

Appendix A.8.2

Consultation Responses

A.8.2

This appendix presents the consultation responses issued by the Department of Arts, Heritage and the Gaeltacht related to the informal EIS Scoping Report, on the 10 August 2016, and two documents related to the EIAR and NIS on the 16 and 18 January 2018 (Ref. G Pre00241/2016).



An Roinn
Ealaíon, Oidhreachta agus Gaeltachta
Department of
Arts, Heritage and the Gaeltacht

Your Ref: GCOB-4.04-019_002

Our Ref: **G Pre00241/2016** (*Please quote in all related correspondence*)

10 August 2016

Mary Hurley
Arup Consulting Engineers
Corporate House
City East Business Park
Ballybrit
Galway
H91 K5YD

Via email to Mary.Hurley@arup.com

Re: N6 Galway City Ring Road - EIS Scoping Report

A chara

On behalf of the Department of Arts, Heritage and the Gaeltacht, I refer to correspondence received in connection with the above. Outlined below are heritage-related observations/recommendations of the Department under the stated heading(s).

Nature Conservation

The Department refers to your correspondence of 19/07/16 in respect of the proposed N6 Galway City Ring Road (N6 GCRR) project, to the EIS Scoping Report supplied (your ref. GCOB-4.04-019_002), and to your request for any comments the Department may have. Reference is also made to the ongoing consultation with this Department about the proposed N6 Galway City Transport project, and to the discussions and advice given at the series of meetings held with representatives of NPWS since 2013.

This submission is made at pre-application/EIA scoping stage in the context of the Department's role in relation to nature conservation. The observations are not exhaustive, but are intended to assist you and the relevant authorities in meeting the obligations that arise in relation to European sites, other nature conservation sites, natural habitats, protected species, and biodiversity and environmental protection in general in the context of this proposal and any future applications for consent. These observations are made without prejudice to any observations or recommendations that may be made by this Department in the future. While not specifically sought by you, this opportunity has been taken to provide observations on the scope of the NIS; among other things, the EIS must address the likely significant effects on European sites.

It is noted that the project is being developed by Galway County Council in collaboration with Galway City Council, Transport Infrastructure Ireland, and the National Transport Authority. It is understood that a preferred route corridor has been identified for the proposed N6 GCRR, and that the project is now at 'Phase 3 – Design' and 'Phase 4 – EIS/EAR and The Statutory Processes' stages. The Department is also aware of the Galway Transport Strategy which is in preparation and makes provision for the development of a future ring road project. The Department's submission on the draft GTS issued to Galway City Council on 26/07/16 (our ref. FP2016/034) and has some relevance to the current project.

Project setting

The proposed N6 GCRR is generally routed around the outskirts of Galway city, extending from the new N6/M6 motorway in the east, to west of Barna. It passes through parts of Lough Corrib cSAC (site code 000297). Other European sites occur to the north and south of the proposed N6 GCRR, namely Lough Corrib SPA (site code 004042), Galway Bay Complex cSAC (site code 00268) and Inner Galway Bay SPA (site code 004031). NHAs are avoided by the project.

Environmental assessments required

It is understood that an EIS and an NIS are in preparation in connection with a future application for consent for this project. The obligations to carry out the EIA will lie with An Bord Pleanála when the application for consent is made, as will the obligations to carry out the appropriate assessment under Part XAB of the Planning and Development Act, 2000 as amended.

Available guidance

Existing guidance on EIA and appropriate assessment should be followed in general terms when preparing the EIS and NIS, including that listed in Section 5.1.4 of the EIS scoping report. However, you should also be cognisant of changes in the interpretation and application of directives and national legislation arising from case law of the Court of Justice of the European Union (CJEU), and of the Irish courts, particularly in respect of Article 6 of the Habitats Directive, and the formal processes of EIA and appropriate assessment as carried out by the competent authority. The terminology that is used should align with the relevant legislation, as should the stages (i.e. screening for appropriate assessment, preparation of NIS, appropriate assessment, etc.) and tests of the assessment processes.

Project description

The assessments should be based on full and detailed descriptions of all parts of the project, and all development, including all associated and ancillary works and services, and all lands required, at all stages from ground testing and site clearance or preparation, to construction and operation, and decommissioning, if appropriate. All relevant project details and all works areas, whether required on a permanent or temporary basis, should be shown in maps and drawings, and should form part of any application for consent. In addition to the main project footprint, this should include, for example, site access; site investigations or ground testing; archaeological testing; fencing; site/vegetation clearance; demolition; site compounds and works areas; site drainage; water management/treatment; quarrying and processing of aggregates; infilling; temporary and permanent storage or disposal areas for materials or wastes

arising; landscaping; provision or alteration of accesses and services; lighting, etc. Particular attention should be paid to the interconnections and linkages with existing, permitted and proposed developments, and with the details of any mitigation measures that apply, e.g. along the western end of the N6/M6 motorway. There should also be due regard to linkages or overlaps with land use zonings for development, and other policies and objectives for development, including transport and the GTS.

Full details of mitigation measures should be provided and shown in maps and drawings, as appropriate. The likely effects of ecological and other mitigation measures should also be assessed (e.g. installation and subsequent removal of silt control measures), and mitigated where necessary (e.g. to prevent fencing or archaeological testing having (unforeseen) adverse effects on habitats or protected species). Mitigation measures should be demonstrated to be effective in addressing and ameliorating the full scale and nature of the effects arising, at all relevant project stages, and should be demonstrated to be feasible within the specific characteristics and constraints of the proposed site at any given location. Mechanisms also need to be developed to ensure that appropriate mitigation measures and the necessary specialist supervision are in place for each successive phase of development, including advance contract stages.

Other plans and projects

In relation to potential cumulative or in combination effects of other plans and projects, the following should be included, at a minimum, in your assessments and analyses, noting any plan- or project-level mitigation measures that may be relevant to the site or type of project, or which should otherwise be taken into account:

- Galway City Development Plan and Galway County Development Plan
- Local Area Plans – Barna, Ardaun, Galway Gaeltacht, etc.
- Galway Transport Strategy
- N6/M6 motorway and mitigation measures
- Other existing, permitted or proposed residential, commercial and amenity developments along or in the vicinity of the preferred route
- Other developments, including unauthorised developments, along or in the vicinity of the preferred route

Relevant timeframes for such considerations could include the dates from which EIA requirements existed and sensitive ecological receptors such as European sites were protected.

Available ecological information

You are advised to consult the National Parks and Wildlife Service website (www.npws.ie) as a key source of data, information and publications on nature conservation sites and biodiversity issues of potential relevance to the area and the environmental assessment(s). This includes site boundaries, site synopses, lists of qualifying interests (SACs) and special conservation interests (SPAs), conservation objectives (European sites), features of interest (NHAs), and dates of site designation. GIS datasets are available for download for nature conservation sites¹, and for certain habitats and species arising from various sources, including national surveys. Other NPWS-held data on habitats and species may be requested by submitting a 'Data Request Form'².

