Our Ref: ABP-301908-18

An Bord Pleanála

Sabrina Joyce Kemper
23 Portmarnock Cresent
Portmarnock
County Dublin

Date: 23 August 2018

Re: Greater Dublin Drainage Project consisting of a new wastewater treatment plant, sludge hub centre, orbital sewer, outfall pipeline and regional biosolids storage facility
Townlands of Clonshagh, Dubber and Newtown, County Fingal and Dublin City

Dear Madam

An Bord Pleanála has received your recent submission in relation to the above mentioned proposed development and will take it into consideration in its determination of the matter. A receipt for the fee lodged is enclosed.

The Board will revert to you in due course with regard to the matter.

Please be advised that copies of all submissions / observations received in relation to the application will be made available for public inspection at the offices of Dublin City Council and Fingal County Council and at the offices of An Bord Pleanála when they have been processed by the Board.

More detailed information in relation to strategic infrastructure development can be viewed on the Board's website: www.pleanala.ie.

If you have any queries in the meantime please contact the undersigned officer of the Board. Please quote the above mentioned An Bord Pleanála reference number in any correspondence or telephone contact with the Board.

Yours faithfully,

Kieran Somers
Executive Officer
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SID Submission by: Sabrina Joyce-Kemper
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SID Submission in reference to: Greater Dublin Drainage Project consisting of a new wastewater treatment plant, sludge hub centre, orbital sewer, outfall pipeline and regional biosolids storage facility **Case reference:** PL06F.301908

1. Introduction.

Due to the extremely high volume of technical documents involved in this project and the difficulty in reviewing all technical documents in the allotted consultation time, I have focused my submission on the construction and operation of orbital and outfall pipe which is just one part of the overall project. However, I do wish to request an Oral Hearing on the application due to its significant environmental impacts and the public interest aspect of the plan.

After careful examination of the Natura Impact Statement and the Environmental Impact Assessment Report, It is clear that the project contravenes Article 6 section 1, Article 6 section 2 and Article 6 section 3 of the Habitats Directive.

Both the construction phase of the project and the operational phases of the project will have significant negative impacts on the habitats and species in Baldoyle SAC, Irelands Eye SAC and Rockabill SAC which will result in the certain deterioration of the habitats and disturbance of species contrary to the conservation objectives for these sites and the associated habitats adjacent to them. The Natura impact statement does admit to some impacts but heavily relies on hypothetical mitigation scenarios and measures to negate the significant negative impacts. In this submission I have highlighted areas where negative impacts in the NIS and marine biodiversity document have been underestimated and indirect but relevant impacts that have been omitted completely and have not therefore been considered or mitigated against at all.

There is an abundance of EU Commission case law which clearly identifies the role of the competent authorities of member states (in this case An Bord Pleanala) and their legal responsibility in the the implementation and interpretation of the Habitats Directive. In fact the legislation has been honed over the years to ensure the strictest of protections and member states have been actively taken to court by the commission when the Habitats Directive has not been enforced. This submission will list the legislation that dictates why this project cannot be green-lighted, quote legal precedents which support this opinion and indicate how they are relevant to this project application.

Official EU Complaint Procedure: Pre-emptive Protection: In addition to this consultation submission, I will also be making a submission via the EU Commissions complaint form as I believe this project is a potential breach of Environment law, Bathing waters legislation in addition to making a complaint submission under the separate form for Water Framework Directive.

2. Application of Article 6.2 of Habitats Directive.

Article 6.2- Member States shall take appropriate steps to avoid, in the special areas of conservation, the deterioration of natural habitats and the habitats of species as well as disturbance of the species for which the areas have been designated, in so far as such disturbance could be significant in relation to the objectives of this Directive

Ireland has not had a good track record with properly implementing this legislation and have ended up in court on a number of occasions when the competent authority failed to enact legislation at planning stage forcing action in the courts.

One such case which is relevant in terms of legal precedence is the Owenduff-Nephin Beg Complex SPA case (Case C-117/00, Commission v Ireland, paragraphs 28-30) taken against Ireland in which the Commission took Ireland to Court for failing to take the necessary measures to prevent the blanket bog of the Owenduff-Nephin Beg Complex SPA from being damaged by overgrazing. In considering the Case the Court made reference to the Conservation plan for the SPA completed in 2000 which stated that the site was heavily eroded due to excessive number of sheep. *"According to the Conservation Plan mentioned in*

paragraph 28 of the present judgment, it will be necessary to keep grazing at a sustainable level in order to achieve objectives such as the maintenance and, where possible, the enhancement of the ecological value of both the priority habitat of the Owenduff-Nephin Beg Complex, that is to say blanket bog, and other habitats characteristic of the site and the maintenance and, where possible, increase of populations of birds mentioned in Annex I to the Birds Directive which frequent the site, including in particular the Greenland White-fronted Goose and the Golden Plover, species which provided justification for the classification of the site as an SPA. Overgrazing by sheep is in fact causing severe damage in places and is the greatest single threat to the site." "It follows from the foregoing that Ireland has not adopted the measures needed to prevent deterioration, in the Owenduff-Nephin Beg Complex SPA, of the habitats of the species for which the SPA was designated".

Baldoyle SAC also has an important population of Golden Plover, over 1% of Irelands population has its habitat in Baldoyle SAC. In addition to Golden Plover the Baldoyle Bay SAC is home to notably protected species namely Shelduck, Bar Tailed Goodwit, Ringed Plover, Grey Plover and Light Bellied Brent geese. The conservation objectives for Baldoyle SAC in relation to all of these species is:

Objective 1:
To maintain the favourable conservation condition of the waterbird Special Conservation Interest species listed for Baldoyle Bay SPA, which is defined by the following list of attributes and targets:

Attribute:	Population trend.
Target:	The long term population trend should be stable or increasing

Attribute:	Distribution
Target:	There should be no significant decrease in the range, timing or intensity of use of areas by the waterbird species of Special Conservation Interest other than that occurring from natural patterns of variation.

Objective 2:
To maintain the favourable conservation condition of the wetland habitat at Baldoyle Bay SPA as a resource for the regularly-occurring migratory waterbirds that utilise it. This is defined by the following attributes and targets:

Attribute:	Wetland habitat
Target:	The permanent area occupied by the wetland habitat should be stable and not significantly less than the area of 263 ha, other than that occurring from natural patterns of variation.

3. Habitat directive 6.3 and the importance of reasonable doubt.

Article 6.3 of the Habitats directive states: "Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives. In the light of the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public. "

This project is a significant infrastructural project one of the biggest any state body/ semi state body has undertaken in a number of years. The one thing that all Natura Impact statements share is that they all tend to come to the conclusion that there are probabbly no significant adverse impacts to any SAC if all encompassing mitigation measures are put in place. This leaves the competent authority in the position of having to read through the lines and try to evaluate if hypothetical mitigation can stave off actual negative impacts. Luckily Article 6.3 above advises obtaining the opinion of the general public who with local knowledge, can help highlight and broaden the potential negative impacts on a Protected Habitat and its species.

There have been a number of high profile cases which have tested the Habitats Directive legislation and their judgments give clear direction to competent authorities regarding the very stringent implementation of article 6.3. Some of the most important judgments are explained or quoted below.

i. According to settled case-law, the appropriate assessment of the implications for the site that must be carried out pursuant to Article 6(3) implies that all the aspects of the plan or project which can, either individually or in combination with other plans or projects, affect those objectives must be identified in the light of the best scientific knowledge in the field (see, to that effect, judgments in *Commission* v *France*, C-241/08, EU:C:2010:114, paragraph 69; *Commission* v *Spain*, C-404/09, EU:C:2011:768, paragraph 99, and *Nomarchiaki Aftodioikisi Aitoloakarnanias and Others*, C-43/10, EU:C:2012:560, paragraphs 112 and 113).

ii. The assessment carried out under Article 6(3) of the Habitats Directive may not have lacunae and must contain complete, precise and definitive findings and conclusions capable of removing all reasonable scientific doubt as to the effects of the works proposed on the protected site concerned (judgment in *Briel and Others*, C-521/12, EU:C:2014:330, point 27).

iii. In Peter Sweetman, Ireland, Attorney General, Minister for the Environment, Heritage and Local Government v An Bord Pleanála C-258/11, the correct application of the aforementioned provisions was summarised by the Court: "40. Authorisation for a plan or project, as referred to in Article 6(3) of the Habitats Directive, may therefore be given only on condition that the competent authorities - once all aspects of the plan or project have been identified which can, by themselves or in combination with other plans or projects, affect the conservation objectives of the site concerned, and in the light of the best scientific knowledge in the field - are certain that the plan or project will not have lasting adverse effects on the integrity of that site. That is so where no reasonable scientific doubt remains as to the absence of such effects (see, to this effect, Case C404/09 Commission v Spain, paragraph 99, and Solvay and Others, paragraph 67).

iv. Reliance on future mitigation measures in order to address any potential LSE is improper: a decision is unlawful if any reasonable scientific doubt exists at the time it is made. In Commission v Portugal C-239/04 (at para. 24) the Court (again approving A. G. Kokott's Opinion) stated: "The fact that, after its completion, the project may not have produced such effects is immaterial to that assessment. It is at the time of adoption of the decision authorising implementation of the project that there must be no reasonable scientific doubt remaining as to the absence of adverse effects on the integrity of the site in question (see, to that effect, Case C-209/02 Commission v Austria [2004] ECR I1211, paragraphs 26 and 27, and Waddenvereniging and Vogelbeschermingsvereniging, paragraphs 56 and 59)."

v. The following judgment is extremely relevant in terms of clarifying that the mere risk or potential that a project would contribute to the partial destruction of a priority natural habitat or priority species is enough to disallow authorisation of a project. The judgment is Peter Sweetman, Ireland, Attorney General, Minister for the Environment, Heritage and Local Government v An Bord Pleanála C-258/11, paragraph 43 which states:

"The competent national authorities cannot therefore authorise interventions where there is a risk of lasting harm to the ecological characteristics of sites which host priority natural habitat types. That would particularly be so where there is a risk that an intervention of a particular kind will bring about the disappearance or the partial and irreparable destruction of a priority natural habitat type present on the site concerned (see, as regards the disappearance of priority species, Case C-308/08 *Commission* v *Spain*, paragraph 21, and Case C-404/09 *Commission* v *Spain*, paragraph 163)."

