

General

- 1.1 Q:** Why is this project required?
- 1.1 A:** As part of Dublin Bay Project it was always planned to have the Ringsend Wastewater Treatment Works (WwTW, Plant) constructed in phases. The first phase provided facilities to cater to an equivalent population of 1.64 million persons (PE). The daily average influent to the works is currently c1.8 million PE and so the plant is operating slightly over its most effective treatment capacity. This phase of the Project will extend the Ringsend Plant to catch up with rapid development experienced over the last decade and to address future development within the catchment area as part of the implementation of the Greater Dublin Strategic Drainage Study (GDSDS). It is worth noting that the capacity for a Plant of this nature would always be considerably higher than just the existing or future population of the city, as it has to also to accommodate the additional needs of industry, tourism and businesses in the capital.
- Further, in July 2010, the Environmental Protection Agency (EPA) issued a Licence for the facility requiring that improvements be made at the Plant to ensure water quality and environmental standards are met without delay.
- 1.2 Q:** What is it intended to achieve?
- 1.2 A:** This project will deliver a robust and reliable Wastewater Treatment Works for Greater Dublin that achieves all water quality and environmental goals, realises the site's maximum achievable capacity, provides value for money, is consistent with the goals of the capital's strategic waste water plan 'Sustainable Dublin' and earns recognition as a community asset.
- 1.3 Q:** What expertise is Dublin City Council (DCC) utilising to assist them in developing the correct wastewater solution for the Greater Dublin area?
- 1.3 A:** DCC is being advised by US consulting engineers CDM, assisted by Royal Haskoning and J B Barry and Partners. This brings together best practice US expertise (CDM), with European capability – Haskoning of The Netherlands, and the local expertise of Barry's. This team, led by DCC, provides exceptional international experience targeted at developing the correct solution for Greater Dublin, while protecting the Bay.
- 1.4 Q:** Who will pay for this?
- 1.4 A:** A significant percentage of the cost of the project will come from Government, through the Department of Environment, Community and Local Government (DECLG), through The Water Services Investment Programme (WSIP). The remainder will come from DCC and the other contributing Local Authorities of Fingal, Dun Laoghaire/Rathdown and South County Dublin.
- 1.5 Q:** How much will it cost?
- 1.5 A:** The ultimate cost of this project will be determined by a competitive tendering process and it would not be appropriate to speculate publicly on this without potentially compromising the bidding process. Suffice to say that the Dublin Bay Project will cost several hundred million euros to complete.
- 1.6 Q:** How long will it take to complete?
- 1.6 A:** Our best current estimate is that construction will extend into 2015. Hundreds of construction jobs will be created to upgrade the Plant and to construct the outfall pipeline.
- 1.7 Q:** Historically, how has Dublin City treated its wastewater?
- 1.7 A:** Before the Dublin Bay Project, wastewater received only primary treatment consisting of settlement. Only a fraction of the waste was removed in this fashion. Raw primary sludge was dumped into the Irish sea and primary treated sewage was discharged into the Liffey River Estuary. The system was extensively upgraded and since 2003, all wastewater is treated biologically to much higher standards in accordance with all Irish and EU regulations, disinfected to meet Bathing Water standards, and discharged into the Liffey River Estuary.

This phase of the project will result in the wastewater being treated to the same high EU standards and discharged into the Irish Sea, outside the Bay, which will result in further improvements in water quality inside Dublin Bay.

1.8 Q: Why can't we just pump any additional wastewater to the new proposed plant in North Dublin?

1.8 A: The North Dublin Plant will be a key piece of infrastructure for the Greater Dublin Region. However, the network infrastructure is already in place in the City Centre to collect and transport wastewater to a central location at Ringsend. It would be excessively costly and unsustainable to pump most of this to the North of the City. However, logical portions of Ringsend catchment will in time be diverted to this North Dublin Plant, in accordance with proposals in the GSDS.

1.9 Q: Is DCC taking every possible step to protect Dublin Bay?

1.9 A: Yes, it is a priority for DCC to maintain and improve Water Quality in the Bay for the enjoyment of all and as such DCC are committing significant investment in the Project. Dublin Bay is a high value amenity area of significant importance to both the City Council and the people of Dublin.

It is widely acknowledged that the Council has achieved considerable success in this regard since 2003 and the proposed extension project aims to build on these successes.

An Environmental Impact Assessment (EIA) is currently underway to thoroughly examine all potential impacts on the Bay and on the local Ringsend area. This will include potential impacts on terrestrial and marine ecology, archaeology, water quality and human beings and a series of mitigation measures, if required, will be detailed in an Environmental Impact Statement (EIS).

2. Water Quality

2.1 Q: How good is the water quality in Dublin Bay and the Liffey River Estuary?

2.1 A: Currently, under the EU Water Framework Directive, Dublin Bay is classified as being of "moderate" status, with the objective of reaching "good" status. The proposed Project will further enhance water quality within the Liffey River Estuary and the Bay.

