species.

5.2.5.4.2 Marine Mammal

Individual harbour seals (*Phoca vitulina vitulina*) were recorded in the vicinity of the main jetty during most months since February 2019. This is a protected species under the Wildlife Acts, and under Annexes II and IV of the European Habitats Directive. Although animals present this far up the harbour are likely to be wandering and foraging animals, the regularity of sightings in this area means that this species is assessed to be of Local Importance (Higher Value) at this site.

Haul-out sites for harbour seals may occur inshore, for example on estuaries, coves, islands etc. and this species tends to forage within a relatively short distance of such haul-out sites. Over half of foraging trips may be within 5km of the haul-out sites (Cronin et al., 2007; Cronin et al., 2008). Although there is no evidence for significant haul-out sites or breeding sites in Cork Harbour, there are several small haul-out sites in this general area, as noted below. The adjoining shoreline to the development site is not of value as a haul-out site due to high levels of disturbance by MarinoChem (Dynea Ireland) Ltd facility and the working jetty. The following sightings of harbour seals in the wider Cork harbour area have been recorded in the past six years:

- A small haul-out site near Haulbowline Island (RPS, Port of Cork, 2014)
- An adult Harbour Seal occasionally uses a partially submerged tyre to haul-out on at mid-high tide approx. 10m from the shoreline adjacent to the National Maritime College in Ringaskiddy
- Approximately six Harbour Seals were recorded using the slipway at the National Maritime College (Arup, 2019 & RPS/Port of Cork, 2014)

Although there is nothing to indicate that the area in the immediate vicinity of the proposed development site is of particular value for seals, it is within the feeding range for local Harbour Seal populations. Given the distance of the recorded haul-out sites from the development site, no direct disturbance of haul-out sites will occur, and any impact on feeding areas will be minimal.

5.2.5.4.3 Amphibians and Reptiles

According to records held by the NBDC, Common Frog (*Rana temporaria*) is the only amphibian recorded in hectad W76. Common Frog is listed in Annex V of the EU Habitats Directive and is protected under the Wildlife Acts. The species was not recorded during the site visits and the habitats to be impacted by the proposed development do not constitute the habitat requirements for Common frog or any species of amphibian. Due to the saline influence recorded within man-made lagoon, this habitat is considered unsuitable for amphibians.

Two species of reptile have been listed as occurring within the hectad W76 i.e. Leatherback Turtle and an unidentified species of Testudines (turtle/tortoise/terrapin).

Leatherback Turtles (*Dermochelys coriacea*) are protected under EU Habitats Directive Annex IV and Wildlife Act but are also listed as a threatened Species under the OSPAR Convention. They are a deep-diving marine turtle inhabiting tropical, subtropical, and subpolar seas. Leatherbacks make extensive migrations between different feeding areas at different seasons, and to and from nesting areas. They feed predominantly on jellyfishes, salps and siphonophores. The species is unlikely to be encountered in proximity to the proposed development site.

Common Lizard (*Zootoca vivipara*) is Ireland's only native terrestrial reptile and is so protected under the Wildlife Act. Ideal habitats for the species are south-facing, damp tussocky grassland, scrub covered hillsides, dunes or banks, and woodland tracks, and it also resides in peat bogs, dry grasslands and heathlands. This species is unlikely to occur within the proposed development site.

5.2.5.4.4 Birds

Summary of Winter Survey

A total of 71 species were recorded during the winter survey period (2018/2019). The most numerous group was the passerines with 26 species followed by the waders with 15 species. The groups with the least species were the Auks with three species followed by Grebes, Pigeons and Rails and Crakes which all has two species recorded. The only species recorded breeding was Great-crested Grebe in the month of December 2018 at the H15 site. A stand alone winter bird survey, focusing on water birds has been compiled and attached as **Appendix 5.4** to this EIAR.

Forty-five water bird species in total were recorded within the survey areas during the winter bird survey period. Only one Special Protection Area (Cork Harbour SPA, Site Code 004030) is deemed relevant to the proposed works. A total of twenty species listed as qualifying interests for the Cork Harbour SPA were recorded, namely, Cormorant, Oystercatcher, Curlew, Redshank, Red-breasted Merganser, Bar-tailed Godwit, Black-tailed Godwit, Dunlin, Grey Plover, Grey Heron, Lapwing, Shelduck, Wigeon, Teal, Shoveler, Great Crested Grebe, Little Grebe, Black-headed Gull, Common Gull and Lesser Black-backed Gull.

Six Annex I bird species were recorded during the survey period i.e. Mediterranean Gull, Bar-tailed Godwit, Kingfisher, Dunlin, Little Egret and Red-throated Diver.

Tables 5.12 to 5.26 show the total counts of each species recorded during the winter survey period (2018/2019). **Table 5.27** below shows the mean and max peak counts of each species recorded during both low and high tide surveys, in relation to the mean values obtained for Cork harbour over a 5-year period between 2012 – 2016 and national and international important numbers. With the exception of Dunlin and Grey Heron (see **Table 5.27**), none of the wintering birds, were recorded in numbers which would be considered nationally significant (i.e. 1% or more of the all-Ireland population of an Annex I species or 1% or more of the bio-geographical population of a migratory species).

Auks

Three Auks species were recorded at two low tide locations only (L6 and L7). These species were not record at the main site but in the low tide areas only. It is unlikely that these species will be affected by the proposed works.

Table 5.6. Auks species recorded during winter survey period – Total counts across all six surveys

Low water							
Auks species	L1	L2	L3	L4	L5	L6	L7
Black Guillemot	0	0	0	0	0	0	3
Guillemot	0	0	0	0	0	2	0
Razorbill	0	0	0	0	0	1	0

Cormorant/Egrets/Heron

Two cormorant species were recorded in total, Shag and cormorant. Only the cormorant appeared at low water locations and at the main high water locations. The cormorant appeared to be roosting predominantly at the H Main site i.e. the southern jetty and south-western mooring dolphin. Little egret and Grey heron were both recorded at low water and high water locations. Both species appeared to be roosting at the western portion of the main site or just outside the main site boundary. Little egret is not listed as a designated species in the Cork Harbour SPA, it is however listed an Annex I species in the Birds Directive.

