Our Ref: **61.PA0033**

Your Ref: **JPK2139**

An Bord Pleanála

John P. Kelly
Tobin Consulting Engineers
Fairgreen House
Fairgreen Road
Galway

27th May 2014

Re: **Galway Harbour Extension,**
Renmore and Townparks Townlands, Galway

I have been asked by An Bord Pleanála to refer further to the above-mentioned proposed development which is before the Board for consideration.

Please be advised that the Board, in accordance with section 37(F)(1) of the Planning and Development Act, 2000, as amended, hereby requires you to furnish the following further information in relation to the effects on the environment of the proposed development:

Alternatives:

1. The information contained in Chapter 3 of the EIS in relation to alternatives is noted. S177AA (1) of the Planning and Development Act states that the competent authority can, 'only in the absence of alternative solutions' consider that consent should nevertheless be given for the proposed development for imperative reasons of overriding public interest. EU Commission Policy (Integrating Biodiversity and Nature Protection into Port Development (2011)) notes that a plan or a project that has ignificant effects on a Natura 2000 site is to be authorised on the basis of imperative reasons of overriding public interest under Article 6.4 of the Habitats Directive, that this Directive requires a justification of such reasons as well as the absence of alternative solutions with less or no adverse effects. The Board notes that the Shannon Foynes Master Plan 2041 has been prepared. Part of the preparation involved the publication of the 'Shannon Foynes Port Company Vision 2041 Natura Impact Report'. The applicant is requested to comment on this Report as part of the evaluation of alternative sites and particularly in light of the EU Commissions Policy which requires the evaluation of alternative solutions with less or no adverse effects.

Noise and Vibration:

1. Figure 10.4.1 to Figure 10.4.14 refer to noise level in terms of dB. Please clarify whether these figures refer to L_{Aeq} or L_{90} or some other parameter.

2. Please provide details of the sound power levels emanating from the machinery involved in the a) lagoon wall and lagoon construction (b) dredging works (c) quay wall construction and pile driving (d) traffic noise construction.

3. It is noted that the EIS calculates L_{den} for construction works. It is envisaged that the vast majority of construction works will take place during normal business hours and not during the evening and night-time. The applicant is requested to clarify why construction noise levels were calculated over a 24 hour period when the major construction works are to take place during normal business hours.

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4. It is not altogether clear whether the noise prediction model used in the EIS specifically takes into consideration that the noise in question will propagate across water. The applicant is requested to comment on this.

5. Section 10.2.4.1 of the EIS states that "as traffic noise is dominant during the day time the noise due to unloading bulk cargo is not considered". The applicant is requested to elaborate further on this point, having particular regard to the fact that port related activity can give rise to tonal and impulsive noise through loading and unloading of cargoes. The applicant is requested to comment as to whether or not a noise rating penalty was incorporated into the calculations in predicting future noise levels arising from the development. In this regard the applicant should indicate whether or not a one-third octave frequency band analysis from existing noise specifically generated by port related activity was carried out as part of the noise assessment.

6. It appears that the EIS estimates sound propagation based on a point source as opposed to a line source. The applicant is asked to comment on the appropriateness of this having regard to the fact that the dredgers will not be operating on a fixed point but will be moving up and down the channel alignment.

7. Finally in relation to noise and vibration it appears that the EIS does not assess the cumulative impact resulting from construction activities where various construction works are operating simultaneously on site. The applicant is asked to clarify and comment on this point.

Marine Hydrology Issues:

(a) Sediment Transport:

1. Section 8.4.2.6 of the EIS is a discussion of changes in the sedimentation patterns. These changes are partly due to the creation of a dredged access channel, and also due to the change in the flow direction of the Corrib in-and outflow. The discussion is based on considering changes in the computed bed shear stresses for a number of different scenarios. These bed shear stresses are compared with a table (8.4.1), from which it can be evaluated whether different fractions of the bed sediment can be moved or not.

   Deposition can occur in many places on a live bed (a bed on which sediment transport occurs). In section 8.4.2.6, it is stated "the bed shear stress dictates the rate of erosion and susceptibility of a location for deposition". This may apply to cohesive sediment like clay, but not necessarily apply to fine sand, which will settle as soon as the transport capacity (or bed shear stresses) decreases. The applicant is requested to comment on this.

   According to section 8.4.2.2, the model system contains a sediment transport module SISYPHE, but whether it has been applied to account for the morphological changes within the bay is not clear. In the EIS, "Marine Ecology and Modelling", it is stated that the mathematical modelling will include "Sediment transport modelling to include erosion and deposition rates, changes to morphology etc."