The bathing waters of Seapoint, Merrion Strand, Sandymount Strand and Dollymount Strand all meeting bathing water standards. Dollymount Strand lost its 2011 Blue Flag on the basis of one non-compliant result during the 2010 bathing season. Water quality results for the 2011 bathing season so far have been in full compliance with the standards necessary to achieve a Blue Flag.

The most recent EPA assessment of the Liffey River Estuary confirms that water quality in the estuary continues to improve: "The observed improvement in water quality in the Liffey estuary is clearly a result of the installation of significantly upgraded treatment facilities at the Ringsend WwTW" *Water Quality in Ireland 2004-2006, EPA.*

2.2 Q: How does it compare with other bays/estuaries in Ireland and Europe?

2.2 A: Dublin Bay and the Liffey River Estuary have unique pressures as they form part of the capital city, but judging by the EPA classifications of coastal and estuarine water quality, Dublin Bay compares well with other bays and estuaries in Ireland.

In addition, the Bay and Estuary compare well with the standards in Europe. Like all other water bodies in Europe, Dublin Bay and the Liffey River Estuary must now reach "good" status under the EU Water Framework Directive. It is against this background that this Project is being designed.

2.3 Q: Are nutrient levels causing problems?

2.3 A: Dublin Bay can on occasion experience problematic growth of macro algae such as Ectocarpus which decays when thrown up onshore causing odour problems. This algal growth has been attributed to the presence of elevated levels of Nitrogen compounds. However, this algal or Ectocarpus issue is not unique to Dublin Bay and occurs in cold and temperate waters around the world. It has been recorded on the Irish coastline as far back as 1906. A recent study conducted by Trinity College of Dublin could not establish any link between the effluent from the Plant and

Ectocarpus growth.

Nutrients discharged from the Plant are not harmful to humans. The total of all forms of nitrogen discharged from the Ringsend Plant (approx 20 mg/L) falls well within the European Safe [Drinking Water](#) standard of 50 mg/L. Phosphorus is not even included in the list of parameters to be regulated in public drinking water supplies

The Liffey River Estuary was designated as a sensitive water body by the Department of the Environment in 2001. This designation recognises that nutrients are being received by the estuary from many sources (e.g., two river systems, incoming seawater and the Ringsend Plant).

The intent of the current Project proposal is to remove that portion of the nutrients attributed to the Plant's treated effluent to a location outside the Liffey River Estuary and the Bay.

2.4 Q: What Dublin Beaches have Blue Flags?

2.4 A: Portrane and The Velvet Strand (Portmarnock) (Blue Flag Awards 2011)

2.5 Q: What is the difference between Blue Flag water quality and general bathing water standards?

2.5 A: The 2006 Bathing Waters Directive gives stronger focus on the protection of public health, a proactive approach to the management of bathing water quality and greater public participation. It establishes stricter microbiological standards. Transitional measures are in place until the new Bathing Water Quality Regulations 2008 (SI No. 79 of 2008) are fully implemented.

Over the bathing season, water quality at each area must comply with the mandatory standards specified in the above Directive for certain parameters. Mandatory values are Faecal Coliforms less than or equal to 500 /100ml for 95% of samples and Faecal Streptococci less than 185 for 90% of samples.

Blue Flag bathing waters cannot exceed 100 Faecal Coliforms. Water quality is but one factor in conferring a Blue Flag for a beach. In addition to Water Quality, there are criteria for Environmental Education & Information, Environmental Management, and Safety & Services that must be met

2.6 Q: In 2001, the Liffey River Estuary was declared to be a Sensitive water body under the Urban Waste Water Treatment Directive. What are the consequences of this?

2.6 A: The Plant is now additionally required to control nitrogen and phosphorus in its discharges to the Liffey River Estuary. Compliance with these regulations could be achieved by either reducing discharge of these nutrients to very low levels or to remove the discharge completely from the Liffey River Estuary. The current Project has chosen the latter approach, which is considered to be a more protective approach to the estuary.

2.7 Q Will the Effluent wash back in and reduce the water quality in Dublin Bay anyway?

2.7 A No, extensive studies have been undertaken to assess all likely impacts of the discharge to Dublin Bay at several potential discharge locations. The Point at which the water will exit into the Irish sea (outfall location) will be decided on based on mathematical hydraulic modelling and water quality modelling of the receiving waters to ensure against exactly that outcome. This modelling has been carried out by Danish Hydraulic Institute using a model which simulates the worst case scenario and shows very localised impacts of the outfall at each of the locations tested.

More detailed modelling of the final option, including extensive field studies, is being undertaken. Based on this, the best location of the outfall discharge point will be selected to ensure that water quality in Dublin Bay and in the bathing areas will not be affected.

2.8 Q Will any other beaches in North or South Dublin be affected by discharging outside the Bay?

2.8 A No, modelling of the 'worst case' scenario and peak flows have shown that the impact of the long sea outfall will be experienced only in a small zone immediately around the discharge point. See 2.7 above.