Table 5.7. Cormorant/Egret & Heron species recorded during winter survey period at Low water locations – Total counts across all six surveys

Low water							
Cormorant/Egret & Heron Species	L1	L2	L3	L4	L5	L6	L7
Shag	0	1	1	1	1	2	3
Little Egret*	24	4	0	1	0	0	1
Cormorant	33	154	21	84	6	7	214
Grey Heron	17	40	4	9	0	0	86

*Annex listed species

Table 5.8. Egret & Heron species recorded during winter survey period at High water locations – Total counts

High water						
Cormorant Species	H8	H13	H Main	H14	H15	H16
Little Egret*	5	0	3	0	0	0
Cormorant	0	0	135	0	14	0
Grey Heron	14	0	35	14	9	0

*Annex listed species

Grebe

Two grebe species were recorded during the winter survey period. One breeding pair of Great Crested Grebe was observed just west of the tidal area of H15, which is situated just west of H8 (December 12th 2019). Both Great Crested Grebe and Little Grebe are listed as designated species in the Cork Harbour SPA.

Table 5.9. Grebe species recorded during winter survey period at Low water locations – Total counts across all six surveys

Low water							
Grebe Species	L1	L2	L3	L4	L5	L6	L7
Little Grebe	23	9	0	0	0	0	0
Great Crested Grebe	0	33	17	0	0	0	0

Table 5.10. Grebe species recorded during winter survey period at High water locations – Total counts

High water						
Grebe Species	H8	H13	H Main	H14	H15	H16
Great Crested Grebe	0	0	0	0	2	0
Little Grebe	1	0	2	0	0	0

Gulls

There were six species of gulls observed in total. All six species were recorded in low tide locations and four species in high tide. Black-headed gull, Common gull and lesser black-backed gull are all listed as designated species for the Cork Harbour SPA. The only Annex listed species under EU Birds Directive present was Mediterranean gull which was recorded at low tide locations L2, L3 and L4 only.

Table 5.11. Gull recorded during winter survey period at Low water locations – Total counts across all six surveys

Low water							
Gull Species	L1	L2	L3	L4	L5	L6	L7
Black-headed Gull	820	2572	552	751	89	122	569
Common Gull	23	162	56	137	15	27	100

Low water							
Great Black-backed Gull	14	183	17	21	9	35	34
Herring Gull	24	172	18	36	17	196	41
Lesser Black-backed Gull	26	201	0	4	0	0	16
Mediterranean Gull *	0	1	1	0	3	0	0

*Annex listed species

Table 5.18. Gull recorded during winter survey period at High water locations - Total counts

High water						
Gull Species	H8	H13	H Main	H14	H15	H16
Black-headed Gull	141	20	237	69	115	0
Common Gull	0	0	58	0	0	0
Great Black-backed Gull	0	0	47	0	2	0
Herring Gull	0	0	34	0	5	0

*Annex listed species

Rails and Crakes

One Crake (Moorhen) and one Rail (Water Rail) were recorded during the winter survey period. Water rail only appeared at the Low water locations and Moorhen appearing at both Low water and High water locations.

Table 5.12. Rail and Crake species recorded during winter survey period at Low water locations – Total counts across all six surveys

Low water							
Rails and Crakes	L1	L2	L3	L4	L5	L6	L7
Moorhen	0	6	0	0	0	0	0
Water Rail	0	1	0	0	0	0	0

Table 5.20. Rail and Crake species recorded during winter survey period at High water locations – Total counts

High water						
Rails and Crakes	H8	H13	H Main	H14	H15	H16
Moorhen	11	0	2	0	0	0

Waders

Waders encompass a large group of birds which are adapted to living close to water at the coast and in bog and marshland. During the winter months they are often seen in large flocks foraging on tidal mud flats. There was a total of fifteen species of waders recorded during the winter survey period. All fifteen species were observed at the Low water locations and just ten species were observed at the High water locations. Eight of the species recorded are also listed as designated species in the Cork Harbour SPA (Bar-tailed Godwit, Black-tailed Godwit, Curlew, Dunlin, Grey Plover, Lapwing, Oystercatcher and Redshank). Although Snipe is not listed as designated species in the Cork Harbour

SPA it is listed is an Annex species under the Birds Directive. All activity of the listed waders recorded consisted of feeding and roosting.

Table 5.21. Wader species recorded during winter survey period at Low water locations – Total counts across all six surveys

Low water							
Wader Species	L1	L2	L3	L4	L5	L6	L7
Bar-tailed Godwit*	2	6	0	0	0	29	0
Black-tailed Godwit	159	273	0	89	0	10	243
Curlew*	122	259	0	39	0	0	66
Common Sandpiper	0	0	0	0	0	1	0
Dunlin*	1431	1000	0	0	0	0	31
Green Sandpiper	2	3	0	0	0	0	0
Greenshank	43	13	0	3	0	0	14
Grey Plover	7	42	0	0	0	0	0
Lapwing*	252	34	0	0	0	0	2
Oystercatcher	255	464	0	26	0	0	129
Redshank*	386	315	0	24	0	0	388
Ringed Plover	2	0	0	0	0	0	0
Snipe*	0	5	0	0	0	0	5
Turnstone	0	71	0	0	0	0	14
Whimbrel	2	1	0	0	0	0	0

*Annex listed species

Table 5.13. Wader species recorded during winter survey period at High water locations – Total counts

High water						
Wader Species	H8	H13	H Main	H14	H15	H16
Black-tailed Godwit	22	0	0	0	0	0
Curlew*	1	0	24	0	30	0
Common Sandpiper	0	0	1	0	0	0
Green Sandpiper	0	0	0	0	2	0
Greenshank	16	1	9	0	0	0
Lapwing*	0	0	0	0	0	0
Oystercatcher	2	13	51	0	129	0
Redshank*	95	0	7	37	0	0
Ringed Plover	0	0	0	0	5	0
Snipe*	3	2	81	3	0	0

*Annex listed species

Waterfowl

This group includes aquatic birds such as ducks and geese. There were 10 species recorded in total, all of which appeared at Low water locations and only six of the species at the High water locations.