   Applying the sediment transport module, as an example, the impact of the harbour extension on the morphology west of the extension should be evaluated applying all the information contained in the plots 8.4.16 to 8.4.39. Similarly, the deposition pattern from the spill from Capital Dredging should be evaluated from figures 8.4.42 to 8.4.57. Please comment on the above, and identify where deposition/erosion could cause a problem.

2. Furthermore and related to the above estimates are required for the total annual transport of fine sand from the River Corrib (section 8.4.2.7) to assist in the understanding the near harbour morphology.

(b) Wind waves:

3. The wind waves appear to be quite small in the harbor area according to the model results presented in 8.4.6, mainly due to the protective impact from the Mutton-Island causeway. The near field wave climate in this area is modelled using the ARTEMIS numerical model. For waves coming from SSW and S, wave heights up to 1.6m can be attained, Figure 8.4.135. It seems that the near field wave climate is calculated without including impact of current, unlike the spectral wave model TOMAWAC applied further away. If that is the case, the waves can actually be even higher than predicted in the EIS at a large outflow from Corrib River combined with the tidal flow due to current refraction. Please provide further justification for the large change in the flow pattern in this area being of no importance for the wave climate.

4. Please clarify whether within the area that experiences high wind waves, willÿ the wave heights be exacerbated if the current-effects are included?

5. Will the wind waves approach the breaking point and under such a scenario could the radiation stresses increase the water level further inland, thus increase the risk of flooding in coastal areas and if so which coastal areas are particularly at risk?

(c) Flow resistance:

6. As an input into the flow resistance modeling, details of the sea-bed roughness is required. Is the bed roughness kept constant in all runs, and how sensitive are the results regarding the choice of this value, say changing it by a factor of 10 and 100?

7. Has the impact of wind waves been incorporated into this friction, or is that effect negligible?

(d) Outfall Dispersion studies:

8. Dispersion studies due to tidal flow have been analyzed for the existing Mutton Island outfall and the proposed Galway East outfall, applying a depth integrated model (TELEMAC-2D). The Corrib entrance is not impacted by the proposed Harbour extension according to these simulations. However, due to prevailing wind from SSW, a wind driven surface current may transport waste water from the Mutton Island Outfall towards the Corrib entrance, and the concentrations may be impacted by the harbor extension. Since the location is quite windy, as indicated from the wind data from the Belmullet station, presented in figure 8.4.123, a number of (5-10) runs should be made using TELEMAC-3D to consider whether this will create any potential issues in the in terms of pollution.

(e) Mapping

9. In section 8.4.6.7 of the EIS reference is made to maximum wave heights within the Bay. The applicant is requested to present the maximum wave heights in the form of a map.

10. Likewise section 8.4.7.3 of the EIS makes reference to the specific locations for potential flood risk. These are merely mentioned in the form of street names in the text. The applicant is requested to present this information in the form of a map.

Ecology Issues:

Annex I Habitats:

1. As a standalone document, the Natura impact statement (NIS) lacks some detail required, much of which is included in the environmental impact statement (EIS). This is particularly notable in the case of Annex I habitats. For example:

(a) Chapter 7 of the EIS details the evidence that there is no potential for interaction of habitats within the Galway Bay complex with designated habitats in other sites. This information should be incorporated more fully in the NIS.

(b) The EIS details mitigation measures to offset potential disturbance to Annex I habitats that should be explained in greater detail in the NIS because they are necessary to make an informed assessment of the potential operational effects of the proposed development on Annex I habitats. These include potential impactsfrom altering the local hydrography, management of invasive species, oil spill contingency plans and management plans for catastrophic events. Relevant sections within the EIS include Chapter 8, Appendix 4.2 and Appendix 4.3.

2. Detailed multivariate faunal analyses and sediment profile imagery (SPI) surveys of subtidal sediments are reported in Chapter 7 of the EIS, but the methodologies used for the assessment of sensitivity of these habitats to potential operational impacts could be improved. Many of the references quoted are very old. What is clear is that the macrofaunal communities of Inner Galway Bay are variable in composition because they are subject to frequent natural disturbance and occur on a mosaic of sediment types. Habitat quality, as a measure of conservation status (and sensitivity) should be determined using a multimetric index of the type developed for Water Framework Directive (WFD) monitoring. In Ireland, the index routinely used is the Infaunal Quality Index (IQI). This would enable the ecological status of the communities of the proposed development area to be empirically compared at different times and locations, despite the variable multivariate structure of the fauna. This may pertain particularly to the operational effects of proposed maintenance dredging. O'Reilly et al (2006) demonstrated, using a combination of SPI and faunal analyses, that habitat quality in the dredged channel approaching Galway Docks is lower than in the surrounding area. The spatial pattern of habitat quality (conservation status) should be assessed in the area to determine if the same pattern exists in the baseline data presented, and the potential impacts of maintenance dredging on Annex I habitats should be discussed. The applicant is requested to address the above points in a more comprehensive manner.