3. Environmental Issues

- 3.1 Q:** Is the Ringsend Plant currently complying with the Waste Water Treatment Standards for:
- Biochemical Oxygen Demand (BOD)
 - Suspended Solids
 - Nutrients

3.1 A: Pollutant loadings to the works have exceeded the 'Year 2020' design projections. Notwithstanding the adverse loading conditions, the Plant has regularly achieved its effluent limits for BOD, Ammonia Nitrogen and Faecal Coliforms. There are infrequent exceedances of upper limits but the Works has met the respective 95th percentile and 80th percentile compliance limits for these parameters.

After the construction contract for the existing Plant had commenced, the Liffey River Estuary was designated as Nutrient Sensitive under the Urban Waste Water Treatment Regulations. This means that new limits would apply to any nitrogen and phosphorus being discharged into the Estuary. As currently configured, the Plant is incapable of meeting the new standards for nutrients for the loadings it receives.

- 3.2 Q:** Historically, there have been major odour issues with the Ringsend Plant. What is or has been done to address this?

3.2 A: Since the commissioning of the Plant in 2003, significant and frequent odour emissions occurred. DCC engaged external independent consultants, CDM, to assess the situation and advise them of the measures that would be required to bring the situation under control. As a result, significant projects to capture and control odours were implemented.

It is estimated that these improvements reduced odours by 75%. However the Plant has yet to meet the required EU standards and further investment is required to result in acceptable odour levels at the plant boundary. This will be done as part of the planned plant expansion.

- 3.3 Q:** Will the current proposals exacerbate the odour problem?

3.3 A: No, the proposed works will complete the odour control program and bring the Plant into compliance with the required EU/Irish regulations.

- 3.4 Q:** Is there a discharge licence for the Ringsend Treatment Works?

3.4 A: Yes. DCC submitted the application for a Waste Water Discharge Licence (reference no. D0034-01) under the Wastewater Discharge Licence (Authorisation) Regulations, 2007 and all requests for further information from the EPA. A final decision was made by the EPA on 27th July 2010. All the application documents and the licence (D0034-01) are available for public inspection on the Agency's website at www.epa.ie

- 3.5 Q:** Are bacteriological standards being met in Dublin Bay and Estuary?

3.5 A: Bacteriological standards are being met this year at all Bathing Waters in Dublin Bay and the Liffey River Estuary. In accordance with the EU Bathing Water Directive, monitoring of designated bathing waters must be carried out at least once every 14 days during the bathing season of June, July and August. Assessment of water quality involves analysis of three different bacteria which may be present in the water. Dollymount Strand lost its 2011 Blue Flag on the basis of one result during the 2010 bathing season being non-compliant with the the more stringent Blue Flag criteria. However, it achieved good quality standards under the bathing water regulations. Water quality results for the 2011 bathing season so far have been in full compliance with the standards necessary to achieve a Blue Flag.

- 3.6 Q:** What are the recommended improvements to the odour control systems?

3.6 A: Enhanced odour capture and control is one of the priorities of this Project. A stringent odour has been established and recommended works to achieve this include:

- Capture and treat the ventilation air from both dryer buildings
- Provide 50% additional capacity for the Main Odour Control Unit

- Capture and treat the ventilation from the Screenings Building
- Enclose the Grit Storage Skips and provide odour control.
- Dedicated odour control for dewatering and biosolids outloading facilities

3.7 Q How can we be sure DCC will deliver a plant that meets the water quality and environmental standards?

3.7 A Despite the challenges encountered, the overall outcome for Dublin Bay has been positive with significant improvements occurring in the water quality in Dublin Bay over the past decade and regularly acknowledged by the Environmental Protection Agency, The Department of the Environment and An Taisce.

DCC are being advised by US consulting engineers CDM, assisted by Royal Haskoning and J B Barry and Partners. This brings together best practice US expertise (CDM), with European capability – Haskoning of The Netherlands, and the local expertise of Barry's. This team provides exceptional international experience targeted at developing the correct solution for Dublin City, while protecting the Bay.

The operating contract will require daily compliance with Effluent, Odour and Noise parameters. These are contractually enforceable. Financial penalties can be applied for non-compliance with the contract requirements.

3.8 Q How sustainable is the 'long sea outfall option'?

3.8 A The 'Long Sea Outfall option' is the most sustainable and best environmental option for Dublin's wastewater after treatment at the Ringsend Plant. There are no new mechanical processes required. Other options involving nutrient control on site are more energy intensive, require a high level of chemical usage and result in increased sludge being produced, which then requires further thermal treatment.

In addition, the proposed pipeline will have a design life that is significantly longer (i.e. 100 years) than that of any of the additional mechanical treatment options.

3.9 Q: Will there be any odours at the location of the outflow?

3.9 A: No. The treated effluent emits very little odour it will be immediately diluted many times over with sea water at the outfall. The discharge point will be 15-20 meters below sea level.

3.10 Q: Will there be a sea marker or buoy to indicate the location of the outflow?

3.10 A: The harbourmaster does not desire any marker buoys. The admiralty chart will be updated to show the location to mariners.