Shelduck, Shoveler, Teal, Wigeon and Red-breasted merganser are all species listed as designated species in the Cork Harbour SPA. Gadwall, Long-tailed duck and Mallard are not designated species in the Cork Harbour SPA but are listed as Annex species under the EU Birds Directive.

Table 5.14. Waterfowl species recorded during winter survey period at Low water locations – Total counts across all six surveys

Low water							
Wildfowl / water fowl Species	L1	L2	L3	L4	L5	L6	L7
Brent Goose	0	0	0	0	0	0	1
Gadwall*	0	2	0	0	0	0	0
Long-tailed duck*	0	1	0	0	0	0	0
Teal*	288	276	0	146	0	0	619
Shoveler*	2	0	0	0	0	0	0
Shelduck	111	202	0	17	0	4	120
Red-breasted Merganser*	9	41	0	0	0	0	5
Mute Swan	0	7	0	2	7	0	0
Mallard*	20	7	9	32	0	0	112
Wigeon*	42	177	44	18	0	0	0

*Annex listed species

Table 5.15. Waterfowl species recorded during winter survey period at High water locations – Total counts

Wildfowl Species	H8	H13	H Main	H14	H15	H16
Teal*	96	72	8	197	2	0
Shoveler*	0	0	0	2	0	0
Shelduck	72	0	2	212	0	0
Red-breasted Merganser*	0	0	0	3	0	0
Mallard*	5	5	4	18	0	0
Wigeon*	60	0	2	59	31	0

*Annex listed species

Kingfisher

Kingfisher is an Annex listed species under the EU Habitats Directive. Kingfisher was recorded once in L1, H8 and H Main. Kingfisher is not listed as a designated species in the Cork Harbour SPA.

Table 5.16. Kingfisher recorded during winter survey period at Low water locations – Total counts across all six surveys

Low water							
Passerine Species	L1	L2	L3	L4	L5	L6	L7
Kingfisher*	1	0	0	0	0	0	0

*Annex listed species

Table 5.176. Kingfisher recorded during winter survey period at High water locations – Total counts

High water						
Passerine Species	H8	H13	H Main	H14	H15	H16
Kingfisher*	1	0	1	0	0	0

*Annex listed species

Table 5.27. Mean & Peak Counts for waterbirds recorded during the winter bird survey period.

Species		Thresholds		I-Webs 5 yr. Mean Peak Counts Cork Harbour	L1		L2		L3		L4		L5		L6		L7		H8		H13		H main		H14		H15		H16	
		1% National	1% International		Mean	Peak	Mean	Peak	Mean	Peak	Mean	Peak	Mean	Peak	Mean	Peak	Mean	Peak	Mean	Peak	Mean	Peak	Mean	Peak	Mean	Peak	Mean	Peak	Mean	Peak
Bar-tailed Godwit	BA	150	1200	300	0	1	1	6	0	0	0	0	0	0	5	29	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Brent Goose	BG	360	400	53	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Black-headed Gull	BH		20000	3460	136	252	429	713	92	169	125	210	15	59	20	56	95	176	24	112	3	12	40	114	12	41	19	77	0	0
Black-tailed Godwit	BW	190	610	2951	27	126	32	121	0	0	15	25	0	0	2	10	41	88	4	22	0	0	0	0	0	0	0	0	0	0
Cormorant	CA	120	1200	335	6	17	26	60	4	7	14	39	1	2	1	3	36	51	0	0	0	0	23	41	0	0	2	7	0	0
Common Gull	CM		16400	306	4	13	27	57	9	17	23	97	3	12	5	25	17	36	0	0	0	0	10	21	0	0	0	0	0	0
Common Sandpiper	CS			1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0
Curlew	CU	350	8400	1520	20	30	43	72	0	0	7	9	0	0	0	0	11	32	0	1	0	0	4	21	0	0	5	23	0	0
Dunlin	DN	570	13300	4316	239	1129	167	985	0	0	0	0	0	0	0	0	5	31	0	0	0	0	0	1	0	0	0	0	0	0
Little Egret	ET	20	1300	103	4	5	1	3	0	0	0	1	0	0	0	0	0	1	1	2	0	0	0	1	0	0	0	0	0	0
Gadwall	GA	20	600	22	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Great Black-backed Gull	GB		4200	162	2	3	31	94	3	7	4	9	2	8	6	22	6	15	0	0	0	0	7	27	0	0	0	2	0	0
Green Sandpiper	GC		15500	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	0	0	0	2	0	0
Goldeneye	GE	60	11500	12	1	2	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Great-crested Grebe	GG	40	3500	107	0	0	6	18	3	17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0
Greenshank	GK	20	2300	98	7	12	2	4	0	0	1	0	0	0	0	0	2	5	3	12	0	1	1	4	0	0	0	0	0	0
Common Guillemot	GU				0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	1	3	0	0	0	0	0	0
Grey Plover	GV	30	2500	29	1	4	7	19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grey Heron	H.	25	2700	81	3	4	7	17	1	2	2	3	0	0	0	0	14	33	2	5	0	0	5	8	2	8	2	9	0	0
Herring Gull	HG		10200	105	4	8	29	59	3	10	6	15	3	10	33	127	7	28	0	0	0	0	6	15	0	0	1	5	0	0
Ring-billed Gull	IN		20000	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	0	0	0	0	0	0
Kingfisher	KF			2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
Lapwing	L.	1100	20000	1917	42	58	6	26	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0
Lesser Black-backed Gull	LB		5500	133	4	10	34	75	0	0	1	4	0	0	0	0	3	7	0	0	0	0	0	0	0	0	0	0	0	0
Little Grebe	LG	20	4000	74	4	8	2	3	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0
Long-tailed Duck	LN		17250	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Moorhen	MH		20000	25	0	0	1	2	0	0	0	0	0	0	0	0	0	2	5	0	0	0	1	0	0	0	0	0	0	0
Mute Swan	MS		90	45	0	0	1	2	0	0	0	0	1	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Oystercatcher	OC	690	8200	1659	43	68	77	109	0	0	4	16	0	0	0	0	22	60	0	2	2	13	8	22	0	0	22	75	0	0
Mediterranean Gull	MU		770	68	0	0	0	1	0	1	0	0	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Razorbill	RA				0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	3	0	0	0	0	0	0
Redshank	RK	300	3900	1595	64	100	53	84	0	0	4	8	0	0	0	0	65	161	16	62	0	0	1	5	6	21	0	0	0	0
Red-breasted Merganser	RM	20	1700	66	2	6	7	15	0	0	0	0	0	0	0	0	1	3	0	0	0	0	0	0	1	3	0	0	0	0
Red-throated Diver	RT	20	3000		0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ringed Plover	RP	100	730	29	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	5	0	0
Shag	SA		2000	7	0	0	0	1	0	1	0	1	0	1	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0
Snipe	SN		20000	44	0	0	1	3	0	0	0	0	0	0	0	0	1	4	1	2	0	1	10	38	1	3	0	0	0	0
Shelduck	SU	120	3000	1114	18	36	34	99	0	0	3	8	0	0	1	4	20	36	12	72	0	0	4	24	35	78	0	0	0	0
Shoveler	SV	30	400	22	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0
Teal	T.	340	5000	1225	48	117	46	79	0	0	24	38	0	0	0	0	103	242	16	96	12	35	1	4	33	83	0	2	0	0
Turnstone	TT	95	1400	137	0	0	12	21	0	0	0	0	0	0	0	0	2	13	0	0	0	0	0	0	0	0	0	0	0	0
Black Guillemot	TY				0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0
Water Rail	WA			2	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Whimbrel	WM		6700	17	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Wigeon	WN	630	15000	1378	7	34	29	61	7	38	3	8	0	0	0	0	0	0	10	60	0	0	0	2	10	30	5	31	0	0