3. Appendix 7.4 of the EIS does not detail the methodology used to calculate the Benthic Habitat Quality (BHQ) index. This index has also been adapted for the purposes of the WFD, including an adjustment for the decreased expected occurrence of high BHQ values in shallow water, by Rosenberg et al (2004). The SPI data should be analysed using this methodology to support the macrofaunal data in assessing the conservation status of the Annex I habitats. The applicant is requested to address this.

4. The information provided in relation to terrestrial and coastal habitats is not sufficient to describe the structure, sensitivity, functioning and correspondence with Annex I habitats of these communities. This is of particular concern in the receiving environment to the east of the proposed development where saltmarsh and stony banks occur. The stony banks that form part of the barrier to Renmore Lough require particular study. Relevant habitats include perennial vegetation of stony banks (1220) Atlantic salt meadows (1330) and Mediterranean salt meadows (1410). The NIS states that the potential impacts on these habitats are "unlikely but must be considered to be Indeterminate". More information should be provided describing these habitats with particular reference to their structure and sensitivity to the potential impacts of the proposed development.

5. The applicant's study of coastal lagoons (1150) predates the storms of 2013-2014. A site visit by NPWS to these sites in 2014 has shown that the extent of stony banks has increased inland and into Renmore Lough. Further information is now required on the potential impacts of the proposed development on the stability of the barrier to Renmore Lough in light of these changes.

6. The first paragraph of Section 3.7 of the NIS states that an impact classified as "indeterminate" must be considered as "likely significant" when assessed with relevance to Article 6.3 of the Habitats Directive. In other words,"indeterminate" is not an acceptable classification for any potential impact.Despite this, the text of the NIS repeatedly classifies potential impacts as "indeterminate". The applicant is requested to re-evaluate the NIS with regard to these "indeterminate" classifications. You are requested to consider whether or not replacing them with "likely significant", as stated in Section 3.7, is appropriate so that the application can be fully assessed with relevance to Article 6.3. This applies to all text and tables in the NIS.

Marine Mammals:

1. The potential adverse impacts on harbour seal are described in the NIS and EIS.Given the nature of the proposed development and the importance of the development location for harbour seal, more information is required to assess the potential effects on this Annex II species. A robust and comprehensive desktop analysis is required to address harbour seal aquatic habitat use in the area and the observed impacts of similar developments and associated coastal/maritime activities on harbour seal populations in other locations. This should be done with the assistance of a suitably qualified seal ecologist and be based on international scientific research as well as information currently available from Ireland. The purpose of this analysis would be to better inform and better determine appropriate final conclusions in the relevant impact statements regarding the likelihood and significance of any adverse effect on the conservation objectives of the site arising from the proposed development.

2. Detailed environmental impact and Natura impact statements are provided in relation to cetaceans as part of the current application. However, these do not clearly present activity-specific assessments of risk in relation to all Annex IV cetacean species likely to occur at the site. Potential adverse impacts on cetaceans that may arise from the development as it is currently described include (i) the effect of collisions with shipping and other vessels, (ii) direct disturbance and/or injury due to sound and intensified motorised vessel/plant/construction activities, and (iii) secondary impact due to localised disruption of normal ecological activity. It is the current policy of the Department of Arts Heritage and the Gaeltacht that a proposed development of this nature should undergo an appropriate and comprehensive risk assessment specific to any and all cetacean species occurring in the operational area concerned. In the context of the proposed extensive marine development, the Department's Guidance to Manage the Risk to Marine Mammals from Man-made Sound Sources in Irish Waters (January 2014) provides instructive information such that the risk to protected marine mammal species arising from underwater sound can be characterised, assessed and managed as appropriate. This guidance and the associated risk assessment requirements were first published by the Department in public consultation form in March 2012. The risk assessment should be carried out with the assistance of a suitably qualified cetacean ecologist and be based on international scientific research as well as information currently available from Ireland.