¹ Special Areas of Conservation (SACs, currently known as candidate sites but fully legally protected); Special Protection Areas (SPAs); Natural Heritage Areas (NHAs); and proposed Natural Heritage Areas (pNHAs)

² Available from <http://www.npws.ie/maps-and-data/request-data>

Site-specific conservation objectives (SSCOs), and associated backing documents and GIS datasets, are available for some European sites on the NPWS website³, including Galway Bay Complex cSAC (site code 00268) and Inner Galway Bay SPA (site code 004031). For all other European sites, generic conservation objectives are available and the most up-to-date versions should be used and referenced in any relevant documents.

The Habitats Directive Article 17 reports for 2007 and 2013, which should also be consulted, are available from <http://www.npws.ie/article-17-reports-0>, as is the recent national report on Article 12 of the Birds Directive, at <http://www.npws.ie/news/birds-directive-article-12-reporting>. These reports will assist in assessing or determining the significance of some ecological effects identified as they report on the national resource of 'protected species and natural habitats' (as per the Environmental Liability Directive – see Appendix 3).

The national habitat surveys that have been undertaken, and the resulting reports, should be consulted, including for the results of monitoring, and information regarding the definitions and evaluations that have been developed for Annex I habitat types in Ireland.

Data on ecological features and environmental factors in or near the project area will be available from various other sources including, for example:

- Other organisations, e.g. National Biodiversity Data Centre, BirdWatch Ireland, Bat Conservation Ireland, etc.;
- EISs, NISs and other reports for other projects in the general area and on this site, including the former N6 Galway City Outer Bypass, and the Constraints and Route Selection reports for the current project. In the case of the N6/M6 scheme, reports of the design, implementation and monitoring of ecological and related mitigation measures, including habitat management plans, should be sourced, noting that Annex I habitats and protected plant species occur or occurred at the eastern end of that scheme;
- NIRs and SEA Environmental Reports for plans in the general area, including those listed above;
- Available flood risk mapping and forthcoming flood management plans and the range of measures they contain;
- Scientific literature and published/unpublished reports.

Surveys and assessments required

Some general notes on screening for appropriate assessment and the preparation of an NIS are included in Appendix 1 and 2 below, and these should be taken into account. In addition, Appendix 3 sets out a basic outline of key ecological receptors requiring consideration in any ecological impact assessment, including the 'flora and fauna' chapter of an EIS. Some specific points of relevance to the EIS scoping report you supplied, and to the current proposal and its assessments follow.

1. The Department is aware that extensive and comprehensive ecological surveys have been carried out for the general study area and a series of route corridor options. The EIS should present data, information and analysis specific and relevant to the project and its receiving environment, taking all associated and ancillary development and works, all lands (and aquatic areas) required, and all

³ <http://www.npws.ie/protectedsites/conservationmanagementplanning/conservationobjectives/>

project stages, into account, but also noting the requirement to address and assess cumulative and in combination effects.

2. In addition to the surveys listed in Section 1.5.3 of the scoping report, vegetation community data and reference to other data and information may be necessary to support the identification or characterisation of habitats as Annex I priority habitats, Annex I habitats, or potential Annex I (priority) habitats, or not. Any necessary scientific justifications and supporting evidence should be presented or referenced (in main text or appendices) to support conclusions reached regarding the presence or absence of Annex I habitats.
3. Botanical or rare plant surveys should include dedicated surveys for species known from and potentially occurring in the locality. The Flora (Protection) Order, 2015, species, Small White Orchid (*Pseudorchis albida*), occurs in the vicinity of the tie-in with the N6/M6 motorway. In addition, the protected plant, chives (*Allium schoenoprasum* L.) has been recorded from roadside margins in the areas north-west of Barna and north eastwards towards Drum and Tonabrocky.
4. In addition to breeding and wintering bird surveys, consideration should be given to the need for surveys to assess any potential effects on birds during spring and autumn migration.
5. Other environmental surveys, and integration of environmental data and analysis, will be required, in many cases, to assess the likely effects on habitat structure and function. This should be guided through the collaboration of the ecological team with other specialists so that robust data and analysis are available to support conclusions reached.
6. If using existing guidance to evaluate the ecological environment and to assess the significance of impacts (e.g. as per Section 5.1.4 of the scoping report), care should be taken to ensure that this reflects:
 - a. the current interpretation of Directives and related legislation, including as established by case law of the CJEU and of the Irish courts
 - b. appropriate criteria on which such determinations should be based, and
 - c. the tests and standards that should be applied, e.g. evaluation of significance of effects in the context of conservation status at national level.
7. In the EIS, Ireland's Article 17 (Habitats Directive) reports and assessments of conservation status of the national annexed habitat and species resource will assist in assessing impact significance and whether, for example, predicted losses of these resources could result in unfavourable or worsening conservation status. Trends in environmental quality and, for example, Water Framework Directive characterisations and risk categories for water bodies may also assist as a basis for evaluating and assessing the significance of effects.
8. In the NIS, the assessment and analysis should be with respect to the implications for the conservation objectives and integrity of European sites, and should suffice to enable the appropriate assessment to reach complete, precise and definitive findings and conclusions in these regards.
9. The full scope of the conservation objectives for relevant European sites should be used, as appropriate, to inform the scope of the scientific assessment and

analysis in the NIS. The most recent version of the conservation objectives should be used and referenced in relevant documentation, and each of the individual conservation objectives of relevance should be addressed separately. Lough Corrib cSAC has generic conservation objectives at present meaning that your analysis should be with reference to maintaining or restoring the favourable conservation condition of the relevant qualifying interests. In the case of the qualifying interest Annex I lake habitats in Lough Corrib, it is known that the conservation objective is to restore, rather than maintain, their favourable conservation condition. In the case of the SSCOs for Galway Bay Complex cSAC, there are some situations where the conservation objectives are to restore, rather than maintain, the favourable conservation condition of qualifying interests.

10. NHAs are selected for the conservation of 'features of interest' and these should be used, as appropriate, to inform the scope of the scientific assessment and analysis in the EIS.
11. The EIS must assess the likely effects on nature conservation sites, including European sites, NHAs and non-statutory sites (pNHAs and local biodiversity areas). The EIS may align with and cross-reference or reflect content and conclusions of the NIS, but may not omit, overlook or exclude consideration of the likely effects on European sites.
12. The assessments should suffice to support any applications for licences that may be necessary to disturb strictly protected or protected species and their breeding sites or resting places.

The above observations and recommendations are based on the papers submitted to this Department on a pre-planning basis and are made without prejudice to any observations the Minister may make in the context of any consultation arising on foot of any development application referred to the Minister, by a planning authority, in her role as statutory consultee under the Planning and Development Act 2000, as amended.

You are requested to send further communications to this Department's Development Applications Unit (DAU) at manager.dau@ahg.gov.ie (team monitored); if this is not possible, correspondence may alternatively be sent to:

The Manager
Development Applications Unit (DAU)
Department of Arts, Heritage and the Gaeltacht
Newtown Road
Wexford
Y35 AP90

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**Yvonne Nolan,
Development Applications Unit**

Appendix 1

Notes on screening for appropriate assessment

Screening is the process of determining whether or not an appropriate assessment is required for a plan or project. Under Part XAB of the Planning and Development Act, 2000 as amended, screening must be carried out by the competent authority to assess, in view of best scientific knowledge, if a land use plan or proposed development⁴, individually or in combination with another plan or project, is likely to have a significant effect on a European site. The competent authority's determination as to whether or not an appropriate assessment is required must be made on the basis of objective information and should be recorded. Consultants or project proponents may undertake a form of screening to establish if an NIS is required and provide advice, or may submit the information necessary to carry out screening with an application for consent. The competent authority may request information to be supplied to enable it to carry out screening.