5.2.6 Summary of Breeding Survey

The results of breeding bird surveys are summarised in the tables below. The results from each of the monthly surveys were inspected. With the application of professional judgement, based on the location, activity, recorded breeding evidence and ecology of each species, an estimate was made as to the number of likely breeding pairs within the Belvelly Port Facility site and within the 500m buffer area.

Sixty-three bird species were recorded overall in the study area (including the 500m buffer), with 51 of these recorded as breeding species and 12 as solely non-breeding species.

A total of 37 species were recorded breeding within the main Belvelly Port Facility site. This consisted of an estimated total of 158 pairs of breeding birds.

The number of non-breeding pairs, on-site pairs, pairs within the 500m buffer and maximum breeding evidence is listed in the tables below for each group.

Codes for Maximum breeding evidence are explained as follows:

- PO = Possible
- PR = Probable
- CO = Confirmed
- NO = Non-breeding

Birds of Prey

Four species of birds of prey were recorded in total. Peregrine was the only species confirmed to be breeding on-site. Due to the identification of a potential breeding site during the winter survey the Peregrine was monitored during the breeding survey period.

A pair of Peregrine was regularly seen on the tallest building at the centre of the Belvelly Port Facility site throughout the winter, spring and summer, on almost all survey visits in 2018/2019. Birds were seen displaying and mating in April 2019, with adults bringing in prey in May and June 2019, which confirmed a nesting attempt. The early July 2019 breeding bird survey took place just over 3 weeks later and no birds were present on the tower on either day. A single adult female was seen circling over the northern part of the site. None were seen during August 2019 surveys either. As it is difficult to view the likely nesting area on top of this tower, breeding success is categorised as uncertain. It would be expected that young birds would be seen and heard in the vicinity of the nest once fledged for at least 4 weeks. Young were not observed during the survey.

During a site visit on the 22nd January and 5th February 2020, a male Peregrine was seen perched on the tallest building at the centre of the site. Peregrines will usually hold territory at breeding sites from February onwards with courtship display and territorial behaviour increasing from February to late April. It is possible that this is the same male noted during the 2019 survey period as Peregrines will frequently re-use breeding sites or it is a new individual trying to attract a female.

With a commanding view of the estuary and a close-by supply of known prey (pigeon, waders, duck, corvids), the tallest building at the centre of the Belvelly Port Facility site be considered a high-quality nesting territory. Although the national population was recorded in 2017, the results have not yet been published. The last published census was in 2002 which recorded a national population estimate of 390 pairs. The county or regional populations were not specified. Peregrine is thus assessed to be a feature of ecological value of County Importance on this site.

In June of 2020 a member of Birdwatch Ireland East Cork Branch recorded a recently fledged peregrine within the Belvelly Port Facility, confirming breeding at the Prill Tower in 2020. This structure is to be unaffected by the proposed development but it is to be demolished under the BMDC application (Planning Ref. 19/06783)).

Buzzard, Kestrel and Sparrowhawk were recorded within the 500m buffer of the Belvelly Port Facility site, with Buzzards being the only confirmed breeder.

Table 5.28. Summary results of breeding birds of prey

Birds of prey	Non-breeding	On-site pairs	500m Buffer (Pairs)	Maximum Breeding Evidence ⁴
Buzzard	0	0	2	CO
Kestrel	0	0	1	PO
Peregrine Falcon*	0	1	0	CO
Sparrowhawk	0	0	1	PR

*Annex listed species

Barn Owl

No indications of barn owl presence were recorded anywhere on the Belvelly Port Facility site. Due to the results of onsite monitoring in 2019, it was concluded that barn owl does not breed on or near the development site.

Kingfisher

Kingfishers were not encountered on the Belvelly Port Facility site during any surveys during the breeding season. Given the relatively low suitability of the site for breeding Kingfisher, it is concluded that Kingfisher does not breed on site.