Birds:

1. The assessment of bird distribution and behaviour in the proposed development area should be supplemented with additional data. Bird data of this type is inherently variable and it is unlikely that the duration of the proposers study would have been sufficient to characterise the birds at the site. While the proposer's assessment did incorporate data from additional sources, including bird atlases and the Irish Wetland Bird Survey (I-WeBS), these data are generally more than ten years old, and many are much older. The EIS does not cite the latest I-WeBS survey of waterbirds in Ireland (Crowe et al, 2012). This study ranks Inner Galway Bay as being 15th of Ireland's internationally important sites in terms of waterbird abundance rather than 24th as stated in the EIS. The EIS also does not report that Inner Galway Bay is currently listed as having the highest number of several species in Ireland including Great Northern Diver and Red-breasted Merganser (Boland and Crowe, 2102). While not available at the time of EIS and NIS submission, the most recent revision of Birds of Conservation Concern in Ireland (Colhoun and Cummins, 2013) is now available and pertinent information from this study should be included in the revised submission. Of particular importance is the change in status of Great Northern Diver to an amber-listed species because of Ireland's importance on a European scale in supporting significant numbers of this species in the non-breeding period.

2. The assessment of sensitivity of the listed bird species to potential impacts from the proposed development would be greatly improved by a comprehensive desk study that incorporated species specific information concerning the ecology of each species. The desk study should be carried out with the assistance of a suitably qualified waterbird ecologist and be based on international scientific research as well as information currently available from Ireland. Many species appear to have been assessed as being the same group despite having markedly different ecologies. The effects of many potential impacts on birds are listed as "indeterminate". The desk study may resolve many of the "indeterminate"classifications. As noted above, the potential impact of any activity may not be classified as "indeterminate" and should be classified as "likely significant"in the case of uncertainty.

3. There is a notable lack of proposed mitigation measures in the NIS to offset potential impacts on waterbirds. The detailed desk study requested may go some way to informing this. As for Annex I habitats, topics raised in the EIS concerning good environmental practise during construction and operation of the proposed development may partially address this issue.

4. Some potential impacts on waterbirds were not considered in the NIS. Any additional impact requiring consideration is the effect of extreme weather on bird species and the interaction of the proposed development with this. There is also a potential impact to some bird species from increased recreational boating and shipping that is not associated with noise. Some species, such as Great Northern Diver, are displaced from foraging areas by the proximity of vessels at distances of more than a kilometer (Furness et al, 2012). Maintenance dredging of the turning circle may be a permanent impact of some diving species. These impacts, as with all potential impacts, should be considered separately for each species.

5. There appears to be some inconsistency in the information provided about waterbirds in the NIS. For example, Inner Galway Bay is listed for three breeding species: Cormorant, Sandwich Tern and Common Tern. For each of these breeding species, all attributes were assessed with no significant impacts predicted. However, the assessment goes on to assess the impacts separately (i.e. impacts during construction phase; impacts during the operational phase; and in-combination effects). This results in a common and repeated statement of "this impact is not likely to be significant, but is indeterminate". With no proposed mitigation stated in Table 3.11, the residual impact for all these three breeding species is considered to be "indeterminate". The applicant is required to re-evaluate the section on waterbirds contained in the NIS in the context of the above comments.

6. The applicant is requested to assess in a more comprehensive manner the 'In combination effects' of the proposed development with other developments. To clarify; the Inner Galway Bay SPA was designated in 1994 before the Port development of the 1990s. The SPA boundary was set at the high water mark. For some species such as Ringed Plover, the impact of the Port development is listed in table 3.15 as the loss of terrestrial habitat. It was in fact the loss of intertidal habitat, and should be considered so in combination with the proposed development. There is little consideration in the NIS of the effect of the loss of this habitat on waterbirds. The NIS does not go into a sufficient level of detail in relation to the likely areas associated with the take-off, landing and approach areas that are associated with the consented Galway Harbour flights operation. This is relevant in terms of assessing the in-combination disturbance levels to those birds associated with the subtidal areas of Inner Galway Bay SPA.

The further information referred to above should be received by the Board **no later than 5.30 p.m. on Monday the 1st of September, 2014.**

Please note that following its examination of any information lodged in response to this request for additional information, the Board will then decide whether or not to invoke its powers under section 37(F)(2) of the Planning and Development Act, 2000, as amended, requiring you to publish notice of the furnishing of any additional information and to allow for inspection or purchase of same and the making of further written submissions in relation to same to the Board.

If you have any queries in relation to the matter 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.

Kieran Doherty
Executive Officer
Direct Line: 01-8737248

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