Above it has been ascertained that EU Legislation is quite clear that that the burden of proving that there are no impacts lays with the applicant and that if they and subsequently the competent authority, cannot guarantee that the project will have no effect and there is any shadow of doubt that there may be an impact whatsoever, then the project cannot be approved.

In the spirit of this legal context, in the next section I lay out some sample examples of how this project will without a doubt, directly cause or indirectly contribute to the destruction of the favourable conservation condition of the habitat and also to the significant decrease in the range, timing or intensity of use of areas by the waterbird species of Special Conservation Interest other than that occurring from natural patterns of variation.

4. Disturbance of Priority Species in Baldoyle SAC/ SPA and Irelands Eye SAC/ SPA.

In relation to Disturbance of protected species in Sacs/ SPA there is also a great deal of proven case law. One such judgment states;

> *Protecting sites from passive as well as active man-induced deterioration and disturbance To implement Article 6(2) of the directive fully, it is not sufficient to merely protect designated sites from any operation with potential to cause disturbance without also ensuring that deterioration due to neglect or inactivity is avoided. It may be necessary to adopt both measures intended to avoid external man-caused impairment and disturbance and measures to prevent natural developments (eg natural succession) that may cause the status of species and habitats in SACs to deteriorate. "It is clear that, in implementing Article 6(2) of the Habitats Directive, it may be necessary to adopt both measures intended to avoid external man-caused impairment and disturbance and measures to prevent natural developments that may cause the conservation status of species and habitats in SACs to deteriorate". (Case C-6/04, Commission v UK, paragraphs 34) 3. Ensuring a sufficient protection regime*

There is no management plan for Baldoyle SAC or Irelands eye SAC and so there is no scope on how to manage human impacts or natural impacts. This in itself could be deemed a contravention of article 6.2 of the Habitats Directive, based on the significance of the site and pressure of impacts from the intensive residential developments within 5k radius of the site.

Disturbance of birds can occur for a number of reasons and has wide and significant negative impacts.

Issue can that can be raised as a result of disturbance events are:

• Temporal availability – whether waterbirds have the opportunity to exploit the food resources in a disturbed area at times when the disturbance does not occur;

• Availability of compensatory habitat - whether there is suitable alternative habitat to move to during disturbance events;

• Behavioural changes as a result of a disturbance - e.g. degree of habituation;

• Time available for acclimatisation - whether there is time available for habituation to the disturbance. (there may be a lack of time for waterbirds during the staging period);

• Age - for example when feeding, immature (1st winter birds) may be marginalised by older more dominant flocks so that their access to the optimal prey resources is limited. These individuals may already therefore be under pressure to gain their required daily energy intake before the effects of any disturbance event are taken into account;

• Timing/seasonality - birds may be more vulnerable at certain times e.g. pre- and postmigration, at the end of the winter when food resources are lower;

• Weather - birds are more vulnerable during periods of severe cold weather or strong winds;

• Site fidelity – some species are highly site faithful at site or within-site level and will therefore be affected to a greater degree than species that range more widely;

• Predation and competition – a knock-on effect of disturbance is that waterbirds may move into areas where they are subject to increased competition for prey resources, or increased predation – i.e. the disturbance results in an indirect impact which is an increased predation risk.

Any activity that causes disturbance can lead to the displacement of waterbirds. The significance of the impact that results from even a short-term displacement should not be underestimated. In terms of foraging habitat, displacement from feeding opportunities not only reduces a bird's energy intake but also leads to an increase in energy expenditure as a result of the energetic costs of flying to an alternative foraging area. Displacement also has knock-on ecological effects such as increased competition (within and/or between different species) for a common food source. In areas subject to heavy or on-going disturbance, waterbirds may be disturbed so frequently that their displacement is equivalent to habitat loss. When disturbance

effects reduce species fitness (reduced survival or reproductive success) consequences at population level may result.

The Baldoyle Bat SAC conservation objectives documents contain a number of foraging and roost surveys undertaken in 2012 and they are included in the conservation report for the site.

These surveys which are illustrated in figures 2-9 inclusive, deal with the most protected bird species on the site for which the original SPA was designated. These surveys very clearly show that all the species birds roost and forage predominantly in the same cross section area of Baldoyle SAC that the GDD projects plans to Tunnel under and build the construction compounds either side of. Fig no. shows the location of the construction compounds and the tunnel boring route through the SAC.

Page 12 of the NIS explains the tunnel construction and compounds' operation as follows:

The microtunnelled section will require two proposed temporary construction compounds onshore, in the open field immediately west of the R106 Coast Road (chainage 0,000m) (proposed temporary construction compound no. 9) and in the grassed space (chainage 1,000m) adjacent to the public car park off the Golf Links Road, immediately north of Portmarnock Golf Club (proposed temporary construction compound no. 10). At proposed temporary construction compounds no. 9 and no. 10, the drive/reception shafts will be constructed, tunnelling equipment will be located and the tunnel materials will be stored temporarily. Waste material from the tunnel will be removed and disposed of in accordance with waste management legislation. Preliminary analysis estimates that microtunnelling will progress at a rate of approximately 60m per week and that the tunnelling will take in the region of 12 months, which includes for site mobilisation. On completion of the construction works, proposed temporary construction compounds no. 9 and no. 10 will be dismantled and the ground will be reinstated to its original condition. The proposed area for temporary construction compounds no. 9 and no. 10 will require a plan area of approximate dimensions of 150m x 100m and will contain the following plant and facilities:

- *Office area including car parking;*
- *Launch (Jacking) shaft with Jacking station;*
- *Tunnelling equipment including:*
    - *o Tunnel Boring Machine (TBM);*
    - *o Control unit;*
    - *o Hydraulic pump units;*
    - *o Generators;*
    - *o Bentonite mixing plant; and*
    - *o Water separation plant;*
    - *Storage area for jacking pipes, fuel, bentonite;*
    - *Crane; and*
    - *Excavator.*

Microtunnelling will operate on a continuous 24-hour/7-day basis for the duration of the tunnelling works.

Based on the roosting and forage locations in relation to the compounds and the tunnel route the potential risk of disturbance is extremely likely. The only mitigation measure mentioned in the NIS in relation to the compounds is to fence them off and create a visual shield.

The potential disturbances cause by the tunnelling and placement of the compounds are listed below.

D1). The boring machine will operate 24/ this means human activity 24 hours 7 days a week and seismic output 24hours 7 days a week for 12 months. This is significant activity leaving no recuperation time form disturbance for the Birds.

Egg hatchings and fledgling are particularly vulnerable to seismic activities which may result in loss of eggs or young, dispersion from the nest site or rookery, and disruption of vital parent-offspring bonds.

The EU Commission took Spain to court of its failure to protect protected bird species from constant vibratory disturbance. The judgment was as follows:

"In the same Case, the Commission argues that the mining operations concerned are, by reason of the noise and vibrations which they produce and which are felt within the 'Alto Sil' SPA, likely significantly to

disturb the capercaillie population protected by virtue of that SPA. "It is apparent from the documents before the Court that, as the Advocate General has stated in point 88 of her Opinion, bearing in mind the relatively short distances between various 27 areas critical for the capercaillie and the open-cast mines in question, noise and vibrations caused by those operations are likely to be felt in those areas. It follows that those nuisances are capable of causing disturbances likely significantly to affect the objectives of the said directive, particularly the objectives of conserving the capercaillie". "The Kingdom of Spain expresses doubts in that regard by objecting that the decline in the populations of that species, including on the 'Alto Sil' site, has also been observed outside the mining basin and is even more marked there. However, that circumstance in itself does not prevent the said nuisances produced inside the SPA by the mining operations in question from being capable of having had significant impacts on that species, even if the decline of that species may have been greater yet for populations relatively distant from those operations". "The documents before the Court show that the abandonment of the 'Robledo El Chano' breeding ground, still occupied by the capercaillie in 1999, results from the operation of the 'Fonfría' open-cast mine as from 2001. That finding confirms that the operation of the mines in question, particularly the noises and vibrations produced, is capable of causing significant disturbances for that species. The Commission also argues that the open-cast mining operations contribute to isolating subpopulations of capercaillie by blocking communication corridors linking those subpopulations with other populations. It refers the report of December 2004 on the impact of mining operations on the Cantabrian capercaillie. "Since the Kingdom of Spain does not produce evidence refuting the conclusions of that report, the scientific value of which is undisputed, it must be held that the 'Feixolín', 'Fonfría' and 'Ampliación de Feixolín' operations are capable of producing a barrier effect likely to contribute to the fragmentation of the habitat of the capercaillie and the isolation of certain sub-populations of that species. "By allowing a situation which caused significant disturbances in the 'Alto Sil' SPA to continue for at least four years, the Kingdom of Spain omitted to take, in good time, the measures necessary to bring those disturbances to an end. Thus, the Kingdom of Spain can be accused of the failures to fulfil obligations under Article 6(2) of the Habitats Directive in so far as they concern the 'Ampliación de Feixolín' mine. (Case C-404/09, Commission v Spain, paragraphs 113 – 160)

D2). For security and Health and safety reasons the compounds will need to be lit 24/7 this introduces substantial disturbace to the SAC wildlife due to light pollution particularly to birds.It has been evidenced by some studies that artificial light pollution leads to changes in behaviour of animals, including birds. These changes can impact their reproductive health and potentially social interactions. A recent study conducted on Great Tits (*Parus major*) has found that light pollution alters the birds' night time activity. 44 birds were studied across 8 sites which were either unlit (a control) or had white, green or red light pollution. From the data collected, the results show that it was birds in areas with white light pollution that were the most affected. In fact the birds at white light locations were up to twice as active as birds in the other locations. Night time activity seemed to be limited to increased vigilance, being more alert and generally unsettled whilst perched. Not only this, but blood samples taken from the birds in the study, showed that those which were having higher activity during night time were more at risk of malaria infection. It is thought that increases in sleep deprivation are causing an increase in stress levels in the birds. This in turn lowers immunity and so the risk of infection is increased. Parent birds with malaria infection are less likely to fledge as many chicks due to their lower body condition. Article featured eyes on environment source. Ouyang J. Q. *et al* (2017) Restless roosts: light pollution affects behaviour, sleep and physiology in a free-living songbird. **Global Change Biology**, doi: 10.1111/gcb.13756

Scientifically backed impacts consisting of changes in behaviours, additional stress resulting in lowered immune systems and susceptibility to disease which impact on bird species numbers. It also allows predators to easily locate roosting birds and their young which will be detrimental to the reproduction of the species and directly contravene the conservations objectives regarding population numbers.