Shore and Water birds

Crake

Moorhen was the only crake species confirmed to be breeding both within the Belvelly Port Facility site and within the 500m of the site.

Table 5.18. Summary results of breeding Moorhen

Crake species	Non-breeding	On-site pairs	500m Buffer (Pairs)	Maximum Breeding Evidence ⁴
Moorhen	0	1	1	CO

Cormorant, Egret and Heron

Only non-breeding Cormorant, Little Egret and Heron were recorded during this survey period.

Table 5.19. Summary results of non breeding Cormorant, Little egret and Heron

Cormorant, Egret & Heron species	Non-breeding	On-site pairs	500m Buffer (Pairs)	Maximum Breeding Evidence ⁴
Cormorant	10	0	0	NO
Grey Heron	6	0	0	NO
Little Egret*	2	0	0	NO

*Annex listed species

Grebe

Little Grebe was only confirmed to be breeding within the 500m buffer outside of the main Belvelly Port Facility site.

Table 5.20. Summary results of breeding Grebes

Grebe species	Non-breeding	On-site pairs	500m Buffer (Pairs)	Maximum Breeding Evidence ⁴
Little Grebe	0	0	4	CO

Gull

Four gull species were recorded during the breeding survey period. Three were recorded as non-breeding and only Great Black-Backed Gull was recorded as breeding within the Belvelly Port Facility site.

Table 5.32. Summary results of breeding and non-breeding gulls

Gull species	Non-breeding	On-site pairs	500m Buffer (Pairs)	Maximum Breeding Evidence ⁴
Black Headed Gull	111	0	0	NO
Great Black Backed Gull	10	1	0	CO
Herring Gull	1	0	0	NO
Mediterranean Gull*	5	0	0	NO

*Annex listed species

Tern

Terns were recorded in the vicinity of the Belvelly Port Facility site from April onwards, with almost all activity centred around the Martello Tower, approximately 830m to the north of the proposed Goulding's facility site boundary. This is an established Common Tern colony since the early 1980's (NPWS 2014).

In June 2019, approximately 26 birds were visible on the roof of the tower, sitting as if on nests. A number of other birds were flying around the area. Informal consultation with a local bird ringer suggests that up to 80 birds were seen in the air in recent weeks, following a disturbance. This suggests that there could be up to 40 active nests on the tower.

This species is an SCI for the Cork Harbour SPA and is assessed to be a feature of ecological value of County Importance on this site.

Table 5.33. Results of breeding Terns

Turn species	Non-breeding	On-site pairs	500m Buffer (Pairs)	Maximum Breeding Evidence ⁴
Common Tern*	18	2	35	CO

*Annex listed species

Waders

There were five wader species identified in total. Only one of the species (Ringed Plover) was confirmed to be breeding on-site and within the 50m buffer zone.

Table 5.21. Results of Waders

Wader species	Non-breeding	On-site pairs	500m Buffer (Pairs)	Maximum Breeding Evidence ⁴
Black Tailed Godwit*	20	0	0	NO
Curlew*	27	0	0	NO
Oystercatcher	26	0	0	NO
Ringed Plover	0	1	1	CO
Whimbrel	14	0	0	NO

*Annex listed species

Waterfowl

Four wildfowl were recorded; Mallard and Shelduck are confirmed to be breeding on the Belvelly Port Facility site.

The Shelduck are notable on site in that they appear to be breeding in numbers primarily in the roof space of the old estate house in the south-west of the Belvelly Port Facility site. Three territorial pairs of Shelduck were noted elsewhere within the Belvelly Port Facility site, one of which was within

the proposed development site. While these pairs were noted on potential territories, no confirmed signs of breeding were recorded i.e. nest or chicks. Shelduck can be strongly territorial during the breeding season, though territories do not necessarily remain spatially stable throughout the season. Generally a territory will include a nesting burrow, however, in a number of recorded cases, nest sites have been found outside these territories, some at a considerable distance. Eighteen pairs were noted on the main development site in April 2019, 14 in May (plus 1 pair in the buffer zone) and five pairs on site in June 2019 (plus 2 in the buffer zone). Teal were also recorded but were not breeding.

Table 5.22. Results of Waterfowl

Waterfowl species	Non-breeding	On-site pairs	500m Buffer (Pairs)	Maximum Breeding Evidence ⁴
Mallard*	0	1	4	CO
Shelduck	4	18	2	CO
Teal*	0	1	0	NO
Tufted Duck*	1	0	2	PR

*Annex listed species

Passerines, Pigeons and Game Birds

A total of forty one passerine species were recorded during the breeding survey period. Ten out of the forty-one were noted not to be breeding within the main Belvelly Port Facility site. Thirty one species were recorded to be breeding within the 500m buffer zone, with Blackbird and Robin being the most numerous with seventeen.

Table 5.23. Summary results of breeding passerines

Passerine species	Non-breeding	On-site pairs	500m Buffer (Pairs)	Maximum Breeding Evidence ⁴
Blackbird	0	13	17	CO
Blackcap	0	3	3	PR
Blue Tit	0	4	3	CO
Bullfinch	0	4	3	CO
Chaffinch	0	6	4	PR
Chiffchaff	0	4	2	PR
Coal Tit	0	0	1	PR
Dunnock	0	5	7	PR
Goldcrest	0	2	2	PR
Goldfinch	0	5	2	CO
Great Tit	0	4	4	CO
Greenfinch	0	4	1	CO
Grey Wagtail	0	1	0	PO
Hooded Crow	0	5	5	CO
House Martin	4	1	2	CO