4. Ectocarpus

4.1 Q: It has been stated that the odour problems in May/June 2010 relate to algae – Ectocarpus. What causes this?

4.1 A: Ectocarpus is a macroalgae, or a type of seaweed. Excess algae can accumulate in the Bay and when it builds up on the shore and starts to decay it can cause localised odour. Excess algal build up can be caused by a number of factors including climatic conditions and nutrient levels. Some past studies had suggested that there may be a link between the treated water discharged at Ringsend and the growth of Ectocarpus. However, no direct link has been found, as demonstrated by recent studies carried out by Trinity College Dublin. The Liffey and Tolka river systems and naturally occurring nitrogen contribute to overall nitrogen levels in addition to the Ringsend Plant discharge. To date there have not been any studies that proportion the mass of nitrogen from each source. The provision of the long sea outfall will remove from Dublin Bay that portion of the nitrogen which arises from the Ringsend Plant discharge.

4.2 Q: Do nutrient levels in the Bay exacerbate the Ectocarpus odour problem?

4.2 A: Nutrients and in particular Nitrogen levels in Dublin Bay can be related to algal growth particularly in the intertidal area of the North and South Bull Lagoons. However, there are other factors that influence algal growth: sunlight penetration, biological (grazing and growth rates), chemical (nutrient limitation) and the combination of these along with some other physical factors leads to

the Ectocarpus growth.

4.3 Q Is it the Nitrogen in the Ringsend Effluent that causes the problem with Ectocarpus?

4.3 A There are a number of sources of nitrogen in Dublin Bay including naturally occurring marine Nitrogen, riverine sources of nitrogen, and nitrogen contained in the Plant's treated water. Recent research carried out in Trinity College Dublin showed no enrichment from the Ringsend Plant in Ectocarpus samples collected at the mouth of the Liffey Estuary. In other words no direct link could be established between the nitrogen discharged as part of the treated water from the Plant and the other sources of nitrogen in the Bay. It is not know whether further reduction of the nitrogen in the Plant's effluent will have any impact on Ectocarpus growth.

4.4 Q: Does the Ectocarpus problem occur elsewhere in Ireland? Elsewhere in Europe and the World?

4.4 A: Yes, this is an international issue. Ectocarpus is naturally occurring and found in temperate and cold sea water conditions around the world. References can be found in Australia, New Zealand, Mauritius, South Africa, the Mediterranean, Northeast US, England and Scotland, as well as Ireland. Ectocarpus may be found in waters near sparsely populated areas well as near built-up areas.

4.5 Q Will the problem with Ectocarpus disappear when/if the outfall moves out to the Irish Sea nearer to the Burford Bank?

4.5 A It is unlikely that the issues with Ectocarpus will disappear as there will be significant levels of Nitrogen still entering the Bay from the river systems, as well as the nitrogen found in the marine waters.

5. Dublin Bay and its Uses

5.1 Q: Myriad uses are made of Dublin Bay, including:

- Swimming/ Diving
- Sailing/Boating
- Walking/Running
- Birdwatching
- Fishing

Will these uses be impacted on by the proposed project?

5.1 A: No, the project is designed such that the uses that are made of Dublin Bay will not be interfered with. There may be a limited amount of short-term impact, during the construction period, e.g. noise and vibration. However, Contractors will be required to minimise this.

Construction in the Irish Sea will be limited to the installation of an outfall diffuser.

5.2 Q: Dublin Bay is an important site for over-wintering Brent geese. Will this be impacted on?

5.2 A: The Brent Geese in Dublin Bay and those in the adjoining Irishtown Nature Reserve have been identified as sensitive receptors as part of the EIA process. An appropriate assessment has been undertaken as part of the application for a Discharge licence for the existing facility and no significant impacts on the Brent Geese populations were identified. There will be no land take that will reduce the Brent Geese grazing area. The principal potential impact identified at this stage is as a result of noise generated during the construction elements of the project and mitigation will be key element of the EIS. It should be noted that the previous construction phase was much more extensive than that proposed and there have been no adverse effects on the Brent Geese reported.

5.3 Q: Do parts of Dublin Bay have Special Area of Conservation (SAC) or Special Protective Area (SPA) designations?

5.3 A: Yes, Dublin Bay has four Sites of European Importance. SACs and SPAs in Dublin Bay are shown on the following figures:

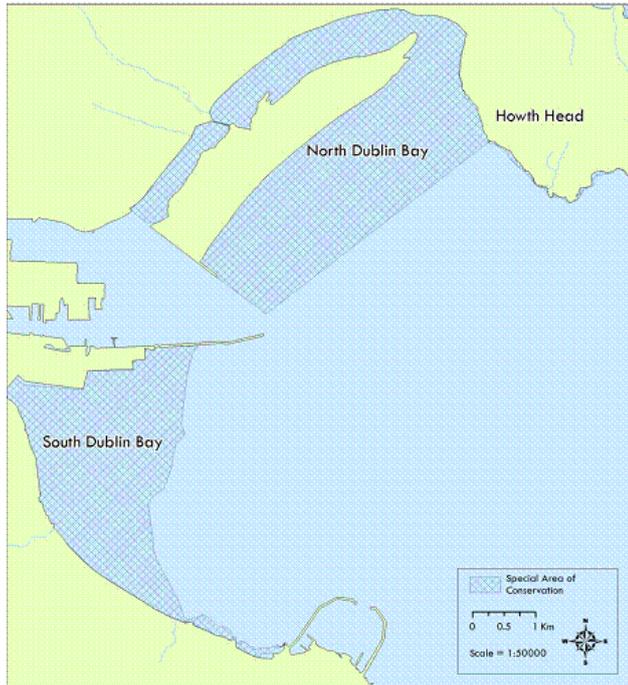


Figure 1 Special Areas of Conservation in Dublin Bay

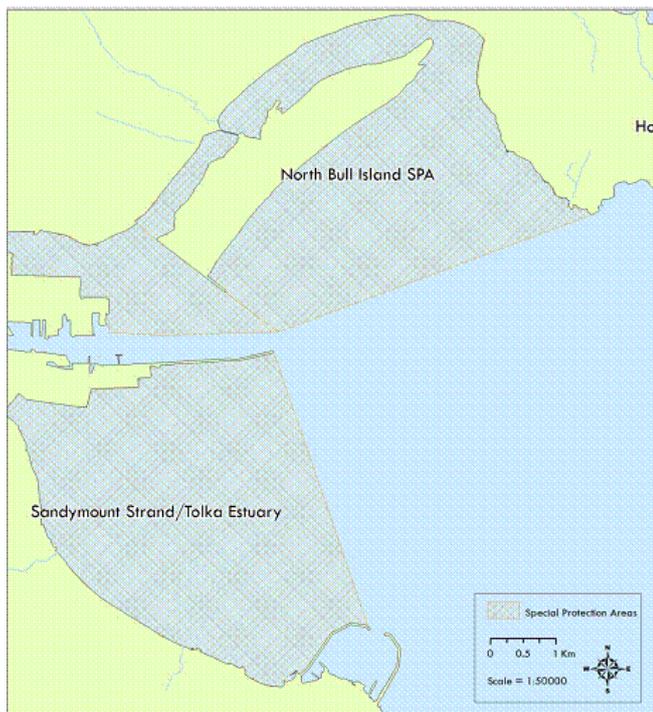


Figure 2 Special Protected Areas in Dublin Bay

South Dublin Bay and River Tolka Estuary SPA

The South Dublin Bay and River Tolka Estuary SPA comprises a substantial part of Dublin Bay. It includes the intertidal area between the River Liffey and Dun Laoghaire, the estuary of the River Tolka to the north of the River Liffey, Booterstown Marsh and an area of grassland at Poolbeg, north of Irishtown Nature Park. The SPA is of international importance for Light-bellied Brent Goose and of national importance for nine other waterfowl species. It is also of international importance as an autumn tern roost.

North Bull Island SPA

North Bull Island SPA is of international importance for waterfowl on the basis that it regularly supports in excess of 20,000 waterfowl. It also qualifies for international importance as the

numbers of two species exceed the international threshold – Brent Goose and Bar-tailed Godwit. A further 15 species have populations of national importance – Shelduck, Teal, Pintail, Shoveler, Oystercatcher, Ringed Plover, Golden Plover, Grey Plover, Knot, Sanderling, Dunlin, Black-tailed Godwit, Curlew, Redshank and Turnstone.

North Dublin Bay cSAC

Annex I Habitats include fixed dunes, marram/shifting dunes, embryonic shifting dunes, dune slack, annual vegetation of drift lines, salicornia mud and sand flats, Atlantic salt meadows, Mediterranean salt meadows, mud and sand flats. Annex II species include Petalwort. The site overlaps with North Bull Island SPA.

South Dublin Bay cSAC

The site has extensive areas of sand and mudflats, a habitat listed on Annex I of the EU Habitats Directive. The largest stand of Eelgrass on the east coast occurs at Merrion Gates. New habitats are developing just south of Merrion Gates including embryonic dunes and a sand spit. This area is becoming increasingly important as a high tide roost site for waterfowl. The site overlaps with South Dublin Bay and River Tolka Estuary SPA.

- 5.4 Q:** Are these designations likely to be revised upwards? Increased Area?
- 5.4 A:** It is likely that more areas will be nominated for protection. This is the case at the moment where the Kish Bank (outside Dublin Bay) has been proposed as a Special Area of Conservation due to its habitat qualities. The proposal will be reviewed in Europe before it can be given Natura 2000 status. It is quite likely that as more priority habitats and species are discovered around the country that initiatives will be undertaken to have them officially designated.
- We have given careful consideration to these factors and planned this Project accordingly. See response 6.3 below.
- 5.5 Q:** Do the proposals impact on the commercial uses – Dublin Port and Dun Laoghaire Port?
- 5.5 A:** No. And specifically the shipping lanes are to be avoided
- 5.6 Q:** What about during construction? Shipping lanes?
- 5.6 A:** Shipping lanes will not be interfered with, either during the construction period, or subsequently
- 5.7 Q:** Are birds and the natural environment affected by the proposals?
- 5.7 A:** Ecology has been identified as one of the key elements of the EIS. Appropriate assessments are being undertaken by environmental specialists for the existing discharge and also for the sea outfall option. No significant impacts have been identified at this stage. There will be additional assessments carried out as part of the EIS process for the extension.
- 5.8 Q:** Are “best practices” in terms of ecosystem management being utilised?
- 5.8 A:** Yes, DCC are acutely aware of the ecological heritage in Dublin Bay and its environs and have developed the Dublin Bay Water Quality Management Plan which sets out a list of priority objectives to be achieved in relation to the Bay. DCC have also created the Irishtown Nature park as an area specifically zoned for wintering Brent Geese populations.
- 5.9 Q:** Is enhanced biodiversity likely to result?
- 5.9 A:** The preferred discharge option of a long sea outfall discharging out into the Irish Sea will have a positive impact on the water quality within the Bay and its protected areas as a result of the present discharge to the Liffey Estuary being ceased. Whether this will lead to enhanced biodiversity which is dependent on a wide range of other diverse factors apart from water quality remains to be seen. The findings and assessments to date suggest that proposal will not reduce biodiversity and indeed should have a positive effect.
- 5.10 Q:** Are the requirements of the EU Birds Directive and the Habitats Directive being fully taken into account?