D3). Generators; and noise disturbance. Individually there may be the possibility of mitigation of constant generator noise but cumulatively with other disturbances this will also negatively impact local bird species.

D4). Bentonite mixing plant: these are large structures and the operation of these structures are also loud. The plant will have to be run 24/7 to provide a constant stream of bentonite slurry for the tunnel boring process. ANY level of leaks of bentonite into the SAC would be result in loss of habitat and cannot really be mitigated, as explained later in this submission.

D5). The Tunnel Boring Machine (TBM) will need to be retrieved once tunnelling is completed. This will involve the use of a crane, which will have to be erected and disassembled, and will take 1 month according to the NIS. Birds are notoriously nervous of objects moving above them and this will lead to disturbance from their normal feeding and foraging sites.

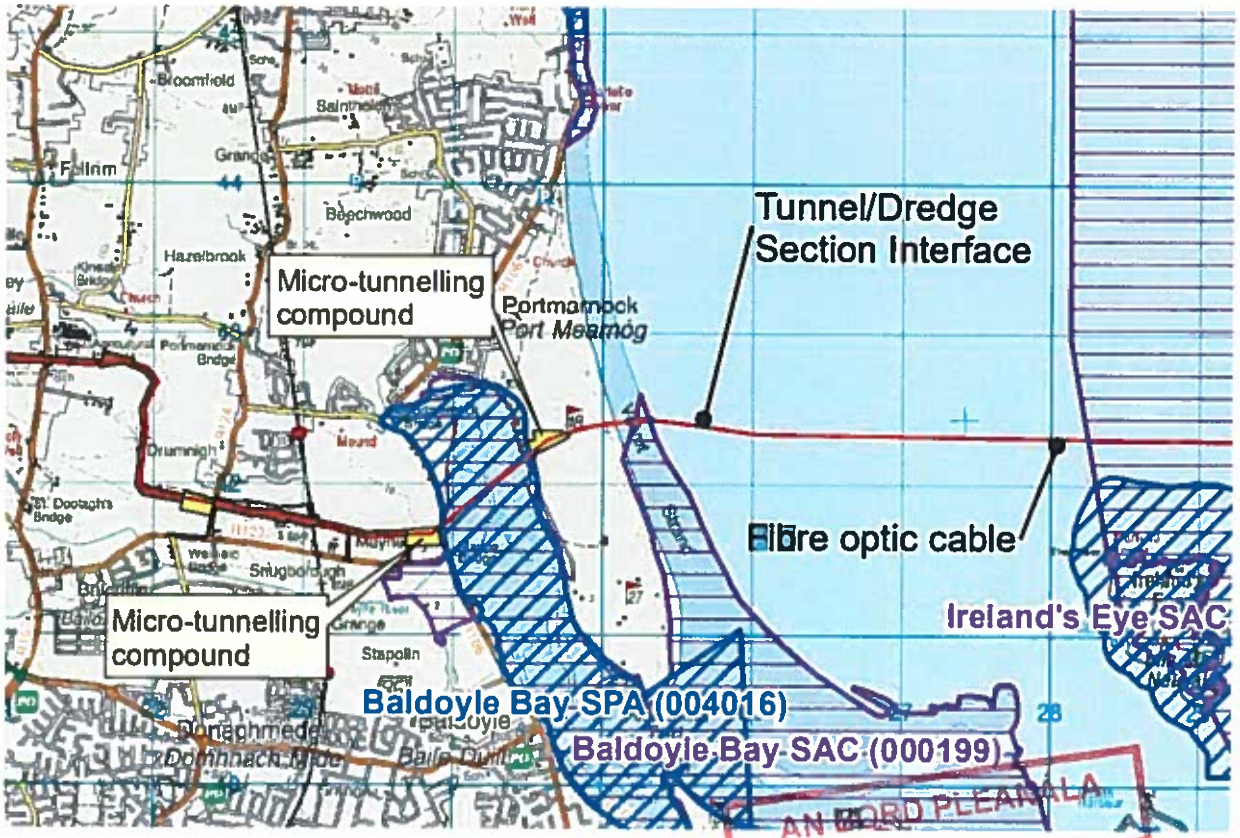


Figure 1. Location of micro-tunnelling construction compounds.

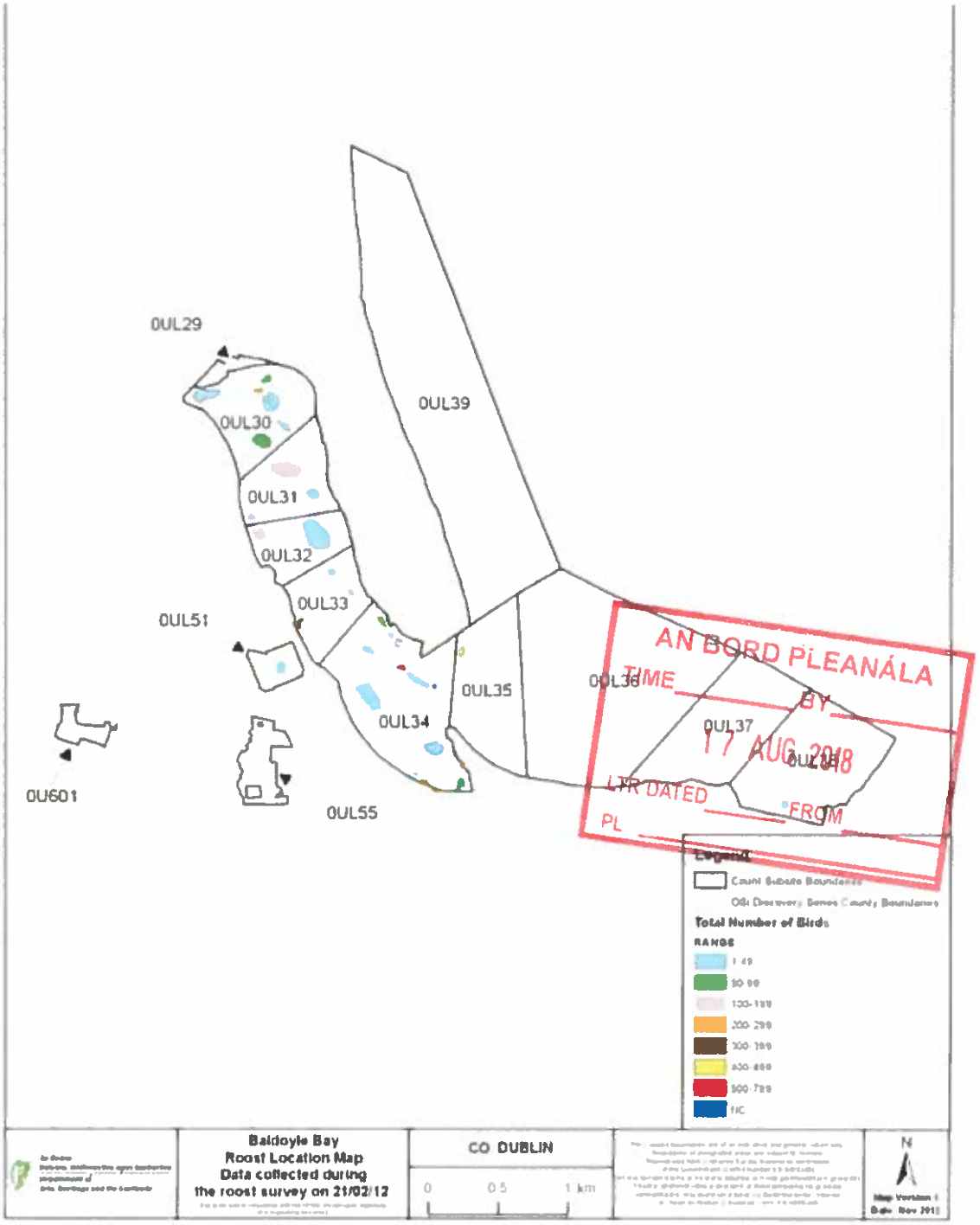


Figure 2. Roost location map.