Passerine species	Non-breeding	On-site pairs	500m Buffer (Pairs)	Maximum Breeding Evidence ⁴
House Sparrow	0	0	1	CO
Jackdaw	3	8	4	CO
Jay	0	1	1	PR
Lesser Redpoll	0	1	0	PO
Linnet	0	1	2	PR
Long Tailed Tit	0	2	1	CO
Magpie	0	5	3	CO
Mistle Thrush	0	0	2	PO
Pied Wagtail	0	4	3	CO
Raven	0	1	0	CO
Reed Bunting	0	1	0	PR
Robin	0	9	17	CO
Rock Pipit	0	1	0	PO
Rook	40	0	0	PO
Sand Martin	3	0	0	PO
Sedge Warbler	0	1	1	PR
Song Thrush	0	1	5	PR
Spotted Flycatcher	0	0	1	PR
Starling	0	1	2	CO
Stonechat	0	0	1	CO
Swallow	17	7	4	CO
Swift	1	0	0	NO
Treecreeper	0	1	0	PR
Willow Warbler	0	5	4	PR
Wren	0	7	9	PR
Yellowhammer	0	0	1	PR

Pigeon

Three pigeon species were observed with woodpigeon being the only species to be confirmed to be breeding on-site and within the 500m buffer zone.

Table 5.24. Summary results of breeding pigeons

Pigeon species	Non-breeding	On-site pairs	500m Buffer (Pairs)	Maximum Breeding Evidence ⁴
Rock Dove - Feral Pigeon	0	10	0	PR
Stock Dove	0	1	1	PR
Woodpigeon*	65	22	20	CO

*Annex listed species

Game species

Pheasant was the only game species to be recorded as a probable breeding species within the 500m buffer zone. Pheasant is an Annex listed species under the EU Birds Directive.

Table 5.38. Summary results of breeding pheasant

Game species	Non-breeding	On-site pairs	500m Buffer (Pairs)	Maximum Breeding Evidence ⁴
Pheasant*	0	0	2	PR

*Annex listed species



Figure 5.10 Location of breeding bird of Conservation Significance

5.2.7 General overview of birds recorded during January and February 2020 site visit

During the January/February 2020 survey, all birds seen or heard within the proposed development site or utilising habitats in proximity to it were recorded. Species recorded within the overall Belvelly Port Facility site are shown in **Table 5.39** below.

Table 5.39: Bird Species recorded on the 22nd January and 5th February 2020.

Location: Main Belvelly Port Facility Site		
Common Name	Scientific Name	Conservation Status
Raven	<i>Corvus corax</i>	Green Listed
Jackdaw	<i>Corvus monedula</i>	Green Listed
House Sparrow	<i>Passer domesticus</i>	Amber Listed
Great Tit	<i>Parus major</i>	Green Listed
Pied Wagtail	<i>Motacilla alba yarrellii</i>	Green Listed
Blue Tit	<i>Parus caeruleus</i>	Green Listed
Robin	<i>Erithacus rubecula</i>	Amber Listed
Grey Heron	<i>Ardea cinerea</i>	Green Listed
Pheasant	<i>Phasianus colchicus</i>	Green Listed
Dunnock	<i>Prunella modularis</i>	Green Listed
Goldfinch	<i>Carduelis carduelis</i>	Green Listed
Chaffinch	<i>Fringilla coelebs</i>	Green Listed
Wren	<i>Troglodytes troglodytes</i>	Green Listed
Magpie	<i>Pica pica</i>	Green Listed
Woodpigeon	<i>Columba palumbus</i>	Green Listed
Sparrowhawk	<i>Accipiter nisus</i>	Amber Listed
Peregrine Falcon	<i>Falco peregrinus</i>	Green Listed
Kestrel	<i>Falco tinnunculus</i>	Amber Listed
Blackbird	<i>Turdus merula</i>	Green Listed
Song Thrush	<i>Turdus philomelos</i>	Green Listed
Location: Proposed Goulding Chemical Limited Facility Site		
Common Name	Scientific Name	Conservation Status
Goldfinch	<i>Carduelis carduelis</i>	Green Listed
Wren	<i>Troglodytes troglodytes</i>	Green Listed
Robin	<i>Erithacus rubecula</i>	Amber Listed
Chaffinch	<i>Fringilla coelebs</i>	Green Listed
Snipe	<i>Gallinago gallinago</i>	Amber Listed
Location: Jetty & Mooring Dolphins		
Common Name	Scientific Name	Conservation Status
Cormorant	<i>Phalacrocorax carbo</i>	Amber Listed
Common Gull	<i>Larus canus</i>	Amber Listed
Great black-backed Gull	<i>Larus marinus</i>	Amber Listed
Black-headed Gull	<i>Larus ridibundus</i>	Red Listed
Location: Man-made Lagoon		
Common Name	Scientific Name	Conservation Status
Black-headed Gull	<i>Larus ridibundus</i>	Red Listed
Grey Heron	<i>Ardea cinerea</i>	Green Listed
Redshank	<i>Tringa totanus</i>	Red Listed

Little Egret	<i>Egretta garzetta</i>	Green Listed
Snipe	<i>Gallinago gallinago</i>	Amber Listed
Jack-Snipe	<i>Lymnocyptes minimus</i>	Green Listed
Location: Lough Mahon		
Common Name	Scientific Name	Conservation Status
Cormorant	<i>Phalacrocorax carbo</i>	Amber Listed
Common Gull	<i>Larus canus</i>	Amber Listed
Great black-backed Gull	<i>Larus marinus</i>	Amber Listed
Black-headed Gull	<i>Larus ridibundus</i>	Red Listed
Curlew	<i>Numenius arquata</i>	Red Listed
Black-tailed Godwit	<i>Limosa limosa</i>	Amber Listed
Little Egret	<i>Egretta garzetta</i>	Green Listed
Redshank	<i>Tringa totanus</i>	Red Listed
Wigeon	<i>Anas penelope</i>	Red Listed
Teal	<i>Anas crecca</i>	Amber Listed
Mallard	<i>Anas platyrhynchos</i>	Green Listed
Oystercatcher	<i>Haematopus ostralegus</i>	Amber Listed
Common Sandpiper	<i>Tringa hypoleucos</i>	Amber Listed
Shelduck	<i>Tadorna tadorna</i>	Amber Listed
Grey Heron	<i>Ardea cinerea</i>	Green Listed
Greenshank	<i>Tringa nebularia</i>	Green Listed

5.2.8 Evaluation of Existing Environment within the Development Site

5.2.8.1 Selection of Key Habitat Ecological Receptors

Overall, the habitats recorded within the proposed development site are heavily impacted by human influence and are degraded due to intensive modification and the industrial nature of the site. The habitat types within the development site are evaluated in **Table 5.40** below, for their conservation importance, and those which are at least Local importance (Higher Value) are selected as Key Ecological Receptors.