The following advice is offered in relation to screening for appropriate assessment:

1. Screening should commence as a desk exercise, using available data and information in the first instance.
2. Screening should be carried out in view of best scientific knowledge and in view of the conservation objectives of a European site or sites.
3. The criterion of 'best scientific knowledge' should apply to each of the following:
 - a. The likely effects of the plan or project in question, taking its nature, size and location into account;
 - b. The existing environmental baseline, and pressures and trends that may be relevant, noting that deterioration of habitats or significant disturbance of species may already be occurring;
 - c. Cumulative effects of other plans and projects that could act in combination;
 - d. The European sites, their qualifying interests (SACs) and special conservation interests (SPAs), and their conservation objectives.
4. Screening should identify which European sites and which qualifying interests, special conservation interests, and conservation objectives, are at risk from a plan or project, alone or in combination with other plans and projects, and should seek to be clear about what likely significant effects could result.
5. If screening is overly precautionary, and risks of significant effects on a European site in view of its conservation objectives are not actually identified, the NIS (or NIR) and subsequent appropriate assessment will lack focus and be unable to reach any clear, precise or definitive conclusions.
6. A screening exercise will assist in identifying or delineating appropriate 'zones of influence', study areas or receiving environments for plans and projects, and will assist in informing the scope, geographical extent and methodologies of the surveys and assessments required.
7. The results of ecological surveys carried out for an EIS or ecological impact assessment of a proposal should not normally be used as the basis for screening that proposal, particularly where the need for an NIS or an appropriate assessment is discounted.
8. Mitigation measures required to reduce or ameliorate the adverse effects of a project on the conservation objectives of a European site should not normally form part of a screening exercise. Screening identifies risks of significant effects on sites but does not assess these. As a result, it is not normally possible to know what mitigation measures are required and whether they will be effective, or to reach conclusions as to the residual effects and the implications for the conservation objectives of a site.

⁴ If not a land use plan or proposed development for the purposes of planning legislation, screening for appropriate assessment will normally be carried out by a public authority under Part 5 of the European Communities (Birds and Natural Habitats) Regulations, 2011

Appendix 2

Notes on the preparation and content of an NIS

The term, NIS, is defined in legislation⁵. In general, an NIS, if required, should present the data, information and analysis necessary to reach a definitive determination as to 1) the implications of the plan or project, alone or in combination with other plans and projects, for a European site in view of its conservation objectives, and 2) whether there will be adverse effects on the integrity of a European site. The NIS should be underpinned by best scientific knowledge and objective information, as required in the case of screening for appropriate assessment, and by the precautionary principle.

The following advice is offered in relation to the preparation and content of an NIS:

1. An NIS is a scientific assessment that presents relevant evidence, data and analysis, and focuses on the implications of the plan or project, on its own and in combination with other plans and projects, for the conservation objectives of the relevant European site(s), taking the full scope of these objectives, whether generic or site specific, into account;
2. Examination of the potential effects of the plan or project must be undertaken to identify what European sites, and which of their qualifying interests (SAC), special conservation interests (SPA) or conservation objectives, are potentially at risk. In combination effects must also be taken into account. This is required to determine a 'zone of influence' or 'zone of impact' for the project, if such a concept is used. The 15km distance in existing guidance is an indicative figure only and its application and validity should be examined and justified in each specific case on an ecological or other basis;
3. The scientific basis on which sites and their conservation objectives are included or excluded from assessment and analysis should be presented and justified;
4. The full area or extent of the likely effects of the plan or project should be determined and quantified. Where temporary damage and disturbance will occur, predicted timelines for recovery should be presented;
5. The relevant environmental baseline and trends in European sites should be taken into account, bearing in mind changes and in combination effects which have occurred since site designation;
6. An NIS should be informed by any necessary surveys of habitats and species at the appropriate time(s) of year to identify, describe, evaluate and map their presence within the receiving environment. In all relevant cases, the scientific basis and justifications for categorising or not categorising habitats as Annex I habitats, or priority types, should be presented;
7. An NIS should be informed by any necessary hydrological, hydrogeological or geotechnical investigations to assess impacts on habitat structure and function;
8. Where mitigation measures are required, full details should be included in the project description and drawings, with method statements provided, where necessary. It must be demonstrated that mitigation measures will be delivered in full, and at the appropriate time, at all post-consent stages, and that they will be effective in any specific location or set of conditions. The necessary analysis should be presented to demonstrate how the mitigation measures will avoid or remove the risks of adverse effects on the integrity of European sites that have been identified in an NIS so that the final analysis is undertaken in the context of the predicted residual effects;
9. An NIS should contain, or clearly cross-reference, all the scientific data and analysis on which the assessment is based, and should contain clear and precise findings and conclusions as to the implications of the project, on its own and in combination with other plans and projects, for the conservation objectives and integrity of the relevant European site(s).

⁵ As defined in Section 177T of the Planning and Development Act, 2000 as amended, an NIS means a statement, for the purposes of Article 6 of the Habitats Directive, of the implications of a proposed development, on its own and in combination with other plans and projects, for a European site in view of its conservation objectives. It is required to include a report of a scientific examination of evidence and data, carried out by competent persons to identify and classify any implications for the European site in view of its conservation objectives

Appendix 3

Key ecological receptors and surveys required

The following key ecological receptors should be included among the considerations in the flora and fauna section of an EIS, or in an ecological impact assessment:

- Sites with nature conservation designations, including proposed NHAs, including the reasons for their designation, and their conservation objectives, where available;
- Annex IV (Habitats Directive) species of fauna and flora, and their breeding sites and resting places, which are strictly protected under the European Communities (Birds and Natural Habitats) Regulations, 2011;
- Other species of fauna and flora which are protected under the Wildlife Acts, 1976-2000;
- ‘*Protected species and natural habitats*’, as defined in the Environmental Liability Directive (2004/35/EC) and European Communities (Environmental Liability) Regulations, 2008, including:
 - Birds Directive – Annex I species and other regularly occurring migratory species, and their habitats (wherever they occur);
 - Habitats Directive – Annex I habitats, Annex II species and their habitats, and Annex IV species and their breeding sites and resting places (wherever they occur);
- Other natural and semi-natural habitats of ecological value in a national to local context;
- Stepping stones and ecological corridors covered by Article 10 of the Habitats Directive.