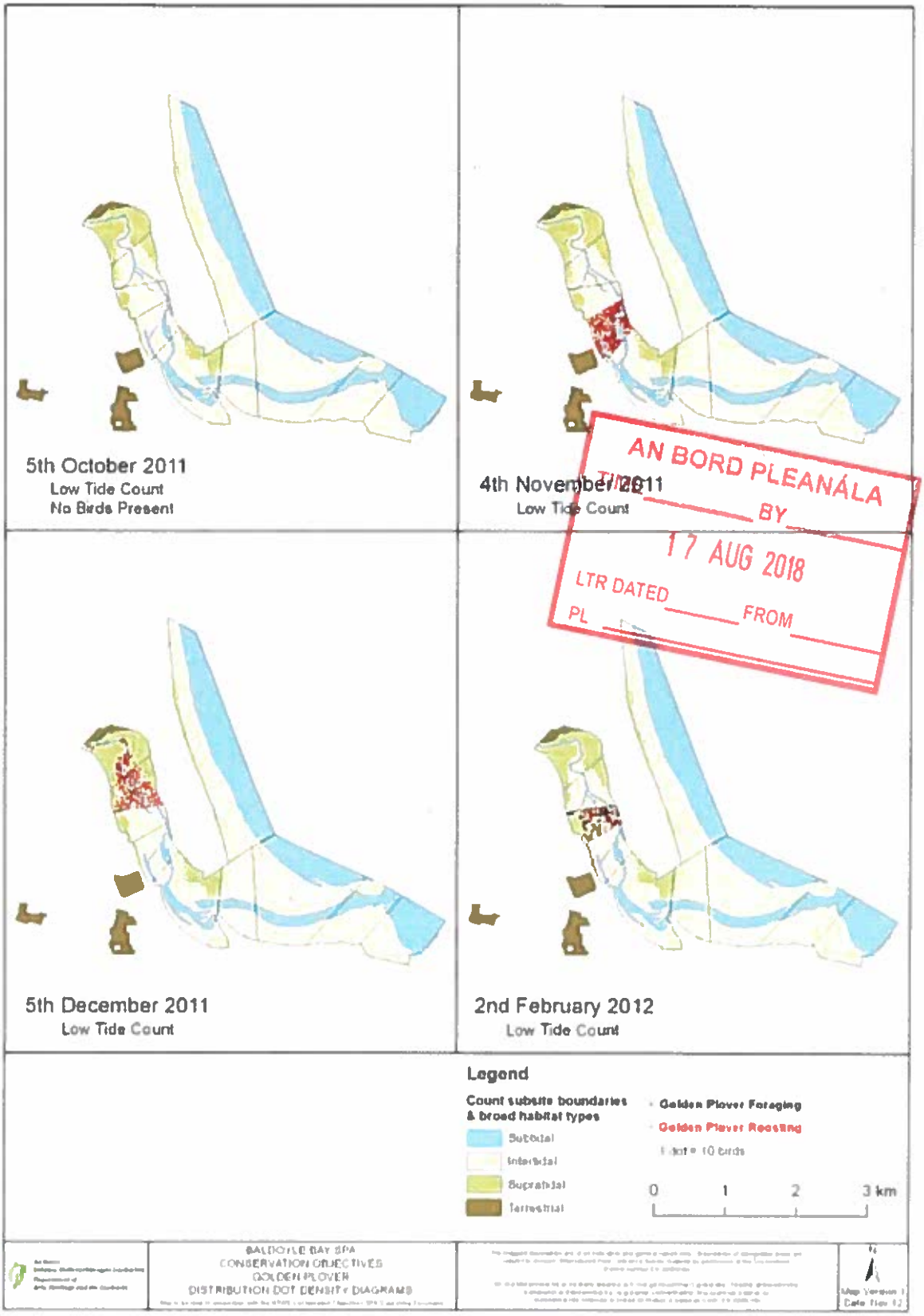


Figure 3. Golden Plover roosting and foraging distribution survey.

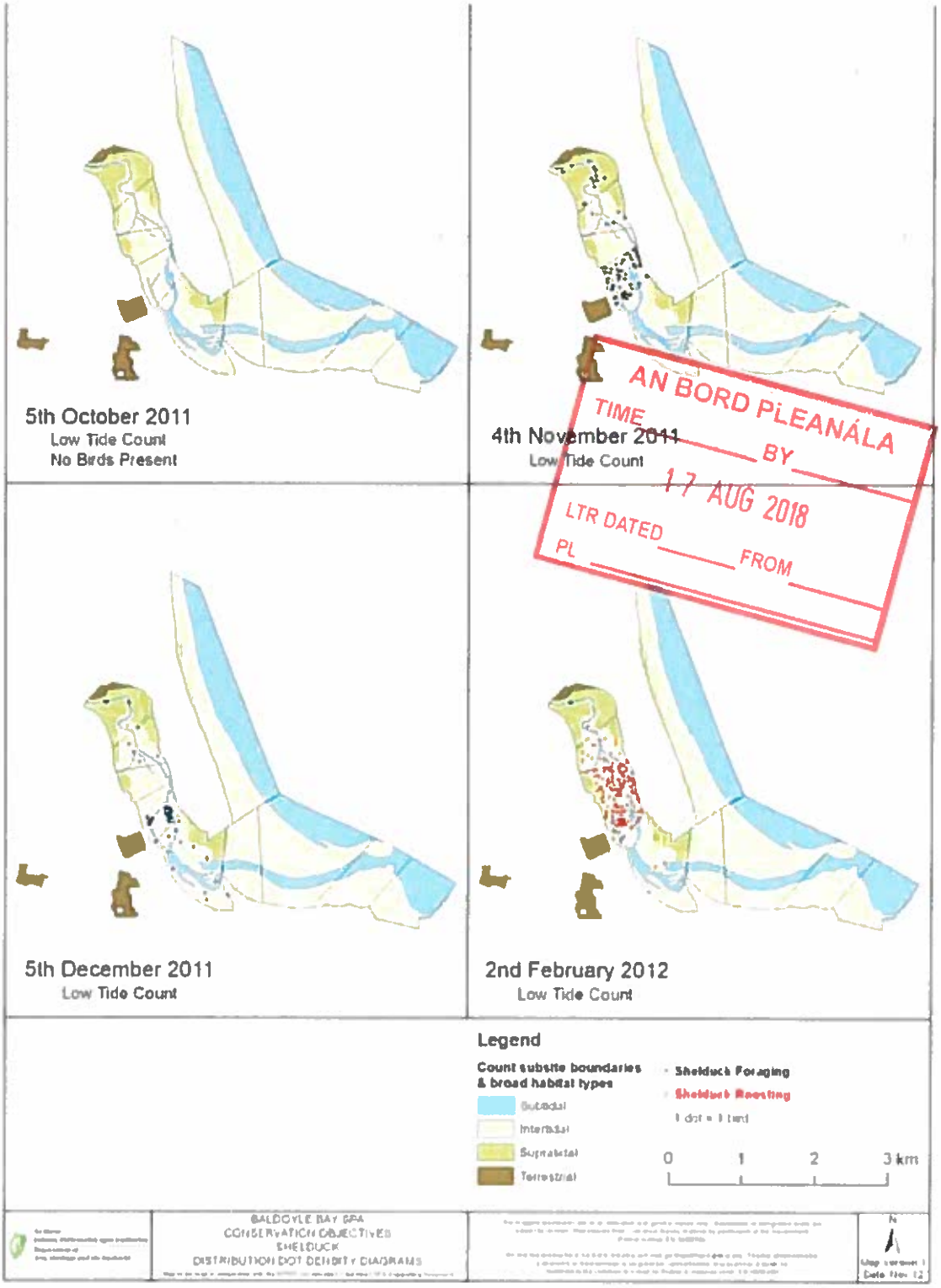


Figure4. Shelduck foraging and roosting survey.

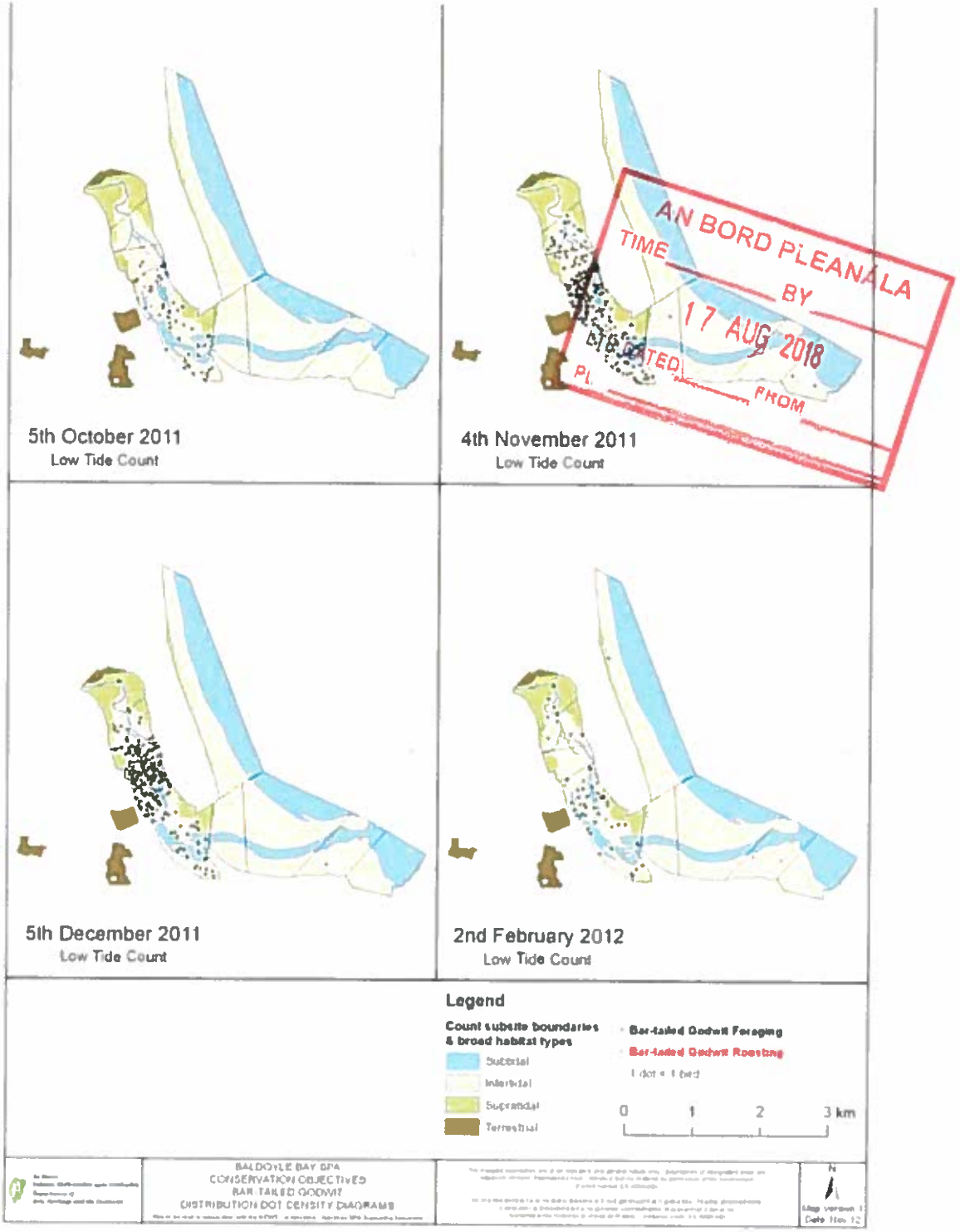


Figure 5. Bar-Tailed Goodwit foraging and roosting survey.