The adjacent marine waters are also considered a key habitat ecological receptor.

Table 5.40 Selection of Key Habitat Ecological Receptors within the proposed development site

Fossitt Habitat Type	Evaluation ¹⁶	Key Ecological Receptor	Rationale
Buildings and artificial surfaces BL3	Local importance (Lower Value)	No	This is a highly modified and disturbed habitat, with low species diversity and of no intrinsic ecological value.
Recolonising bare ground ED3	Local importance (Lower Value)	No	This is a highly modified habitat with low species diversity and little value for wildlife. If left unmanaged recolonising bare ground can support a diverse flora in the short-term.

¹⁶ As per criteria outlined in Section 5.1.4.

Fossitt Habitat Type	Evaluation ¹⁶	Key Ecological Receptor	Rationale
			However, the habitat noted on site is dominated by the Medium Impact invasive species butterfly bush (<i>Buddleja davidii</i>). Due to this species ability to colonise disturbed ground very rapidly and its capacity to alter the nitrogen and phosphorous amounts in the soil, thus giving it an advantage that displaces native species, it has formed large mono-stands.
Scrub WS1	Local importance (Lower Value)	No	Native scrub can be ecologically important, providing foraging for small mammals including bats. Scrub also provides feeding and nesting sites for small birds and for invertebrates. However, the scrub habitat which will be impacted by the proposed development is of poor quality, primarily dominated by non-native species and is of very limited ecological value. No intrinsic ecological value beyond the immediate surroundings.
Treelines WL2	Local importance (Lower Value)	No	Treelines can provide important sites for foraging, roosting and breeding birds whilst also providing ecological corridors facilitating bird and other animal movement. However, the treeline to be impacted by the proposed development is non-native, fragmented from similar habitats and is of low intrinsic ecological value.
Dry meadows and grassy verges GS2	Local importance (Lower Value)	No	Low intrinsic ecological value in local and broader context. Dry meadow and grassy verge (GS2) habitat can correspond to the Habitats Directive Annex I habitat: 'lowland hay meadows (<i>Alopecurus pratensis</i> , <i>Sanguisorba officinalis</i>) (6510)'. However, the dry meadow and grassy verge habitat located within the site is limited in extent, has a patchy distribution and shows clear saline influences. It does not represent a valuable example of this Annex I habitat type.
Sea walls, piers and jetties CC1	Local importance (Lower Value)	No	This is a man-made and highly modified habitat with no intrinsic ecological value.

5.2.8.2 Selection of Key Faunal Ecological Receptors (Non-avian)

All fauna identified during desktop or field surveys are evaluated below for their conservation importance. Those selected as key ecological receptors are:

- of at least local importance (Higher Value)
- which were recorded during the site surveys or

- for which records are retained by NPWS, BCI or at the NBDC and;
- for which suitable habitat is available;
- require protection under national or international legislation.

In summary, Key Ecological Receptor species are selected on the basis of their legal status, the types of habitat within and around the site and on the basis of current or previously recorded evidence of a species' presence within the site.

Table 5.41 below, illustrates the evaluation rating given to each species. The rationale behind these evaluations is also provided.

Table 5.41 Selection of Key Faunal Ecological Receptors (non-avian)

Species	Legislative Protection	Evaluation ¹⁷	Key Ecological Receptor	Rationale
Bat species	<ul style="list-style-type: none"> All bat species are listed in Annex IV¹⁸ of EU Habitats Directive [92/43/EEC] and the lesser horseshoe bat is listed in Annex II¹⁹ Wildlife Acts 	National Importance/ International Importance <i>Leisler's bat is Important internationally as the Irish population is the largest population in Europe.</i>	Yes	<p>Precautionary principle.</p> <p>Survey evidence indicates that the development site and overall Belvelly Port Facility site have little intrinsic ecological value to roosting or foraging bats.</p> <p>The survey established that while some buildings within the overall site have very limited potential as roosting habitat there is no evidence that any are currently occupied. In addition, the activity survey established that bat activity did not occur until well after sunset and the level of activity throughout the night was very low.</p> <p>However, the legal status and ecological sensitivity of these species and the precautionary principle merit their evaluation as Key Ecological Receptor.</p>
Otter (<i>L. lutra</i>)	<ul style="list-style-type: none"> EU Habitats Directive [92/43/EEC] Annex II and Annex IV Berne Convention Appendix III. Wildlife Acts 	County Importance	Yes	Site confirmed as part of a breeding site for otter. Additionally, individuals visit the Belvelly Port Facility site, on a regular basis to forage and rest.
Common frog (<i>R. temporaria</i>)	<ul style="list-style-type: none"> Wildlife Acts EU Habitats Directive [92/43/EEC] Annex V²⁰. Berne Convention Appendix III. 	Local Importance (Lower Value)	No	Data base record rather than any direct evidence. This species was not recorded within the site and the habitats to be impacted by the proposed development do not constitute the habitat requirements for Common frog or any species of amphibian

¹⁷ As per criteria outlined in Section 5.1.4.¹⁸ Species in need of strict protection.¹⁹ Species requiring designation of Special Areas of Conservation.²⁰ Species whose taking from the wild can be restricted by European law.