5.10 A: The Birds and Habitats Directives have been taken into account and a series of appropriate ecological assessments are being undertaken as part of the option assessment process. Ecology has been identified as one of the key elements to be addressed in the EIS.

6. EU Requirements and the EU Urban Waste Water Treatment Directive

6.1 Q: EU Requirements for Dublin Bay and Estuary include:

- EU Bathing Water Directive
- EU Waste Water Treatment Directive
- EU Water Framework Directive
- EU Habitats Directive
- EU Birds Directive

Will the proposed project affect compliance with these directives?

6.1 A: No – the proposals are required to result in compliance with these Directives.

6.2 Q: Though the Blue Flag system is not an EU initiative, will Blue Flags in Dublin Bay be affected?

6.2 A: No. In fact, overall water quality in Dublin Bay should improve.

6.3 Q: How can you be sure that EU laws won't change in the future and that pumping out to sea won't be permitted any longer?

6.3 A: While we can't predict how EU legislation will evolve, recent EU legislation (the Water Framework Directive and the Marine Directive) has shifted the perspective from the legislating on the activity permitted to the effect of an activity on the receiving environment. The assessment approach adopted has been undertaken from the perspective of the change in quality of the receiving water rather than the effluent quality alone. If it can be shown that a discharge to sea will not result in deterioration in the status of the receiving water body, it is considered unlikely that such activity will be prohibited. There are a number of instances in which effluents treated to lesser standards than those proposed for the Project have been accepted by the EU after demonstrating to their satisfaction that the discharge would not degrade receiving water quality.

Furthermore, the proposals provide for disposal of the treated water to the Irish Sea, outside Dublin Bay. It is unlikely that increased standards will be applied to open sea areas. The treated water has to be discharged to a suitable water body.

6.4 Q: The EU Marine Strategy Framework Directive (adopted in June 2008) is aimed at protecting more effectively the marine environment across Europe. It aims to achieve good environmental status of the EU's marine waters by 2020. How has the potential implications of this Directive been considered by the design team and DCC?

6.4 A: The Marine Strategy Framework Directive can be considered as an extension of the EU Water Framework Directive. The parameters by which good status will be measured remain to be defined. At present there are no standards for the discharge of treated water to the open sea apart from the emission standards contained in the EU UWWT regulations. However the assessment of the impacts of the discharge from the proposed extension will assess the water quality in the sea as if it were classified as coastal water under the EU Water Framework Directive. It is unlikely that good status requirements will be more stringent for the open sea areas than for coastal water bodies within 1 km of the shore.

6.5 Q: The Liffey Estuary was designated as 'sensitive' under Schedule 3 of the UWWT regulations 2001. Is the current discharge in compliance with the Regulations?

6.5 A: The current discharge into the Liffey estuary is not in compliance. The proposed project extension will result in compliance being achieved.

7. Population and Loading

7.1 Q: The current Ringsend plant loading is now estimated at c1.8m P.E. Is an increase in this now proposed?

7.1 A: Yes, an increase to 2.1 million PE is now proposed. This takes into consideration all recent CSO projections and projections in the Regional Planning Guidelines which focuses on development and balanced growth in gateways like Dublin City.

7.2 Q Where have the high figures for projected population come from? Are these figures based on over optimistic projections in development plans written or influenced by the situation during the 'boom years'?

7.2 A The population of Ireland is still increasing, albeit at a slower rate than during the 'boom years' of this decade and the last. The birth rate still exceeds the death rate, although net migration is reducing the overall rate of population increase. A longer term view of population growth has been considered and projections are in line with current planning guidelines for the Greater Dublin Region.

8. Engineering Options Examined

8.1 Q: What engineering options for the Ringsend Plant were examined?

8.1 A: Several treatment scenarios were considered on the Plant site. These included Chemically Enhanced Primary Treatment (CEPT); Deep Shaft Reactor and Membrane Bioreactor technology; Denitrification filters; side-stream treatment, (SHARON & ANAMOX); conventional activated sludge systems; SBRs; Ballasted flocculation and Biofilters. The designation of the receiving waters to which the existing outfall discharges as 'sensitive' and the site restrictions has had the effect of reducing the viable options for the site. All of the considered options were analysed in terms of non-cost factors such as sustainability, power and chemical consumption, ease of operation & reliability, and cost factors such as operational and capital costs. A Long Sea Outfall discharging wastewater treated to the current secondary standard was found to be the most favourable option.