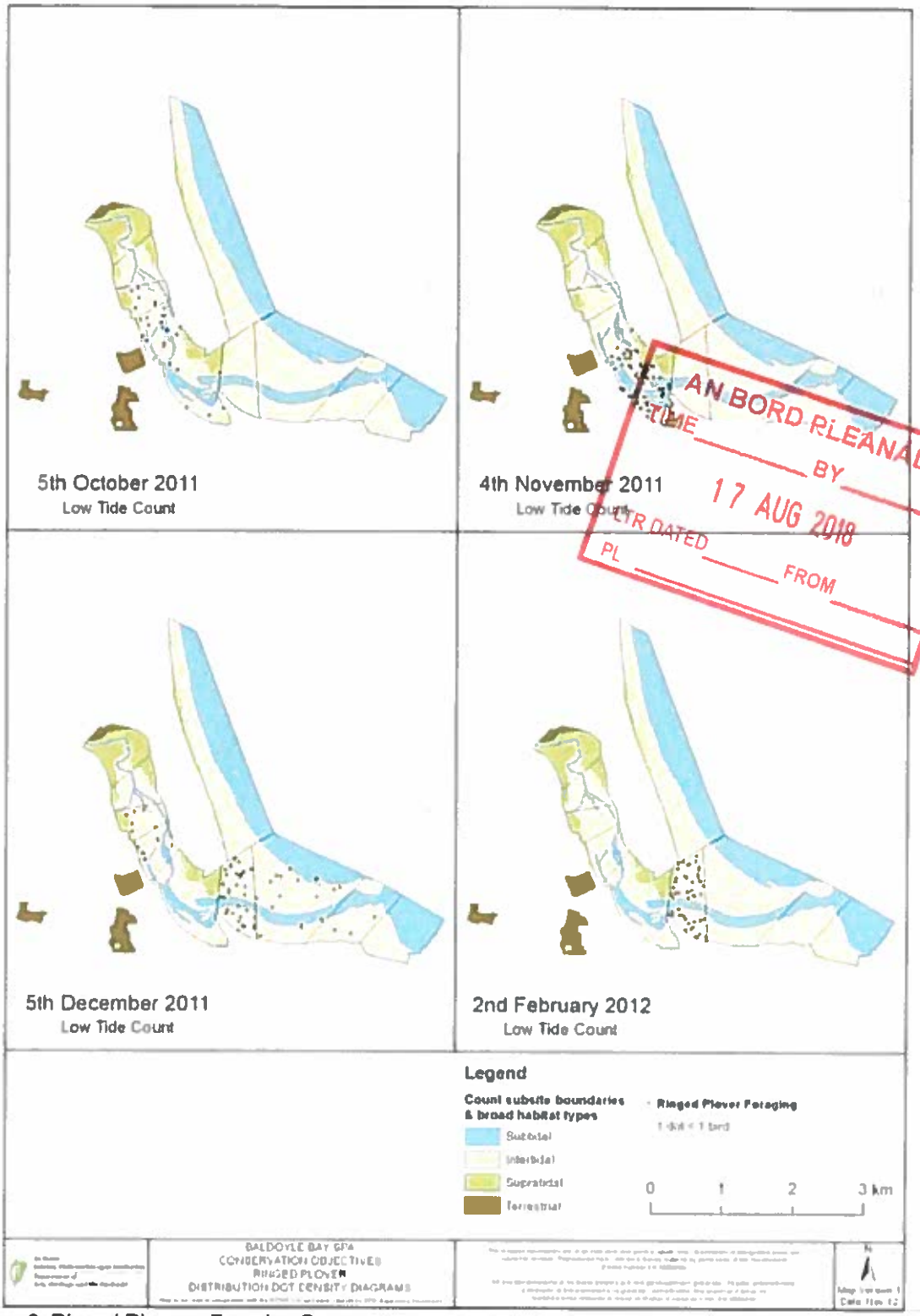


Figure 6. Ringed Plover – Foraging Survey

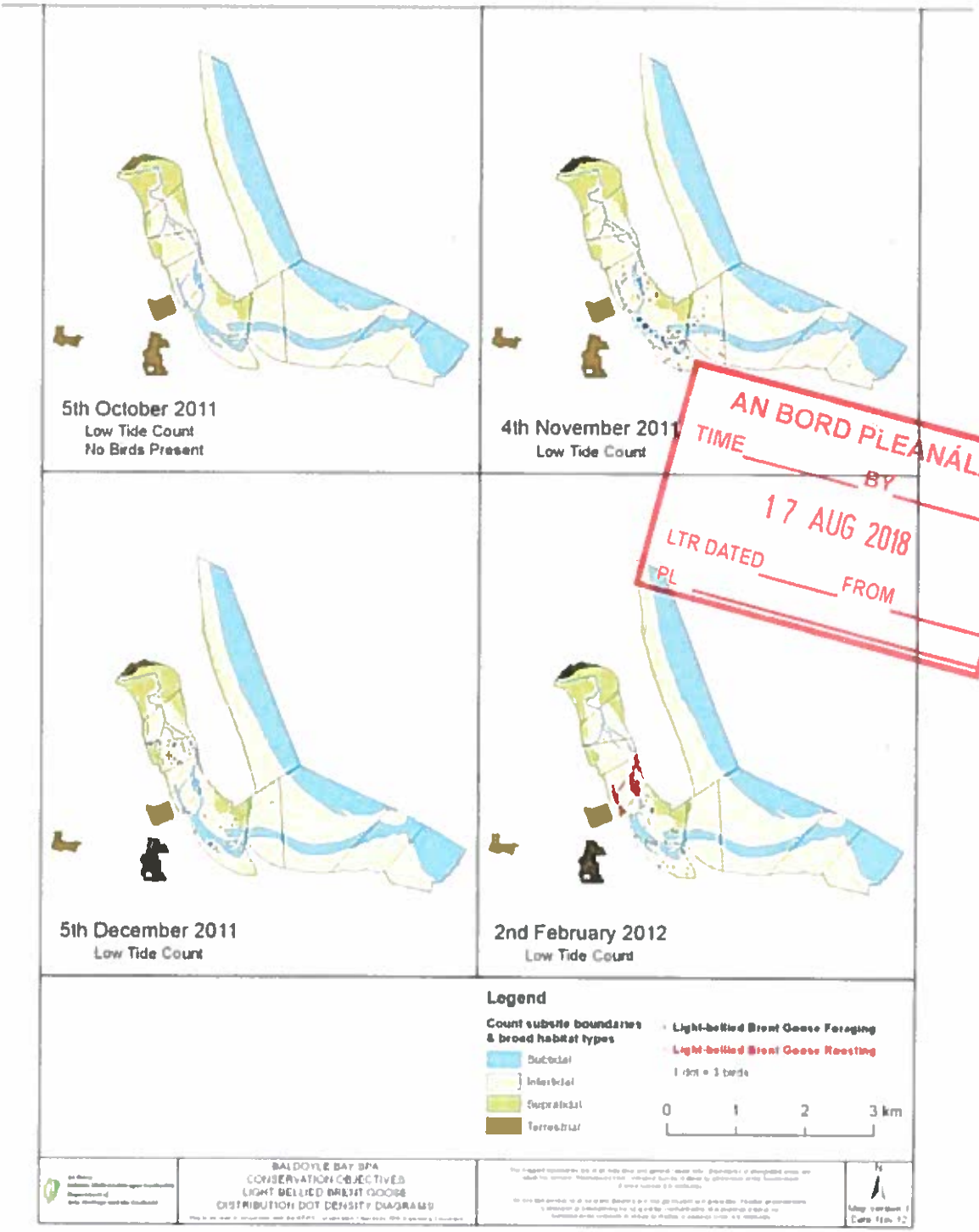


Figure 7. Light Bellied Brent Goose foraging and roosting survey

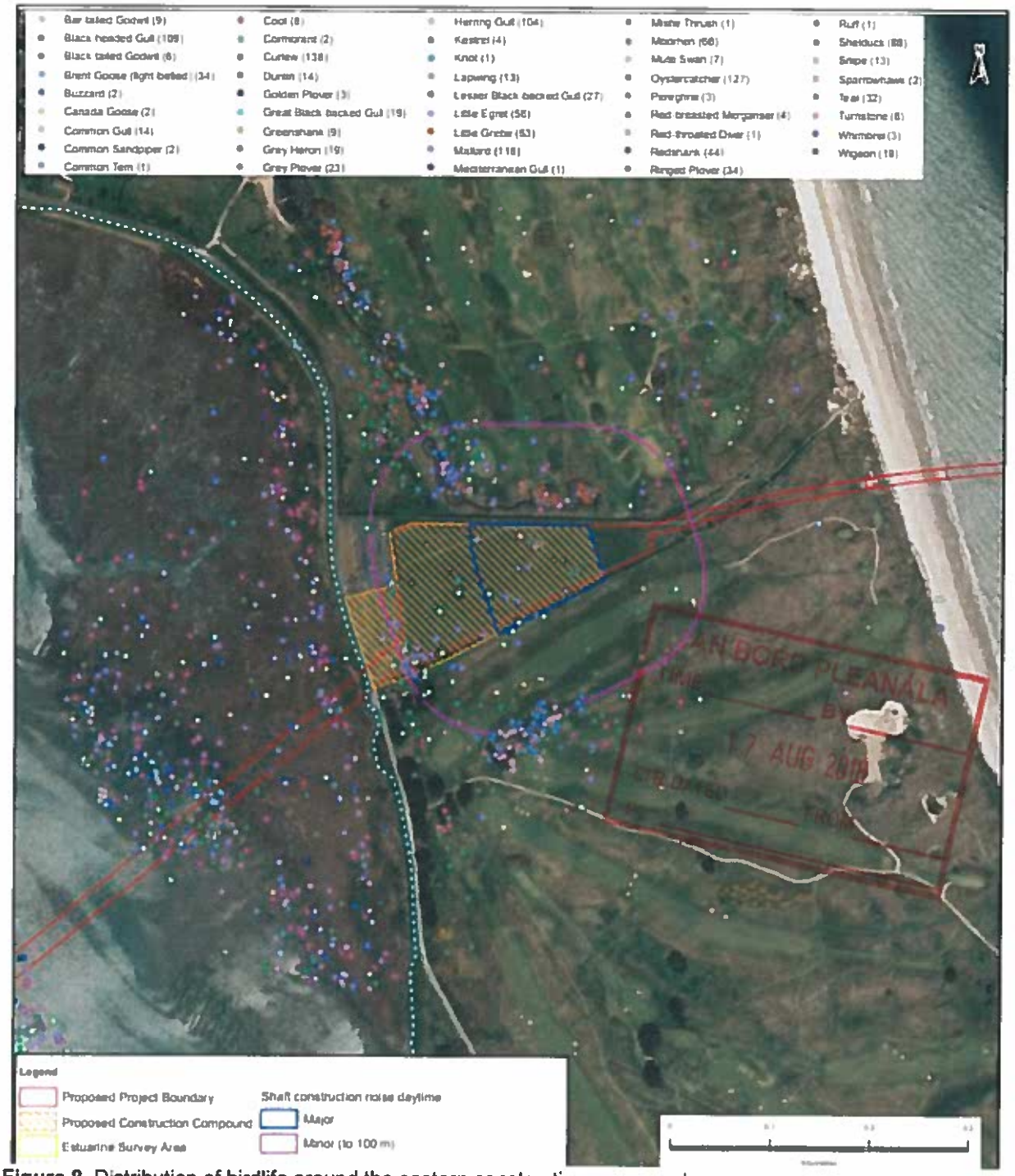


Figure 8. Distribution of birdlife around the eastern construction compound.