Species	Legislative Protection	Evaluation ¹⁷	Key Ecological Receptor	Rationale
Badger (<i>M. meles</i>)	<ul style="list-style-type: none"> Wildlife Acts Bern Convention Appendix III 	Local Importance (Higher Value)	Yes	<p>Precautionary principle.</p> <p>While a single badger was recorded on a trial camera, the on-site areas within the overall Belvelly Port Facility site are not suitable for Badger setts as the ground is mostly very damp and likely prone to flooding. On the basis of the survey evidence it is concluded that use of the site by Badgers is irregular to occasional.</p> <p>This species is protected from injury, or from disturbance / damage to its breeding or resting place wherever these occur. Badger setts are protected even if there are no animals present.</p>
Harbour seal (<i>P. vitulina</i>)	<ul style="list-style-type: none"> Wildlife Acts EU Habitats Directive [92/43/EEC] Annexes II and IV Bern Convention) Appendix III 	Local Importance (Higher Value)	Yes	<p>Precautionary principle.</p> <p>Regularity of sightings.</p>
Fallow deer (<i>D. dama</i>)	<ul style="list-style-type: none"> Wildlife Acts 	No evaluation rating for this site.	No	<p>Data base record only.</p> <p>Species is associated with semi-open woodland with open fields of a type not available within the development site.</p>
Sika deer (<i>C. nippon</i>)	<ul style="list-style-type: none"> Wildlife Acts 	No evaluation rating for this site.	No	<p>Data base record only.</p> <p>Species is associated with semi-open woodland with open fields of a type not available within the development site.</p>
Irish stoat (<i>M. erminea hibernica</i>)	<ul style="list-style-type: none"> Wildlife Acts Bern Convention Appendix III 	Local Importance (Lower Value)	No	<p>Data base record rather than any direct evidence.</p> <p>The species preferentially selects areas that provide some cover with a particular preference for open woodlands and rocky scrub covered areas. The only areas that are unsuitable for a stoat's habitat requirements are open land devoid of any cover.</p> <p>While the woodland to the south of the Belvelly Port site has the potential to attract this species the majority of the site is unsuitable. Notwithstanding that its favoured prey (Rabbit) is present on the site because population densities vary greatly according to the availability of food it is unlikely to be present in numbers.</p>

Species	Legislative Protection	Evaluation ¹⁷	Key Ecological Receptor	Rationale
Hedgehog (<i>E. europaeus</i>)	<ul style="list-style-type: none"> Wildlife Acts Bern Convention Appendix III 	Local Importance (Lower Value)	No	Data base record rather than any direct evidence. Hedgehog, a widespread species, was not noted on site. While it may occur at least occasionally it is associated with areas of farmland, scrub, parkland and gardens rather than the type of modified artificial habitats that dominates the development site.
Pygmy shrew (<i>S. minutus</i>)	<ul style="list-style-type: none"> Wildlife Acts Bern Convention Appendix III 	Local Importance (Lower Value)	No	Data base record rather than any direct evidence. While the species may occur on the site it is primarily associated with habitats rich in ground cover and is most commonly found in hedgerows, grasslands, woodlands and is particularly abundant in peatlands rather than the type of modified artificial habitats that dominates the development site.
Red squirrel (<i>S. vulgaris</i>)	<ul style="list-style-type: none"> Wildlife Acts Bern Convention Appendix III 	Local Importance (Lower Value)	No	Data base record most likely refers to a known population on Fota Island and the species was not recorded on site. It is associated with woodland with hazel, beech and Scots pine preferred.
Red Deer (<i>Cervus elaphus</i>)	<ul style="list-style-type: none"> Wildlife Acts 	No evaluation rating for this site.	No	Data base record only. Species is associated with semi-open woodland with open fields of a type not available within the development site.
Irish hare (<i>Lepus timidus hibernicus</i>)	<ul style="list-style-type: none"> Wildlife Acts Bern Convention Appendix III 	Local Importance (Lower Value)	No	Data base record rather than any direct evidence. While the species may occur on the site it is primarily associated with farmland, particularly where there is a mix of grassland and arable fields along with hedgerows and other cover rather than the type of modified artificial habitats that dominates the development site.

5.2.8.3 Selection of Avifaunal Key Ecological Receptors

All avifauna identified during desktop or field surveys will be evaluated below for their conservation importance. Those selected as key ecological receptors are:

- of at least local importance (Higher Value);
- which were recorded during the site surveys;
- which are species of Red or Amber Conservation Concern in Ireland²¹;
- for which records are retained by NPWS or at the NBDC and;
- for which suitable habitat is available.

In summary, Key Ecological Receptor avifaunal species are selected on the basis of their legal status, the types of habitat within and around the site and on the basis of current or previously recorded evidence of a species' presence within the site.

The evaluation rating given to each avifaunal species is listed in **Table 5.42** below. The rationale behind these evaluations is also provided.

²¹ As per Colhoun *et al.* (2013) Birds of Conservation Concern in Ireland 2014–2019

Table 5.42 Selection of Key Avifaunal Ecological Receptors

Species	Extent	Site Evaluation	Rationale	Key Ecological Receptor
Shore and water birds (including all SCI)	Suitable habitats adjacent to the development area for a number of species of conservation concern	International Importance To Local Importance (Higher Value)	Conservation Status Proximity of site to habitats/occurrence	Yes
Birds of Prey	Known foraging, roosting and breeding area for Peregrine etc.	National Importance To Local Importance (Higher level)	Conservation Status	Yes
Passerines/ pigeons and game birds Red Listed and Amber	Suitable habitats adjacent to the development area for a number of species of conservation concern	National Importance (Higher level) to Local Importance (Higher level)	Precautionary Principle Conservation Status	Yes
Passerines/ pigeons and game birds Green Listed	Observations within adjacent site	Local Importance (Higher Level)	Precautionary Principle Conservation Status	Yes

Overall, most of the proposed Gouldings development site is of local value for terrestrial bird species that are relatively common in the Irish countryside. Vegetation on the boundaries of the overall Belvelly Port Facility site and the early successional, seed producing species found within disturbed ground habitats provide some feeding/nesting resources for birds. In general, the Goulding development site is of a lower local value for a range of terrestrial bird species that are common in the Irish countryside.