Available information on sites, habitats and species should be reviewed, including datasets available on request from NPWS and from www.npws.ie (see main text). In addition, the following are required to characterise the receiving environment and to assess the likely ecological effects:

- Habitat survey of the site and surrounds, following the Heritage Council methodology⁶ (2011), and with particular focus on any Annex I or potential Annex I habitats present;
- Identification, description, evaluation and mapping of any Annex I habitats present, including in terms of the vegetation communities, flora and fauna present, as appropriate. Whether or not there is correspondence with Annex I habitats, or priority types, should be examined and justified on scientific grounds;
- A habitat map of the site and surrounds with the footprint of the entire project, all lands required, and all works areas and access routes overlain, to enable impacts on habitats to be quantified and qualified;
- Botanical surveys of the receiving environment to be undertaken at the appropriate time of year to properly characterise and evaluate the habitats present, and identify any rare or protected species, including bryophytes;
- Faunal surveys of the receiving environment to be undertaken at appropriate times of the year to identify any rare or protected species that use the site and surrounding areas, and to evaluate the importance of the site for fauna.

⁶ *Best Practice Guidance for Habitat Survey and Mapping*. (2011). Heritage Council, Kilkenny



Your Ref: KK/lod
Our Ref: **G Pre00241/2016**

16 January 2018

Mr Kevin Kelly,
Chief Executive (Interim),
Galway County Council,
Áras an Chontae,
Prospect Hill,
Galway.

Re: N6 Galway City Ring Road - Review of NIS and Biodiversity Chapter of EIAR

Dear Mr Kelly,

The Department refers to your correspondence of 3rd October, 2017 regarding the N6 Galway City Transport Project at pre-application stage. Reference is also made to the associated revised drafts of the NIS and EIAR Biodiversity chapter which have been supplied with a request for further review. The Council's questions about the adequacy of the surveys carried out are noted.

As you know this Department will not be the EIA or AA authority when the application for consent is made, and as we have stressed from the outset the Council (and TII) should ensure they undertake their own reviews and quality control of the documentation produced on their behalf.

As the Council is aware, the National Parks and Wildlife Service (NPWS) of this Department reviewed and provided observations and comments on earlier drafts of these documents (supplied in June 2017), and met your consultants in August to discuss and clarify points made.

In general, NPWS has been engaging and assisting throughout the pre-application process and has attended six meetings with the project team. In the course of these meetings, minutes of which are available, details of the habitat and species surveys carried out, including the methodologies used and the findings, were reported, updated, queried and discussed. Draft data, maps and reports have also been provided. Other associated environmental data and survey findings (e.g. hydrology, hydrogeology, soils, etc.) were reported on where relevant or when queried. Issues and concerns raised by NPWS have been addressed by the project team.

The ecological surveys that were carried out have been comprehensive and thorough, and particularly so in relation to bats.

NPWS has advised that the content and structure of the original draft NIS were difficult to follow, including in terms of the methodological approach and associated narrative, and this presents a challenge in understanding the scientific arguments and justifications on which conclusions were reached.

NPWS has outlined that it considers that, in this particular case, the particular challenges are:

- in presenting data, information and analyses clearly, concisely and comprehensively in the NIS and EIAR,

- in addressing residual and cumulative or in combination effects, noting the setting on the outskirts of a growing city and relevant timeframes (1990 and 1997 for EIA and AA, respectively)
- possible implications of the new EIA Directive, particularly in relation to broadened scope of 'biodiversity, flora and fauna' as an environmental topic
- in addressing plan level measures and mitigation from the AA and SEA of plans that provide the planning framework for this project

The Department refers to your query concerning the robustness of the methodological approach taken to impact assessment in the NIS. Although this would not normally be a function of this Department at pre-planning stage, in order to facilitate the council with this significant project, the Department is currently undertaking a review of the most recent draft of the NIS that it received. It hopes to be in a position to provide more detailed feed back to the Council early this week.

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A handwritten signature in blue ink that reads "Suzanne Nally". The signature is written in a cursive style and is underlined.

Suzanne Nally
Assistant Principal Officer
Development Applications Unit



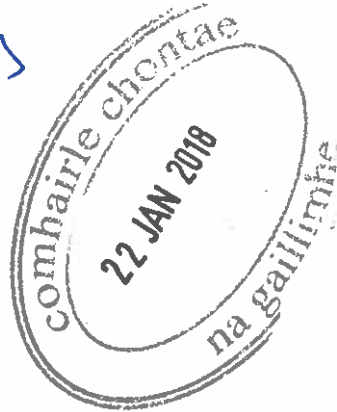
An Roinn
Cultúir, Oidhreacht agus Gaeltachta
Department of
Culture, Heritage and the Gaeltacht

Your Ref: KK/lod
Our Ref: G Pre00241/2016

18 January 2018

Mr Kevin Kelly,
Chief Executive (Interim),
Galway County Council,
Áras an Chontae,
Prospect Hill,
Galway.

Acc - Tulla D.J.



Re: N6 Galway City Ring Road - Review of NIS and Biodiversity Chapter of EIAR

Dear Mr Kelly,

The Department refers to your correspondence of 3rd October, 2017 regarding the N6 Galway City Transport Project at pre-application stage. Reference is also made to the associated revised drafts of the NIS and EIAR Biodiversity chapter which have been supplied with a request for further review.

Further to the Department's letter to you, dated 16th January 2018, please find herewith the Department's more detailed comments as promised on the draft NIS and Biodiversity Chapter of EIAR for the proposed N6 Galway City Ring Road. It is hoped that these will be of assistance to the Council.

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Suzanne Nally

Suzanne Nally
Assistant Principal Officer
Development Applications Unit

Notes on draft EIAR chapter 8 (ver. 05/10/17)

General

The document is lengthy and detailed and based on possibly more ecological survey than any other road scheme to date. In the course of the series of meetings with NPWS, and in previous observations on the earlier draft chapter, it has been stressed that the challenge was to present the necessary EIA data, information and analysis in a way that is specific to the final project, and in a way that is comprehensive, concise and accessible. This is necessary in general but all the more so in the light of the new EIA Directive. The clear communication of scientific information and findings remains a challenge, not only in the context of a chapter of 361 pages (main text only) but also where there is an associated NIS with overlapping functions and content.

In the current draft of chapter 8, it is considered that the narrative and structure are overly convoluted (particularly up to and including the description of the receiving environment), with complicated issues and analysis tending to be covered before relevant general information has been supplied, thereby leaving the reader with a poor understanding of the receiving environment of the scheme, the likely effects and key concerns, and meaning that the document and scientific arguments are difficult to follow. As an example, there is no general introduction to the project and its overall receiving ecological environment in the chapter, and no early information on the basic length or area of the scheme. Also, there is a tendency to begin with the complicated, wide and often irrelevant issues, and end with the simpler relevant issues but with these lost in narrative and without making it clear what the actual impacts will be. Is it clear, for example, that only one nature conservation site will be intersected by the scheme, there are four other such sites nearby and downstream, and that others are at a greater distance?

In terms of the description of the receiving environment, the text and information should be as specific and relevant to the project as possible, explaining only once (if possible) the background to the earlier stages of the scheme, the surveys then carried out (including study areas) and the fact that these are reported in full in appendices and cover areas outside the scheme footprint. A summary table giving areas (lengths) of all habitat types within the proposed road boundary and road footprint was included in the description of the receiving environment.

The EIAR should include the likely effects on European sites but this should balance or be in line with the general approach taken to other ecological receptors; a more simplified and summarised approach that is easier to follow would be recommended, and there should be cross-references to the NIS and its findings where appropriate. An EIAR would also need to cover any other impacts or effects on a European site outside the immediate realms of the conservation objectives and integrity.