8.2 Q: What were the pros and cons for the various options?

8.2 A: All of the Nutrient Control alternatives were more expensive than the Long Sea Outfall option. They also consume more energy, use more chemicals, and produce more sludge and greenhouse gases. The Long Sea Outfall option is simple to operate and maintain, is the lowest-risk alternative and the most sustainable solution. It will meet the water quality standards and will protect existing Natura 2000 sites and bathing waters

8.3 Q: What were the selection criteria?

8.3 A: The selection criteria were:

1. Compliance with the Water Quality Standards
2. Environmental Impact
3. Cost, both capital and operation and maintenance
4. Value for Money

8.4 Q: Did cost have a major influence?

8.4 A: Once the water quality and environmental objectives were met, cost became the determining factor.

8.5 Q: Is this the right solution for the Ringsend Plant?

8.5 A: Yes. As outlined above, arriving at a recommended solution for Ringsend took place only after a comprehensive examination of the available options. The Long Sea Outfall solution is the most beneficial option for the Ringsend Plant Extension.

The Long Sea outfall option has been utilised for other major coastal cities worldwide – including: Lisbon, Portugal; Barcelona, Spain; Sydney, Australia; and Boston, Miami and Los Angeles in the USA. These cities all enjoy vibrant harbours with myriad recreational opportunities.

8.6 Q: How much consideration to the Environment has been given in this plan?

8.6 A: The proposals for Ringsend are being fully assessed in an Environmental Impact sense, and a written Environmental Impact Statement will be prepared. The proposals will include developing solutions to ameliorate any unacceptable environmental impacts. The recommended option is considered to be the Most Cost Effective for Dublin, while meeting environmental objectives.

9. Cost Benefit Analysis and Value for Money

9.1 Q: What was the outcome of the Cost Benefit Analysis carried out for the project?

- 9.1 A:** The Cost Benefit Analysis showed that Secondary Treatment with Long Sea Outfall discharge represents best value for money. The cost variance depends on outfall length, but in all cases the whole life cost of the proposed solution is lower than any other alternative.
- 9.2 Q:** How is this Project Value For Money?
- 9.2 A:** A Net Present Value (NPV) calculation has been carried out to take into account initial capital costs, operating costs and other costs that would be incurred throughout the life of the facilities and the whole-life cost of this option is lower than any other alternative.
- 9.3 Q:** Will there be any industrial or commercial contribution at all given the state of the economic situation?
- 9.3 A:** Industries and commercial properties will continue to contribute to wastewater treatment through the Trade licensing mechanism already in place.

Water Pollution Discharge Licences are issued under Section 16 of the Local Government (Water Pollution) Act 1977 as amended in 1990, in order to allow companies and other bodies to discharge a controlled amount of trade effluent to a public sewer.

10. Ringsend Plant Proposals

- 10.1 Q:** What alterations are proposed at the Plant site?
- 10.1 A:** In addition to the proposed long sea outfall, the following works are proposed on site to provide additional capacity, adequate redundancy, a high level of odour control and meet effluent standards:
- Increase influent and intermediate pumping capacity to 13.8 m³/s
 - Extend the primary treatment (lamella packs) to improve removal rates at higher flows
 - Install additional secondary treatment to increase firm treatment capacity to 2.1 million PE and accommodate peak flow of 2.3 m³/s
 - Install covers on upper level Sequence Batch Reactors and install effluent fine filters
 - Add additional blowers to the aeration system
 - Expand the sludge handling facilities by installation of increased thickening, dewatering, digestion and thermal hydrolysis capacity.
 - Increase sludge storage capacity and provide biosolids outloading facilities
 - Odour control for all new facilities (in addition to odour improvements outlined in FAQ 3.6)
- 10.2 Q:** Is additional capacity to be provided?
- 10.2 A:** Yes -- See FAQ 7.1
- 10.3 Q:** What changes to the sludge handling facilities are planned?
- 10.3 A:** The capacity of the sludge handling facilities will be increased in line with the overall Plant expansion. See also FAQ 10.1
- 10.4 Q:** What changes to the odour handling facilities are planned?
- 10.4 A:** See FAQ 3.6
- 10.5 Q:** Will additional traffic be generated?
- 10.5 A:** The impact of traffic will be assessed during the EIA process, however the 'Long Sea Outfall option' will result in significantly less traffic movements than any of the on-site Nutrient Control options i.e. less chemical deliveries to site and less biosolids haulage off-site.
- 10.6 Q:** Will noise and dust levels change?
- 10.6 A:** There will be some noise and dust impacts during the construction period, although the Contractor will be required to control both of these within specified limits. In the subsequent operational phase, it is required that noise and dust are controlled within internationally accepted limits.