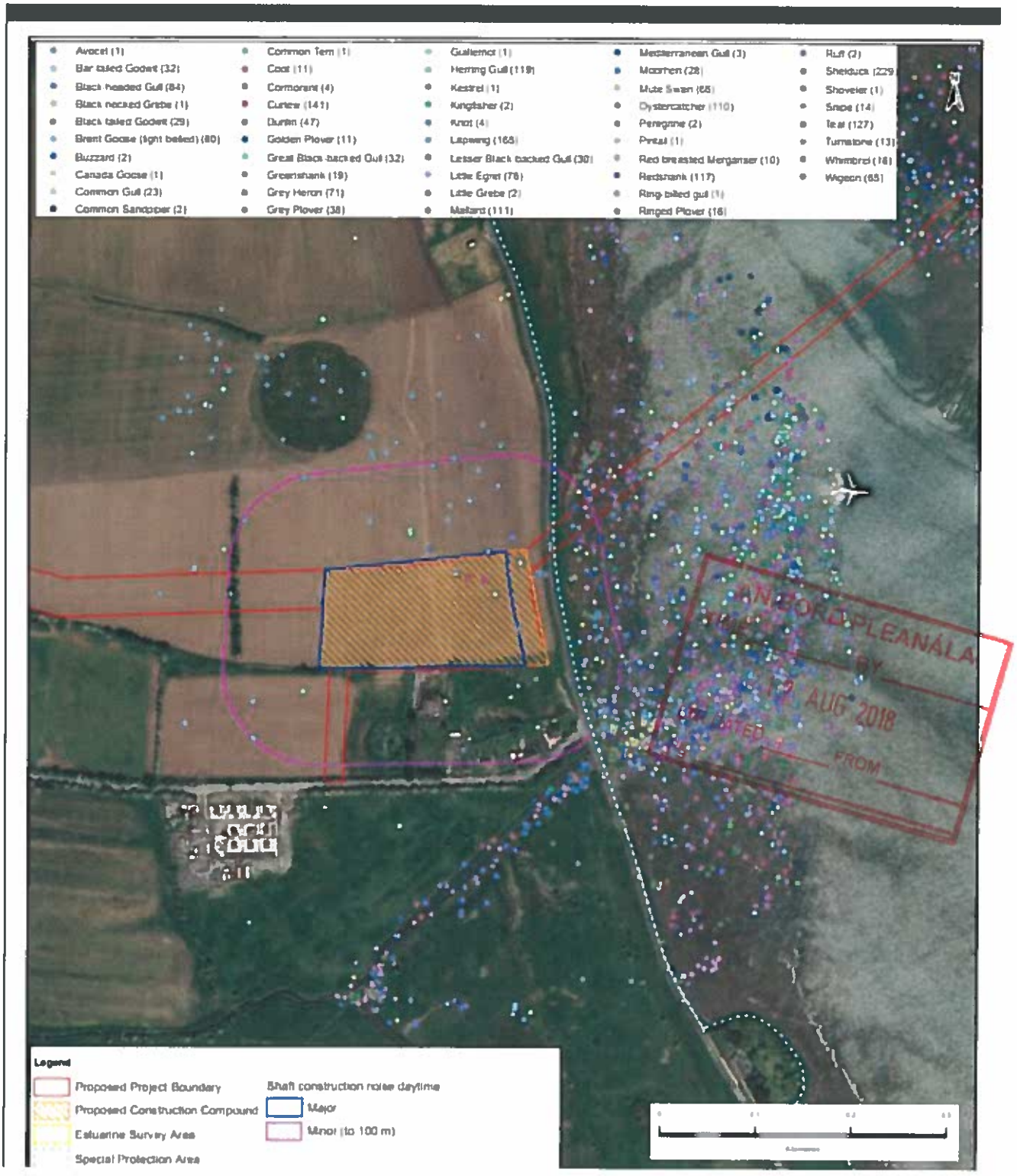


Figure 9. Distribution of birdlife around the western construction compound.

5. **Disturbance to protected Species via impacts on food sources.**

There is virtually no assessment in the NIS or EIAR of how the construction or operational phase will impact on the food sources of the protected bird and wildlife species within and adjacent to the SAC at Baldoyle and Irelands Eye. With such a complex Ecosystem even slight changes will have knock on effects on the predator / prey chain. However, in a project of this size those affect are immediate and long lasting. What follows is just one example of a food source that will be impacted by this project. If the food sources decline, then so will the population of the Birds and aquatic life contravening the conservation objectives and therefore article 6.2 of the directive.

Sandeels:
Page 65 of the Environmental Impact Assessment Report: Volume 3 Part A of 6: refers to the loss of habitat and significant negative impact on the sandeel population during construction phase.

"The area of the proposed outfall pipeline route (marine section) is considered a low intensity spawning and nursery ground for sandeel, and whilst local populations may potentially be affected by habitat loss and disturbance through sediment excavation and deposition during dredging and trenching activities (Ellis et al. 2010; 2012), this is likely to have a minimal impact to the wider Irish Sea population." It goes on to say:

"Sandeel, as a generally sedentary species, may be less able to avoid physical disturbance than others, particularly after spawning when they reportedly remain in their burrows for approximately two months. Their specific substrate requirements are very limiting to their distribution, hence the renowned patchiness. They have been found to be adversely affected in areas with sediment containing >2% silt. Dredging and temporary storage of dredged materials on the seabed may cause smothering of sandeel habitat and could potentially affect the local substrate composition through disturbance of the seabed and potentially increasing suspended sediment concentrations. Overall, the sandeel effect-receptor interaction is expected to be low. Adult and juvenile sandeel are considered to be of medium vulnerability and high recoverability and may be of regional importance in terms of a prey source."

The sandeel is indeed of regional importance and although the sandeel itself is low vulnerability, it is a staple food source for a wide range of seabirds, including puffins, razorbills, shags, guillemots and kittiwakes, who feed on shoals of sandeels. Three of these species are protected as part of the Irelands Eye SAC. It is also an important food source for the Harbour Porpoise also a protected marine species. It is an indirect effect that will cause significant negative impact to the population trend of these species, and if taken in cumulation with other negative impacts as per Article 6.3 of the habitats Directive, would be significant enough to prevent the granting of the application.

6. **Disturbance of Harbour Porpoise:**
The proposed project will have several negative significant impacts on the Harbour Porpoise, despite the EIAR opinion to the contrary. As is indicated in Figure Eleven an illustration of the Harbour porpoise survey as part of the EIAR, the Harbour porpoise is very active in the area, to such an extent that the Rockabill SAC it is listed as a protected species. As has already been pointed out the porpoise will have a food source affected by the dredging of the outfall pipe during construction, but it will also be greatly affected by the piling and tunnelling aspect of the project. Although the EIS plays down the impact of vibration and noise disturbance it dues admit it as an impact.

EIAR states: The noise created during construction has the potential to impact sensitive receptors within the proposed outfall pipeline route (marine section) construction corridor through injury from noise or avoidance. Sensitive receptors include nursery fish species, pinnipeds (seals) and cetaceans, in particular the harbour porpoise. The proposed outfall pipeline route (marine section) falls within the Rockabill to Dalkey Island SAC;

It confirms further impacts: *The duration of the Construction Phase could affect the seasonal migration of important marine species, including salmonids and the harbour porpoise, nursery fish species in the area or the breeding season of seabirds nesting on Ireland's Eye SPA;*

The EIAR concludes that the noise level of tunnelling will have no impact on the harbour porpoise however it does not mention other impacts caused by dredging these negative impacts are backed by recent

scientific research which confirmed that prolonged tunnelling and dredging displaces harbour Porpoises for long periods, which is in contravention of the conservation interest for the Rockabill SAC.

Sound exposure levels from such operations are thought to be well below that expected to cause injury to a marine mammal. However, noise generated by dredging, from the physical presence of the dredger, and possibly from the increased water turbidity in the area of operations have the potential to cause low level disturbance such as masking or behavioural impacts such as displacement.

A review of the literature on the effects of dredging on marine mammals found that previous work in Aberdeen Harbour showed a clear avoidance response by bottlenose dolphins to dredging activity in a highly urbanised foraging patch (Pirotta et al. 2013). Given the level of vessel activity in the harbour, these dolphins were expected to show a high level of tolerance towards disturbance at the site, but results showed dolphins spending proportionally less time in the harbour as the intensity of dredging activity increased and in one year with dolphins leaving the harbour completely for approximately five weeks during the dredge works (Pirotta et al. 2013).

Additionally, in this review, Todd et al. (2014) highlight that with respect to sound from dredging activities, a marine mammals' response is likely to depend on types of dredger used, state of operation, local sound propagation conditions, and the receiver characteristics with regard to the sensitivity and bandwidth of hearing. The authors go on to say that noise from dredging is usually below suspected injury thresholds or PTS (exposure criteria from Southall et al., 2007); however, TTS cannot be ruled out if marine mammals are exposed to noise for prolonged periods [as highlighted in a study on effects of long-term exposure in harbour porpoises; Kastelein et al. (2012)).

The final impact on the harbour porpoise will take effect during the operational phase. When the outfall pipe is pumping secondary treated effluent into unusually shallow waters off Portmarnock beach, a popular bathing spot. See Figure 10. which clearly illustrates how the depth of the area where the outfall pipe is located, only just falls into the 15-10 metre bracket just before the outfall diffusion point. Most of the area is in 5-10 metre depth and the remaining area is exposed during low tide.

Harbour porpoise are exceptionally susceptible to sewage pollution. According to research undertaken by the Canadian Federal governments environmental section, marine contamination is a serious threat to population levels;

"Contamination can occur in the form of marine debris, anthropogenic biological pollutants (e.g. sewage outflow) or via chemical contamination of habitat or prey. Harbour porpoise have been known to ingest plastic debris, and in some cases, this has resulted in death (Baird and Hooker 2000).