Cumulative effects need to be taken into consideration in the context of the assessment of significance and, where necessary, should form part of the assessment and analysis in the chapter rather than being presented as a separate section at the end. Some cumulative effects meriting further consideration are the barrier effects of the new motorway network east-west and north-south in Galway; disturbance and fragmentation along the River Corrib, including new and extended paths, floodlighting, other external lighting and extending development; proposed cycle/pedestrian network and greenways along the Corrib; agricultural development, including land reclamation.

Specific

The following points are comments, queries and suggestions (including where question marks are used) on the content of the chapter. Text in italics is from the EIAR.

1. Define '*proposed road development*' (at first mention) to be as per chapter/section X of the EIAR or to include all associated and ancillary works and development. Have valid terms, used consistently, to refer to the final permanent road footprint and the full extent of lands within the 'fencelines'
2. Definition of biodiversity – refer to text/commentary in Section 1.3.4 of EU 2017 EIA guidance, and note also Part C and the 'review checklist' in http://ec.europa.eu/environment/eia/pdf/EIA_guidance_EIA_report_final.pdf
3. Provide clearer explanation of Table 8.1 in caption – doesn't include all ecological receptors and match with associated text: **Table 8.1 below presents the ecological receptors and in which sections of this chapter they are discussed for ease of reference**
4. Background and earlier project stages [last para section 8.1; see also above] – include as separate section, partly to explain the background to various surveys undertaken over time? The stage at which they were undertaken is less relevant to the EIAR, and to the data and evidence it must present, so text like para 2 in section 8.2.4.2 is less relevant or not relevant? Instead explain that the data gathered are presented as relevant in the EIAR and that full reports are available elsewhere?
5. Section 8.2.4.1 – is the explanation of the term 'study area' clear in this section? Start with 'various terms are used to define the area where surveys were carried out' ... ?
6. New EU 2017 guidance on the EIAR is not referenced in section 8.2.5
7. Section 8.2.5 – para on valuation of Annex I habitats – cross-check with definition of natural habitat types in Article 1(c) of the Directive and note that this does not refer only to SACs or to national importance
8. Are parameters in Table 8.3 used in characterising the effects?
9. Review 'impact significance' section as text is not in line with two preceding sections – *The likely significance of all impacts is determined in consideration of the magnitude of the impact and the baseline rating of the area upon which the impact has an effect.* Note that conservation status as per the Habitats Directive is judged at EU territory level, not '*within a given geographical area*', and is reported on nationally (Article 17)
10. Does significance at a geographical level mean level of significance – clarify?
11. Inclusion of 'conservation status' under impact assessment methodology – is this in the context of EIA or AA or both? Is it providing clarity or confusion, and is it used later on? Refer instead to evaluation systems used but don't try to explain, e.g. text in two main paras on page 263 is confusing rather than helpful
12. Are the headings sufficient (also Table 8.1) to cover biodiversity – **Section 8.3.4 to Section 8.3.13 describe the ecological baseline as it relates to the ecological receptors recorded, or known from, the study area under the following headings: habitats, rare and protected plant species, non-native invasive plant species, mammals (excluding bats), bats, invertebrate species, bird species, amphibian species, reptiles and fish.** What about other plant species and other species groups?
13. Page 270 – bullet point which says the following requires clarification, '*Section 50 approval has been granted by OPW for the proposed culverts. These culverts are box culverts with 300mm gravel in the stream bed*' [also NIS page 79 – see below]
14. Up to section 8.3.3, where European sites are being described within 15km of the road, there has been no general outline or description of where the road is, what landscape or topography it passes through, what the key ecological features or environmental influences are, etc.
15. European sites – maybe start with the fact that the road passes through one site, is near three others and that there are other such sites at a greater distance?
16. What is the context of the '*summary of the biodiversity baseline for each of these European sites*' (end of 8.3.3.1) meant to be – where it interacts with the road, the study area, the

- Zol? This isn't clear. Following on in Section 8.3.3.1.1, the context of the information being presented isn't clear – is it relevant to the road, the survey, the Zol or study area?
17. Section 8.3.3.2 title – suggest change to NHAs (all protected nature conservation sites, including European sites, are nationally designated). Note few NHAs overlap with European sites (but many pNHAs do). Also by starting with the number of NHAs and pNHAs within 15km of the road, it is very unclear whether or not the sites will be impacted
 18. Maybe say that the effects on pNHAs need to be taken into account because of land use and environmental protection objectives for such areas (and for other biodiversity features) in a land use plan, rather than saying they are protected?
 19. Creganna Marsh NHA 000253 is not an NHA
 20. Section 8.3.4 – what is the context of this section of text – along the road, study area, Zol, other? Begin with 'the results of the habitat surveys in the study area are described' ...
 21. Is the habitat information in sections 8.3.4.1 onwards referring to the study area or the road, or something else – maybe begin sections with easy explanations of what follows?
 22. Explain or provide relevant authority/source for the variants of limestone pavement (block, shattered, exposed) recorded?
 23. Habitat accounts – it might be useful to say whether individual habitat accounts summarise findings from east to west or west to east along the road, or follow some other system?
 24. Section 8.3: Table 8.2.6 should include local biodiversity areas in City Development Plan?
 25. Section 8.3: it is unclear why impacts on low value receptors are not assessed and then deemed to be insignificant effects rather than going through 'KER' stage and omitting them without sufficient explanation – e.g. description of exposed siliceous rock habitat includes an association with Annex I habitats on page 287 but then dismisses it as not a KER on page 355; also exposed calcareous rock – quarry walls – may support calcareous/petrifying springs and be habitat of Annex I birds but are dismissed as not a KER. Need to say what the effects are before saying that they are not significant. Table 8.27 (further on) has data on KER habitats only. Document should give areas of all habitats within the road development boundary as basic information on the receiving environment and as the evidence to demonstrate whether or not features or receptors are significant or not
 26. Section 8.4.2 sets out some cumulative/in combination issues (existing and future trends) that are not further examined later on
 27. EIAR may need to have a wider assessment of likely effects on European sites than in the NIS, but this may be more general – similar to but not the same as the NIS and the two documents should work in tandem. EIAR would have to cover any effects that were not specifically related to the conservation objectives and integrity of the site
 28. pNHAs should be treated separately and differently to NHAs in assessment – section 8.4.3.2 (and see comments above and previously)
 29. First real description of proximity of road to parts of Moycullen Bogs NHA is on page 370 and not where receiving environment is described, e.g. page 281
 30. Page 373: *Overall, the proposed road development has the potential to have a significant negative effect on Moycullen Bogs NHA as a result of air quality, non-native invasive plant species and surface water quality impacts during construction, potentially at the national geographic scale.* Is the reference to scale helpful or misleading?
 31. The finding in Section 8.4.3.3.2 is at odds with the NIS, but also may not be necessary: *As per the conclusions of that assessment the proposed road development is not likely to have a significant effect on either Lough Corrib pNHA or Galway bay Complex pNHA*
 32. Section 8.4.4.3: query the section heading, 'Impact significance on habitats', and what that means
 33. Is it clear to which areas the following refers, and what is the basis on which the statement is made? *As there are no rare or legally protected plant species present within the Zol of the proposed road development, no impacts are predicted*