- 10.7 Q:** Will Operation and Maintenance costs change?
- 10.7 A:** Yes, as more wastewater is treated on site, Operation and Maintenance (O&M) costs will increase. However, O&M costs for the preferred option are likely to be significantly less than the costs for any of the other alternatives.
- 11. Long Sea Outfall**
- 11.1 Q:** What is involved?
- 11.1 A:** Construction of a 5.0m diameter tunnelled outfall under the seabed which is likely to travel between 8 and 9 km out to sea. Further modelling and geological explorations are being carried out to finalise the required length and optimal discharge location with minimal impact.
- 11.2 Q:** What are the advantages of the Long Sea Outfall?
- 11.2 A:** The secondary treatment and Long Sea outfall option is cost effective. It is also far simpler to operate and maintain, and is therefore the low-risk alternative. It also consumes less energy, uses less chemical, and produces less sludge and greenhouse gases.
- 11.3 Q:** What are the disadvantages?
- 11.3 A:** Minimal, in contrast to the decided advantages of the Long Sea Outfall solution.
- 11.4 Q:** If the Urban Waste Water Treatment regulations only refer to the Liffey River Estuary. Why not just extend the outfall a shorter distance out into the Bay?
- 11.4 A:** The mathematical modelling which has been carried out shows that this would not be acceptable in a water quality sense. There is a possibility that Dublin Bay could be designated as 'sensitive' at some time in the future. The proposed solution extends the outfall beyond Dublin Bay into the Irish Sea.
- 11.5 Q:** What impact will this have on marine life and ecosystems at the outflow point at the head of the bay?
- 11.5 A:** Impacts will be minimal, however as part of the EIA process, marine ecology assessments will be undertaken to ascertain any potential impacts and outline mitigation measures.
- 11.6 Q:** Where will all this wastewater be washed up?
- 11.6 A:** Wastewater will not wash up anywhere. The water that is being discharged will be treated to a high standard. In addition, natural chemical, biological and biochemical processes in the sea will provide their own forms of natural treatment and degrade any remaining organic substances.
- 11.7 Q:** How can you be sure that the effluent discharge won't end up being washed back into the beaches of Dublin Bay and elsewhere?
- 11.7 A:** Extensive studies have been undertaken to assess all likely impacts of the discharge to Dublin Bay. The effluent outfall location selection will be based on mathematical hydraulic modelling and water quality modelling of the receiving waters. The exact location will be specifically selected to ensure that there is no adverse impact on Dublin Bay or any of its Beaches.
- 11.8 Q** How will the Long Sea Outfall be constructed?
- 11.8 A** The outfall pipeline will be constructed as a bored tunnel below the sea bed. The point of entry on the land side will be on Poolbeg peninsula on land currently owned by the ESB. There will be no disruption to the sea floor along the tunnel's length other than at its terminus where it will rise to an elevation between 20 and 25 m below the water surface.
- 12. Environmental Impact Assessment**
- 12.1 Q:** Is this being prepared?
- 12.1 A:** Yes

12.2 Q: To whom will the EIS be submitted?

12.2 A: [An Bord Pleanála](#)

12.3 Q: What Statutory Consultation is required?

12.3 A: Consultation with both statutory and non statutory bodies will take place as part of the EIS scoping process to ensure that all issues are covered. The following statutory bodies have been consulted: [An Bord Pleanála](#); [An Comhairle Ealaíon \(The Arts Council\)](#); [An Taisce - The National Trust for Ireland](#); [Bord Fáilte](#); [Department of Agriculture, Fisheries and Food](#); [Department of Tourism, Culture and Sport](#); [Department of Enterprise, Trade and Innovation](#); [Department of the Environment, Heritage, and Local Government](#); [Department of Communications, Energy and Natural Resources](#); [Department of Community, Equality and Gaeltacht Affairs](#); [Department of Justice and Law Reform](#); [Environmental Protection Agency](#); [Irish Aviation Authority](#); [Local Authorities \(likely to be affected\)](#); [Regional Authorities \(likely to be affected\)](#); [Commission for Electricity Regulation](#); [Relevant Airport operator](#); [Health and Safety Authority](#) ; [National Roads Authority](#); [Office of Public Works](#); [Railway Procurement Agency](#); [National Transport Authority](#); [Inland Fisheries Ireland](#) ; [The Heritage Council](#); [the Health Services Executive](#).

13. EPA Licensing

13.1 Q: What is the Licensing process?

13.1 A: [DCC](#) have submitted the application for a Waste Water Discharge Licence (reference no. D0034-01) under the Wastewater Discharge Licence (Authorisation) Regulations, 2007 and all requests for further information from the EPA. A final decision was made by the EPA on 27th July 2010. All the application documents and the licence (D0034-01) are available for public inspection on the Agency's website at www.epa.ie

13.2 Q Is there a licence in place now?

13.2 A The Licence for the Ringsend Plant facility was granted by the EPA on the 27th July 2010.

13.4 Q Is the Plant in breach of EU regulations?

13.4 A The Plant is now licensed in line with EU regulations. The Ringsend Plant discharge will be in compliance with UWWT nutrient standards when this phase of the project is commissioned.