Small cetaceans lack the metabolic capacity to degrade or excrete pollutants and thus retain high quantities in their systems (Tanabe et al. 1988). These pollutants may increase the risk of immune-suppression (Hall et al. 2005), and potentially reduce reproductive capabilities and neonate survival. The historical and emerging effects of marine contamination from polluting activities on harbour porpoise populations are uncertain, though given the likelihood of localized hotspots of contamination in harbour porpoise habitat, this threat is rated at medium to high level of concern. Regulations and monitoring of point sources of contamination can alleviate some concern for this threat; however, long-term chronic exposure to pollutants (both regulated and unregulated) creates uncertainty regarding effects to long-term reproductive health of this population.

Biological pollution may occur in the form of nutrient-loading, hormones and antibiotic contamination entering the marine environment via sewage outflow, agricultural and other sources. Introduction of foreign diseases into a population of highly social cetaceans may result in disease outbreaks leading to population decline (Guimarés et al. 2007). As there is some suggestion that harbour porpoise may have a polygynandrous mating system (Grier and Burk 1992), they may be vulnerable to outbreaks of highly contagious diseases. As occurrence of disease may be the result of natural pathogens in the environment, or from anthropogenic nutrient-loading or introduction of foreign pathogens, sources of biological pollutants should be assessed and monitored to effect adequate mitigation of those anthropogenic threats. Exposures to contagions or other biological pollution may lead to negative synergistic effects with other stresses."

The above research indicates clear scientific proof that an increase in effluent pollution in habitat waters in particular that which is not treated to remove pathogens, would be fatal to maintaining the population of the Harbour Porpoise in the marine environment surrounding the outfall site. This impact alone should deem the application incompatible with Article 6 of the Habitats Directive.

Figure 10. Survey map indicating water depths.

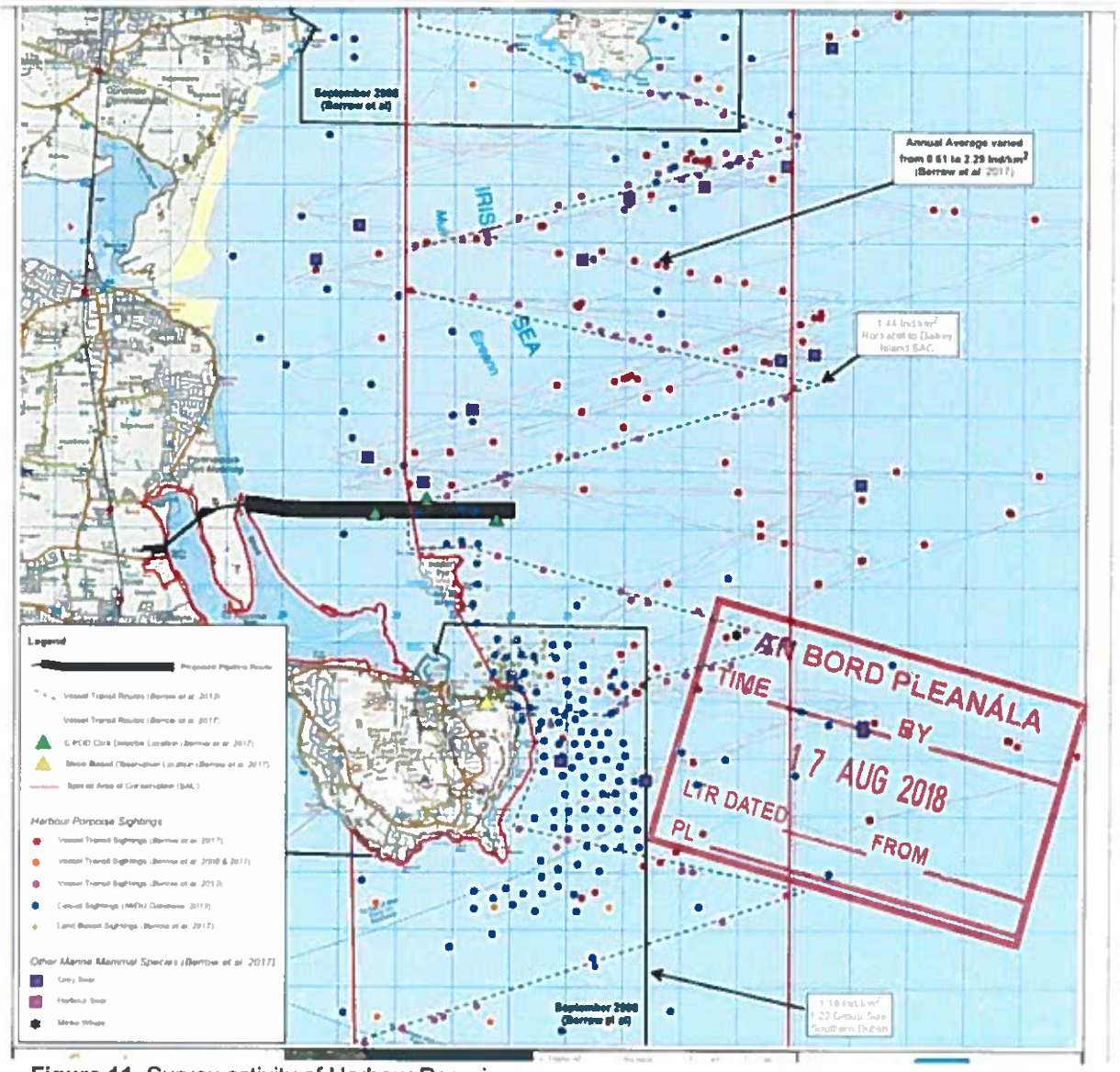


Figure 11. Survey activity of Harbour Porpoise

7. Impacts on Habitat.

Bentonite Pollution: The NIS lists a bentonite leak as being a likely significant effect "*Possible deterioration of water quality of estuarine habitats due to pollution events or suspended sediment plumes during construction of marine project elements including bentonite blowout or surface venting.*"

NIS also States;

"*6.2.1.3.3 Bentonite Release. The risk of a surface breakout by bentonite drilling fluid cannot be negated completely due to variability in the underlying geology. Bentonite is used during the drilling operation to lubricate during micro-tunnelling or TBM progress during construction and is pumped into the cuttings annulus during operations at the ambient pressure at the rock face. A detailed geophysical survey has been carried out along the proposed route in order to anticipate the risk of weak formations and possible faults that may increase the risk of a bentonite breakout. However, should the TBM encounter voids within the formation (such as a fissure or weathered area of rock), and then material can be forced to the surface under pressure to create a breakout. In the littoral and sub-littoral environments, the presence of bentonite at the surface can have a notable impact on sediment turbidity and suspended load. This increase in turbidity could result in increased siltation and the smothering of sediments and organisms accompanied by a reduction in the light available to the seabed for photosynthesis.*"

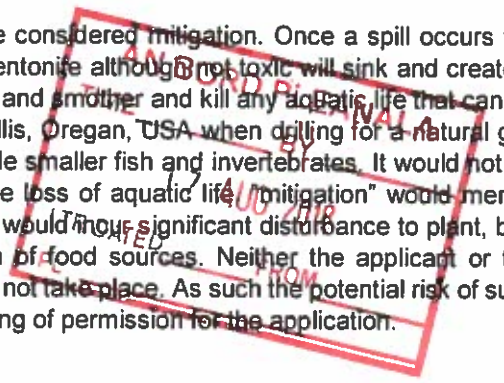
The next section of the NIS also confirms the potential for habitat loss.

"6.4.1.1 Assessment Section 6.2.1.3 describes the Likely Significant Effects arising from bentonite release and surface venting (air breakout) on water quality. Whilst both would affect water quality, there remains a small potential for habitat loss to occur through damage or disruption to the saltmarsh vegetation or benthos."

The mitigation measures in the case of a breakout according to the NIS are as follows:

"*The control and management of pressures during the micro tunnelling processes is undertaken to prevent air and bentonite breakouts. However, in the unlikely event of a bentonite breakout occurring, which results in a saltmarsh area high up on the foreshore being covered, intervention will be required. Intervention will involve washing the vegetation using a seawater pump and spray. Typically, this would be carried out during a high water period where washings can disperse out of the estuary naturally. Sites will only be accessed by foot 32102902/NIS 121 (without the use of plant). Should bentonite breakout in a saltmarsh area lower down on the shoreline in areas routinely covered by seawater, this will be left to disperse naturally over the tidal cycle. "*

The mitigation measures outlines above cannot really be considered mitigation. Once a spill occurs the damage is immediate and there is no time to mitigate. Bentonite although not toxic will sink and create a sediment layer over the estuary (mudflats/ saltmarsh etc) and smother and kill any aquatic life that cannot avoid the spill (as happened in the Marys River in Corvallis, Oregan, USA when drilling for a natural gas pipeline. It took two weeks to clean up). This would include smaller fish and invertebrates. It would not be possible to immediately clear the breakout to prevent the loss of aquatic life / "mitigation" would merely involve trying to clear/ collect the bentonite which in itself would incur significant disturbance to plant, bird and animal life in the estuary in addition to a depletion of food sources. Neither the applicant or the competent authority can guarantee that such an event will not take place. As such the potential risk of such an event within the actual SAC area would disallow granting of permission for the application.



8. Eutrophication impacts on the Estuarine system

As the proposed secondary treatment will not remove nutrients and phosphates there is a very real danger of Eutrophication in the areas of the WWTF outfall pipe which will again catastrophically affect the delicate ecosystem. The EIAR states that if the outfall pipe was west of Ireland eye, there would be *unacceptable impact on Baldoyle SAC* based on tidal modelling (Figure 12). It goes on to say that for that reason an outfall site, east of Irelands Eye was chosen. HOWEVER, it does not detail the impact of effluent flowing from this point will have on the SAC it merely implies that it will be less of than the western site.

Tide and Current Patterns

Modelling of the discharge from the proposed long sea outfall discharge point predicts an imperceptible impact on the receiving waters from the proposed operation of the proposed outfall pipeline route (marines section) discharge point.

Phase 1 modelling also indicated that outfall locations west of Ireland's Eye in the southern outfall study area would have unacceptable levels of impact on environmentally sensitive areas in the study area such as Baldoyle Bay SAC/SPA, Sutton/Burrow Beach, Velvet Strand, Malahide Estuary, Malahide Beach, and Ireland's Eye SPA. Refer to Diagram 5-2 for example of extent of predicted impacts.

Examination of tide and current patterns in this area as predicted by the Proposed Project model and information supplied by Howth Yacht Club suggest that there is potential for material discharged west of Ireland's Eye to remain circulating within the area west of Ireland's Eye rather than disperse in to the broader body of the Irish Sea. Nutrients

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in a treated wastewater discharging west of Ireland's Eye could therefore accumulate within Baldoyle Bay Estuary leading to algal blooms and eutrophication.