34. Habitat loss for breeding birds – this section sends the reader to 18 pages of text in Section 8.4.4.3, and not to a table. Is it helpful?
35. Section 8.5.7.1 – otter are strictly protected (Annex IV species) under the EC (Birds and Natural Habitats) Regulations
36. Need to define 'construction' or 'construction stage' to mean or include advance contracts, site set up, mobilisation and any other disturbances, or use another term
37. Is there a need to cater for otter passage during construction, not only during operation, noting construction may take 36 months?
38. Table 8.38 accounts for total permanent loss of 6.3ha Annex I habitat; losses of additional 12.16ha of habitat are also acknowledged, giving in total 18.16ha. The total footprint is 279ha of which 175ha is required for road development (from NIS) – what are the other permanent and temporary habitat losses (261-157ha)?
39. Cumulative effects occur mainly outside the main assessment and analysis in the chapter and do not address matters such as implications for the mitigation and avoidance of other projects, including road schemes, e.g. the operational N6/M6 at Doughiska, or the barrier effect and fragmentation of territories and populations for fauna, noting further extension to motorways to Dublin and interacting with M17/N18 from Gort to Tuam. Note the EU 2017 EIA guidance specifies that significance should be determined taking cumulative effects into account
40. Use of term effects/impacts at 'geographical scale' – is this not a level of significance rather than scale?
41. It is noted that net permanent losses of areas of Annex I habitat outside nature conservation sites will result from the project, and that it is stated in the EIAR that compensation of these adverse ecological effects is not possible. An Bord Pleanála may be able to advise further on whether and to what extent permanent net losses of such a resource would be permissible without compensation.

Previous specific NOTES on earlier draft EIAR Biodiversity Chapter – for information and/or further review

1. Impact vs effect – check Directive and ensure consistent use of relevant terminology
2. Guidance – 8.2.2 – documents listed aren't all guidance
3. NPWS is DAHRRGA – now DCHG – list as section of Dept, not separately
4. 8.2.5 – valuation of priority vs Annex I habitats – disparity in significance unclear
5. KER – explain earlier – entire project assessed with focus on KER – EIAR must assess likely significant effects on the environment
6. Department's comments/ submissions – as with NIS, and acknowledge scoping response. Does list of meetings include those with other NPWS staff?
7. Need to review references generally to pNHA status – pNHAs don't have 'features of interest' identified (Table 8.4)
8. Explain the vegetation community column in Tables 8.5 (onwards) and how it refers to Annex I habitats
9. Query use of 'Residual alluvial forest' – follow NPWS Art 17 summary reports as standard for summarised Annex I habitat names?
10. Table of sites checked for bats – give table of results? Generally EIAR needs to find a way to present clearly summarised findings
11. Breeding birds – all species recorded appear to be BoCCI species? Total adds to 63 (at least), not 62
12. Birds and flightlines up/down river, and value and use of river as corridor not covered
13. Species baseline data – suggest listing protection status insofar as they could be affected by road project – see more about non-Annex IV (HD) species licences. Breeding birds (nests, etc. protected); badgers (protected)
14. Treat Annex IV species separately to other species – have bats and otter sections together
15. Designated areas for nature conservation vs designated sites – again, need for consistency and clarity in terminology used
16. Is there a need to reintroduce Zol in 8.4.3.2?
17. What does 'proposed development boundary' mean – clarify. Also proposed road development – what does this include
18. Have glossary of terms, abbreviations, etc. and give sources/origins where this would help understanding
19. EIAR should describe baseline of European sites – leave out other text
20. Split out pNHAs from 8.4.3.2
21. 8.4.4.1 – omit m² and use ha in Table 8.29 – otherwise suggests an unrealistic level of precision / accuracy. Give totals of habitat area, length; later summarise again with totals for actual/residual effects, after mitigation
22. ... Therefore the proposed road development is not like is not likely to affect the habitat's conservation status locally ... are areas/lengths of loss and alteration given?
23. Wildlife Act licences (non-Annex IV) not needed from NPWS – covered by Board's consent – revise, include any mitigation measures required, assess residual effects, etc. Get legal advice
24. Again group otter and bats as Annex IV species with one set of legal protection provisions
25. Map of CSZs?
26. Birds collision risk – requires information on flightlines along river corridor
27. Project details and plans of structural mitigation measures – bat roosts, overpasses, etc. – need to be available and get consent as part of project
28. Will there be a full schedule of mitigation measures?

- 29. 8.5.2.4 – CEMP should include reference to the invasive species management plan in 8.5.2.6 – for latter, works are to be done in advance – by who? Is there sufficient clarity and necessary controls?
- 30. Mitigation and supervision – are details specified?

Notes on revised draft NIS (ver. Oct 2017)

General

The revised NIS is much improved in terms of readability of the early sections. The document remains lengthy and there are concerns that explanation of certain aspects of the methodological approach is excessive and convoluted while at the same time the supporting scientific data, evidence and justifications are difficult to find and follow, or are presented out of sequence – e.g. shaded QI habitats in Table 9.1 excluded from consideration before an account of what habitats occur within the development boundary and SAC or are likely to be affected. As a result, it seems unnecessarily difficult to follow the details and narrative through the document and the various sections.

It remains difficult to find a clear description of the interactions of the proposed road with European sites, particularly where it intersects Lough Corrib SAC. The areas of overlap with the SAC (including below ground) are not given in the main descriptive sections and are not easy to find. The habitats present are described in summary without quantitative information, and without a wider context, i.e. the relationship of the habitat areas/fragments with adjoining habitats in the SAC.

The effects of the road are examined under a series of headings which are similar to those in the EIAR chapter. An element that is lacking or unexplained is the specific analysis relative to the conservation objectives of European sites, and Lough Corrib SAC in particular, including the attributes and targets of relevance. This assessment is critical in reaching conclusions in the NIS and in enabling an appropriate assessment to be taken out.

It is suggested that the NIS will need to be strengthened from Chapter 10 onwards, in particular. For instance, for L. Corrib SAC, in Chapter 9, Table 9.17, the project is screened for potential impacts requiring mitigation measures, under the attributes identified in the site Conservation Objectives. This is not followed through in Chapter 10 where mitigation measures are described in a general sense without a direct connection being made to either the Conservation Objective attributes for a European Site – nor any particular European Site, for that matter - and the specific threats to them that were identified in Chapter 9. It is accepted that many of the mitigation measures will apply simultaneously to a number conservation attributes and also to a number of European Sites. The links need to be clearly made however between the particular attribute, the threats to it and the relevant *specific* mitigation measures.

Following on from the foregoing, the residual impacts dealt with in Chapter 11, do not clearly follow on from the application of the specific mitigation measures. In addition, the application of mitigation measures continues to be discussed in this chapter despite the fact that purports to deal with residual impacts. Some of the column headings in the tables appear out of place at this stage of the process: e.g. “Could the conservation objectives be affected?”, “Are mitigation measures required?”.

In the NIS, direct connections need to be made between the respective conservation attributes, the potential impacts of the project on those attributes, the proposed mitigation measures, the residual impacts and concluding assessment of the impact of the project (on its own) on the respective European Sites.

As with cumulative effects in the EIAR, the in combination effects of other plans and projects are considered outside the main assessment and analysis in the NIS. It is considered that the conclusions drawn in Chapter 11 are thus premature. Anomalously, based on the limited analysis presented, it is found that no plans and projects could have, be having or have had adverse effects in combination with the road. The conclusions are reached on the basis of the premise that each plan or project was or will be subject to the appropriate assessment process, where required, and that that is a safeguard in itself. It is noted that there has been little consideration of the expanding university campus and sports facilities, including floodlighting; land use zoning objectives near the road in the City Development Plan; commitments to develop greenways, cycleways and new bridges along and over the Corrib in the Galway Transport Strategy; developments outside the planning code, e.g. agriculture and land reclamation projects (since 2011), etc.

Specific

The following points are comments, queries and suggestions (including where question marks are used) on the content of the NIS. Text in italics is from the NIS.

1. Section 1 – remove 'available' in: *It includes a scientific examination of available evidence and data to identify and assess the implications of the proposed road development for any European sites in view of the conservation objectives of those sites.*
2. Background – check whether local authority has obligation to carry out screening for appropriate assessment in this case, e.g. as in Regulation 250 of Planning and Development Regulations 2001-2016
3. Section 1.1 – footnote 2 – Natura 2000, omit 'sites'. Natura 2000 is a network of sites and includes SPAs
4. Page 3 – if screening for appropriate assessment was carried out, is there a record of this and which authority carried it out? See also point 2
5. Directives – there is an amending Habitats Directive which changed lists of habitats and species in the annexes
6. There is a need for clarity on what is meant by 'construction activities' or construction stage – to include all development and works as permitted, and any associated and ancillary works, including elements covered by advance contracts or phases, i.e. everything that happens in, on or under ground once permission is granted
7. Section 2.5.1 – include, for example, effects of landscaping, mitigation measures and EIA compensation
8. Section 2.5.6: rock crushing and grading plant will require planning permission as part of the development, in addition to any other consents
9. Section 2.5.8.1: surplus material volume from phase 1 (597,000m³) and deficit from phase 2 (258,000m³) implies that significant volumes of limestone/basic fill are likely to be introduced to granite areas; the restrictions specified will impose only limited controls. Wider biodiversity and flora changes are likely to result from this and need to be assessed in the EIAR chapter
10. Section 2.6.5: clarify if site compounds and storage areas will be within the footprint of the road, or not, or if it this is not currently known or fixed
11. Section 3.1: second para, include conservation objectives among things discussed with NPWS
12. Section 3.1: refer also to and consult the explanatory information on the NPWS website about the downloadable site boundary data
13. Section 4.3: conservation objectives refer to sites, and to the habitats and/or species which are the QIs and SCIs of those sites
14. Section 4.4: use of term 'geographic scale' – should this be area over which surveys were carried out? Note the term has a different meaning, which is also questioned, in the EIAR. Does 'scheme study area' have the same meaning in the EIAR, or is it used?
15. Check terminology – conservation status assessment (area, structure and functions, future prospects) versus habitat categorisation/classification or conservation condition?
16. Page 44 – the Annex I habitats recorded in the surveys of what areas (road, study area, Zol, other?) are listed in Table 4.2
17. Section 5.6 – query use of 'surrounding' the development when many European sites listed are 6-15km away
18. Section 50 approval for Corrib Bridge and appropriate assessment – NIS page 79 – were those approvals subject to the appropriate assessment process, including screening, by the OPW and are records available?
19. Plate 7.1 – is that a total or combined Zol? It is identified elsewhere that Zols vary for different receptors/likely effects

20. Section 9 – should be assessment of (likely significant) effects on European sites and including in combination effects? By saying 'direct and indirect impacts' it brings attention to the omission of in combination effects
21. Section 9.1.1 and Table 9.1 – explain shading in the caption for the latter. Note that information suggested by shading is at odds with Section 5.1 which describes the habitats in the proposed road development, and comes before the associated explanatory text
22. Section 9.1.1 – Freshwater Pearl Mussel should be within the ZOI if it could be impacted?
23. How was it determined that the River Corrib is not an Annex I habitat – page 112, 114 – and where is this set out?
24. Habitat categorisations in Section 9.1.2.1.1 are presented defensively (i.e. not a particular Annex I habitat) rather than descriptively, where a conclusion as to Annex I status or links with conservation objectives could be reached on the basis of scientific evidence and justifications. At the same time, no indication is given of the size of the areas involved and, if small, whether the areas are peripheral to (better examples of) Annex I habitats? The O'Neill *et al.* (2013) criteria are for defining habitats in good conservation condition or status, and are not strictly for categorising habitats; there is a need also to refer to the setting or context, habitat potential and conservation objectives as habitats in poor condition may need to be restored, or may also be the habitats of QI species
25. Reading through pages 114-124, it is difficult to know what area of habitat is involved, and whether the habitat is inside the proposed road boundary or within the road footprint
26. Table 9.8 and similar onwards – these have a middle column which asks if the conservation objectives could be affected but up to this point there is no specific examination of what the conservation objectives are, i.e. maintain or restore favourable conservation condition, and examination of relevant attributes and targets
27. Is there consideration of the effects of lack of grazing and management of scrub encroachment on the retained habitat areas [habitats 6210 and 8420] within the road development boundary, or are the areas significant?
28. Table 9.25 – while a precautionary approach is being taken in this table, the conservation objectives are to maintain or restore the favourable conservation condition of the species or wetlands within the site
29. It is not considered possible that there are no in combination effects requiring assessment in the NIS. The limited consideration is of plans and projects that fall within the planning code and do not include other developments such as land reclamation and other agricultural activities.
30. Nowhere is it said in the tables or text of the NIS that the SEA measures or AA mitigation from plans, which support and provide the planning framework for this road, are being implemented at this stage and address the potential adverse effects of the road, including in combination effects.

Surveys carried out and proposed mitigation in relation to bat species

Below are set out the comments of the Department's bat expert in regard to baseline and specific surveys that were carried out for bat species, their roosts commuting routes and feeding areas, in connection with the proposed road project and the proposed mitigation measures for bats.

Issues considered:

1. Comprehensiveness and methodologies of the bat studies
2. Impacts of the development on bats and in particular lesser horseshoe bats
3. Likely effectiveness/appropriateness/robustness of proposed mitigation measures
4. Whether residual impacts are likely to have an impact on favourable conservation status of bats in the area in question (i.e. could Article 55 derogation issue)

Issues not considered:

- Need for the development
- Alternative routes
- Impacts on other habitats or species
-

1. *Comprehensiveness and methodologies of the bat studies*

Following detailed review of the historical records, a broad range of survey methods were employed over an extended period of time. It included radio-tracking studies, static acoustic monitoring, car transect and roost surveys. Comprehensive summer and winter surveys for roosts were undertaken resulting in a significant increase in the known roosting and foraging locations for all bat species in the study area. Potential autumnal mating locations were identified. Ringing studies were employed to confirm roost connectivity (e.g. Menlo castle and Cooper's Cave). The full list of individual surveys and the time periods they were deployed is provided in Table 1 (Pg.22).