Ultraviolet treatment would also have to be provided to treated wastewater discharging west of Ireland's Eye to protect the bathing waters at Portmarnock (Velvet) Strand from microbial contamination as a result of the circulating current patterns.

For those reasons, a discharge point east of Ireland's eye is the preferred option.

Figure 12. EIAR Excerpt -Unacceptable impacts on Baldoyle bay SAC from effluent

The fact that there will be a substantial increase in nutrients and phosphorus in this area where there was previously none would by way of deductive reasoning, imply that there will be an impact from eutrophication. At low tide there is a very real chance that effluent will drain back into the estuary when the htide comes in particularly in light of the channel that leads from the sea to the estuary.(see Figure 13.

Figure 13. Baldoyle SAC

One indirect impact that couldprove catastrophic to the salt marshes in Baldoyle estuary SAC involves the species Hediste Divericolor. Scientific research in three estuaries in south east England supported the hypothesis that nutrient enrichment promotes surface deposit feeding, over suspension feeding and predation. Deposit feeding damages the saltmarshes resulting in loss of that protected habitat type. As Hediste Divericolor are a prominent food source in Baldoyle SAC this is a very real prospect if the project goes ahead.

At sewage-polluted sites in three estuaries in SE England Hediste mainly consumed microphytobenthos, sediment organic matter and filamentous macroalgae Ulva spp. At cleaner sites Hediste relied more on suspension feeding and consumption of Spartina anglica. There were no consistent differences in Hediste densities between the polluted and cleaner sites, probably because of increased densities at the cleaner sites too, facilitated by the planting of Spartina and nitrogen enrichment there too, including from agricultural run-off. Increased nutrient enrichment and the artificial availability of Spartina have probably increased densities of, and deposit-feeding by, Hediste in the past half-century and contributed indirectly to saltmarsh losses, since deposit-feeding by Hediste has been implicated in recent saltmarsh erosion in SE England M. J. R. Aberson, Stefan George Bolam, Rob G. Hughes

9. Release of Raw Sewage.

Even though the EIAR and NIS state there will be no impacts from the operational stage, nowhere does it discuss the impact on the SACs in the event of a major release of raw sewage. Usually flood risk modelling indicate a 1 in 100 year event however due to climate change it is very apparent that these events are become much more frequent. Portmarnock alone has had 4-5 do not swim notices when raw sewage was released due to heavy rain and pump failure. It would be impossible for Irish Water to guarantee that raw sewage will never be released from this development into the receiving waters that surround Baldoyle SAC and Ireland Eye SAC. As the applicant cannot guarantee that there will be no release of raw sewage the competent authority have to base their assessment of this application on the presumption that this significant major negative impact will happen. Due to the size of this WWTP the volume of raw sewage that would be released in the event of failure of machinery or a rainfall event is likely to cause irreversible damage and subsequent loss of habitat and species to Baldoyle SAC and Ireland Eye SAC.

10. Article 6.3 of the Habitats Directive - Cumulative Impacts.

There is substantial case law on Cumulative impacts. The most important of which being the following.

"Such an assessment therefore implies that all the aspects of the plan or project which can, either individually or in combination with other plans or projects, affect those (conservation) objectives must be identified in the light of the best scientific knowledge in the field. Those objectives may, as is clear from Articles 3 and 4 of the Habitats Directive, in particular Article 4(4), be established on the basis, inter alia, of the importance of the sites for the maintenance or restoration at a favourable conservation status of a natural habitat type in Annex I to that directive or a species in Annex II thereto and for the coherence of Natura 2000, and of the threats of degradation or destruction to which they are exposed." "As regards the conditions under which a particular activity may be authorised, it lies with the competent national authorities, in the light of the conclusions of the assessment of the implications of a plan or project for the site concerned, to approve the plan or project only after having made sure that it will not adversely affect the integrity of that site. It is therefore apparent that the plan or project in question may be granted authorisation only on the condition that the competent national authorities are convinced that it will not adversely affect the integrity of the site concerned. ***Where doubt remains as to the absence of adverse effects on the integrity of the site linked to the plan or project being considered, the competent authority will have to refuse authorisation.*** *" 38 "In this respect, it is clear that the authorisation criterion laid down in the second sentence of Article 6(3) integrates the precautionary principle (see Case C-157/96 National Farmers' Union and Others [1998] ECR I- 2211, paragraph 63) and makes it possible effectively to prevent adverse effects on the integrity of protected sites as the result of the plans or projects being considered. A less stringent authorisation criterion than that in question could not as effectively ensure the fulfilment of the objective of site protection intended under that provision." "Therefore, pursuant to Article 6(3), the*

competent national authorities, taking account of the conclusions of the appropriate assessment of the given project for the site concerned, in the light of the site's conservation objectives, are to authorise such activity only if they have made certain that it will not adversely affect the integrity of that site. That is the case where no reasonable scientific doubt remains as to the absence of such effects (see, by analogy, Case C-236/01 Monsanto Agricoltura Italia and Others [2003] ECR I-8105, paragraphs 106 and 113)." "It can be concluded that under Article 6(3) of the Habitats Directive, an appropriate assessment of the implications for the site concerned of the plan or project implies that, prior to its approval, all the aspects of the plan or project which can, by themselves or in combination with other plans or projects, affect the site's conservation objectives must be identified in the light of the best scientific knowledge in the field. The competent national authorities, taking account of the appropriate assessment of the implications of mechanical cockle fishing for the site concerned in the light of the site's conservation objectives, are to authorise such an activity only if they have made certain that it will not adversely affect the integrity of that site. That is the case where no reasonable scientific doubt remains as to the absence of such effects. (Case C-127/02 Waddenvereniging and Vogelbeschermingsvereniging, paragraphs 52 - 61)

The applicant's assessment of cumulative impacts and mitigation for same is poor. In many cases the same text is cut and pasted over and over rather than individualised assessment being made.

The list also fails to mention the following:

- upcoming Airport Noise Regulation Bill, which would remove current restrictions on the number on night flights in and out of Dublin airport on the existing and proposed second runway. At present night flights over the Baldoyle SAC are severely restricted, once they are removed it will cause considerable disturbance to the roosting bird population.

- The increase in the number of individual outfall pipes releasing surface water into the Mayne and Sluice rivers from current and proposed residential developments. These surface waters contain Hydrocarbons, hard metals, pesticides and herbicides which in cumulation with other impacts could lead to habitat degradation and loss at Baldoyle SAC.

- The Natura Impact statement for Dublin city Development plan 2016-2022 clearly states that the plan will have an impact on Baldoyle SAC. It lists the impact as:
Urban development and Recreational pressure in the north east area of the plan area in combination with other plans and projects may result in adverse impacts on the integrity of the European Site Taking account of the proximity of the proposed plan to the qualifying interests of the site, there is the potential for significant effects arising from the policies and objectives associated with the proposed plan.

11. Article 6.4 of the Habitats Directive:

"If, in spite of a negative assessment of the implications for the site and in the absence of alternative solutions, a plan or project must nevertheless be carried out for imperative reasons of overriding public interest, including those of a social or economic nature, the Member State shall take all compensatory measures necessary to ensure that the overall coherence of Natura 2000 is protected. It shall inform the Commission of the compensatory measures adopted. Where the site concerned hosts a priority natural habitat type and/or a priority species, the only considerations which may be raised are those relating to human health or public safety, to beneficial consequences of primary importance for the environment or, further to an opinion from the Commission, to other imperative reasons of overriding public interest."

I would like to point out finally that this application can not be granted under article 6.4 of the Habitats directive as there are alternative solutions. This preferred site was chosen from 3 based on economic grounds. The phase 4 report on preferred site selection states:

"The ASA Phase 4 process has determined that it is technically feasible to construct all three site options. However, it was identified that all site options have, to varying degrees, 'less favourable' classification under the range of Environmental, Technical and Cost criteria considered."
It further states that;

"The landfall area of the northern outfall location is considered to have less ecological sensitivity in comparison to the landfall area of southern outfall location." And
"Under Cost criteria preliminary cost estimates indicate that the substantially lowest and therefore 'more favourable' cost is associated with the Clonshagh site option."

In light of the alternatives of two other preferred site options article 6.4 cannot be applied to this application. Below is an additional judgment which re-enforces this opinion.

The absence of alternatives must be demonstrated Findings of the Court: "Article 6(4) of the Habitats Directive provides that, if, in spite of a negative assessment carried out pursuant to the first sentence of Article 6(3) and in the absence of alternative solutions, a plan or project must nevertheless be carried out for imperative reasons of overriding public interest, the Member State is to take all compensatory measures necessary to ensure that the overall coherence of Natura 2000 is protected. That provision, which permits a plan or project which has given rise to a negative assessment under the first sentence of Article 6(3) to be implemented on certain conditions, must, as a derogation from the criterion for authorisation laid down in the second sentence of Article 6(3), be interpreted strictly. 56 "Thus, the implementation of a plan or project under Article 6(4) is, inter alia, subject to the condition that the absence of alternative solutions be demonstrated. In the present case, it is common ground that the Portuguese authorities examined and rejected a number of solutions whose routes bypassed the settlements surrounding the Castro Verde SPA but crossing the western side of it". "On the other hand, it is not apparent from the file that those authorities examined solutions falling outside that SPA and to the west of the settlements, although, on the basis of information supplied by the Commission, it cannot be ruled out immediately that such solutions were capable of amounting to alternative solutions within the meaning of Article 6(4), even if they were, as asserted by the Portuguese Republic, liable to present certain difficulties. Accordingly, by failing to examine that type of solution, the Portuguese authorities did not demonstrate the absence of alternative solutions within the meaning of that provision." (Case C-239/04 Commission v Portugal, paragraphs 25 – 39)

Summary:
The individual potential significant impacts listed in this submission would be enough to withhold authorisation of the application under Article 6 of the habitats Directive, but in combination with each other and other projects it is a certainty that the project would adversely affect the integrity of the Baldoyle Bay SAC and SPA , Irelands Eye SAC and SPA and Rockabill SAC/ SPA.

Going forward it is imperative that Ireland Competent Authority take the responsibility of applying the legislation of the Habitats directive at planning stage and do not redirect responsibility for enforcing the legislation to the Irish or European Courts.