Conclusion: This is one of the most detailed and comprehensive surveys for bats ever undertaken in Ireland. A broad range of complimentary methodologies were used and a suite of experienced bat specialists were employed to provide a robust understanding of bat usage in the study area.

2. *Impacts of the development on bats and in particular lesser horseshoe bats*

The bat survey work has identified and catalogued the diversity of bat species around Galway city. The EIAR provides a comprehensive and detailed review of the likely impacts the road development would have on these protected species. These impacts can be considered under three headings: roosts; foraging; and connectivity.

a) Roosts: Numerous minor and a few major roosts have been identified, some of which would be impacted by the proposed road development. Of particular concern are the summer roost of lesser horseshoe bats (LHB) at Menlo Castle, the winter roost of LHB at Cooper's Cave and the "day roost" at Aughnacurra which was found to host up to nine LHBs, including juveniles. A number of small, non-maternity/non-hibernation roosts of other species would also be impacted.

b) Foraging: The road development would reduce foraging habitat, in particular at Menlough where an area of 7ha of LHB habitat would be lost.

c) Connectivity: The road would form a barrier for bats and in particular for LHB which rely entirely on linear features to guide them through the landscape. This would lead to a severance of foraging habitats from roosts as well as disrupting the critical connectivity between Menlo Castle and Cooper's Cave. The road could also lead to direct bat mortality through vehicle collisions.

Conclusion: The impacts of the road development on bats have been thoroughly documented in the EIAR. It is clear that the impacts would be significant, with likely immediate and long term impacts on the favourable conservation status of LHB in the area. Mortalities and ecological disruptions to other bats species (e.g. pipistrelles, Leisler's, brown long-eared) could not be ruled

out, although the impacts would be less significant given that those species are more widespread and abundant.

3. *Likely effectiveness/appropriateness/robustness of proposed mitigation measures*

Given the range and severity of the impacts predicted, it is encouraging to see that a detailed and comprehensive suite of mitigation measures are proposed in the EIAR. The EIAR has built on previous experiences in Ireland and the UK. It has also taken into consideration the most up to date findings from international best practise studies (e.g. Elmeros & Dekker's extensive review of the effectiveness of mitigation measures for bats on roads across Europe, published in 2016; the VWT's Handbook on Lesser Horseshoe Bats). The EIAR has also cross-referenced NPWS's own *Bat Mitigation Guidelines*. Of particular importance are the network of underpasses, the Castlegar overpass, the proposed new roost adjacent to Menlo Castle, the replacement roost at Aughnacurra, a number of replacement Night Roosts and the enhancement of foraging habitat around Menlo Castle. The temporary connectivity measures proposed for the construction phase are also important.

The Menlo Castle roost is in a precarious state and the development of an alternative roost nearby could positively impact on the status of the LHB in the area. Previous experience at VWT roosts and our own roost in Garryland have demonstrated the significant potential for well-built and well-sited roosts to facilitate population stabilisation and increase. Similarly the "day roost" currently being used at Aughnacurra is atypical for LHB and a purpose built roost nearby, designed to meet their roosting needs and free from disturbance would adequately cover the loss of the current shed. The location and design of the other proposed replacement roosts and bat boxes have been well thought out and can be considered proportionate. Where necessary, innovative designs have been recommended (at least in an Irish context, e.g. rocket boxes). With careful siting and construction as well as complimentary planting, these roosts are likely to be adopted by bat species locally and provide them with secure, long term roosting options. Nonetheless, follow-up monitoring at these roosts to demonstrate success will be critical. The corollary of this is that where success is not evident there will need to be a requirement for a review (e.g. after 1-2 years) and where necessary retro-fitting to fix issues identified as impediments to colonisation at individual sites (e.g. problems with humidity, light, planting).

The enhanced foraging around Menlo has been well thought out and though the habitat being created is not directly comparable with that being lost, it is the type of habitat used extensively in Ireland by LHB. There is little, if any, previous experience in Ireland with this type of mitigation, however, on first principles what is proposed is likely to enhance the foraging opportunities for all bats in the area and especially for female LHBs during the critical nursing period at Menlo. It appears to be a pragmatic and proportionate response to the expected habitat loss.

The bat surveys, including the radio-tracking studies, and the review and mapping of landscape features have identified actual and predicted crossing points for bats in relation to the proposed roadway. To minimise the barrier impacts from this development, a network of underpasses and a single overpass are proposed. Wildlife underpasses have been proven to be an effective measure for reducing the barrier effective of roadways. Nonetheless, the effectiveness of wildlife underpasses on major roadways is dependent on a number of critical issues, in particular the accurate identification of historical crossing points, appropriate design (including related fencing and planting) and the actual construction. Failures at any one of these steps can completely undermine the effectiveness of the underpass and we have examples of failures at each of these steps all along the Irish road network. While the number, locations and design of underpasses included in the mitigation measures appear to be appropriate, the importance of careful implementation and ecological supervision of their construction and completion cannot be overstated.

The predicted severance of the connection for LHBs between the roosts at Menlo Castle and Cooper's Cave is a major concern. The proposed mitigation for this hinges on an overpass at Castlegar. We have limited experience of such "green bridges" in Ireland (one has opened recently near Garryland), but they have been demonstrated elsewhere to be the most effective method of connecting severed landscape elements for bats (e.g. Elmeros & Dekker, 2016). As with

underpasses, the success of an overpass is reliant on careful location, good design and effective construction including associated fencing and planting. The location of the overpass near Castlegar has been informed by the radio-tracking studies and the design draws on best international practise. Providing construction carefully follows all elements of the design, this green bridge could be expected to provide effective connectivity across the roadway for bats, and for LHBs in particular.

Conclusion: The mitigation measures have been designed to address the predicted impacts on bat roosts, foraging and movements across the landscape. A comprehensive suite of measures are proposed. Issues of location and design have been well thought out. Best practise, including our own *Bat Mitigation Guidelines*, has been drawn on extensively, with innovative solutions suggested where necessary. Recognition of the need for follow up monitoring is included. An explicit requirement to remediate where such monitoring identifies failures (e.g. in roost design) would be necessary.

5. *Whether residual impacts are likely to have an impact on favourable conservation status of bats in the area in question*

Conclusion: A comprehensive range of survey methodologies were used, and a suite of experienced bat specialists were employed, to provide a robust understanding of bat usage in the study area. The EIAR thoroughly documents the likely impacts of the road development on bats. These impacts would be significant, with likely immediate and long term consequences for the favourable conservation status of lesser horseshoe bats in the area. There would also be lesser impacts on other bats species. The mitigation measures have been designed to address the predicted impacts and a comprehensive suite of measures are proposed. Issues of location and design have been well thought out. Best practise, including our own *Bat Mitigation Guidelines*, has been drawn on extensively, with innovative solutions suggested where necessary. Recognition of the need for follow up monitoring is included. An explicit requirement to remediate where such monitoring identifies failures (e.g. in roost design) would be necessary.

It is my assessment that the full and careful implementation of all proposed mitigation measures, including an extensive programme of follow up monitoring and where necessary retro-fitting of individual elements to enhance efficacy, would reduce the impacts from this roadway to a level which would not impact negatively on favourable conservation status of the bat species in the area.