

**COMHAIRLE CATHRACH AGUS CONTAE LUIMNIGH  
LIMERICK CITY & COUNTY COUNCIL**

Údarás Pleanála,  
(Planning Authority),  
7-8 Sráid Phádraig,  
(7-8 Patrick Street),  
Cathair Luimnigh.  
(Limerick City).

19<sup>th</sup> June 2015

**To: The Mayor and Each Member of Limerick City and County Council**  
**Re: Proposed Variation No. 4 to the Limerick County Development Plan  
2010-2016**

---

**A Chomhairleoir, a chara,**

I enclose herewith a copy of the Chief Executive's Report on the Proposed Variation No. 4 to the Limerick County Development Plan 2010-2016 for your consideration. The proposed variation comprises of the incorporation of the preferred route corridor for the Limerick Northern Distributor Road (LNDR) into the County Development Plan.

The proposed variation was placed on public display for a period of not less than 4 weeks from Saturday 25<sup>th</sup> April 2015 to Monday 25<sup>th</sup> May inclusive. A total of 12 written submissions were received within the statutory time frame in response to the public display period. A report consisting of a summary of the submissions received, together with the Chief Executive's recommendations are attached as required by Section 13 of the Planning and Development Act, 2000 (as amended). The submissions can be inspected in the Forward Planning Section during normal office hours and copies of the original submissions will be available for inspection at the next meeting of the Full Council.

The Members of Limerick City and County Council, at their July meeting shall consider the Chief Executive's Report and decide whether to accept or amend Proposed Variation No. 4 to the Limerick County Development Plan 2010-2016. If the Members propose amendments, which would require a Strategic Environmental Assessment and Habitats Directive Assessment, these proposed amendments will be put on public display for a further 4 weeks.

If you have any queries on the report or wish to meet prior to the July Council meeting please contact Maria Woods, Senior Executive Planner, on 061-407228.

Mise le meas



**Pat Daly,  
Director of Services,  
Economic Development and Planning.**

# Section 13 (4) (a) Chief Executive's Report to Members

## Proposed variation No. 4 to Limerick County Development Plan 2010 – 2016

to incorporate the preferred route corridor for the Limerick  
Northern Distributor Road (LNDR)

19th June 2015



Forward Planning

Limerick City and County Council,  
Economic Development and Planning Department,  
7/8 Patrick Street,  
Limerick.

## **1.1 Introduction**

This report presents the submissions and observations made following publication of the Proposed Variation no. 4 to the Limerick County Development Plan, 2010-2016, and sets out the Chief Executive's responses to the issues raised. The report forms part of the statutory procedure for preparing a variation to a Development Plan that is set out in Section 13 of the Planning and Development Act, 2000 as amended.

Under the Planning and Development Act 2000, as amended, the Chief Executive is required to prepare a report on the submissions and observations received in respect of the proposed variation, including submissions made by the Minister and the Regional Authority, to respond to the issues raised and to make recommendations in relation to the proposed variation, taking into account the proper planning and sustainable development of the area, the statutory obligations of the Local Authority and relevant policies or objectives of the Government or any Minister of Government.

The variation consists of the following:

- to incorporate the preferred route corridor for the Limerick Northern Distributor Road (LNDR).

## **1.2 Public Display period**

The proposed variation was placed on public display for a period of not less than 4 weeks from Saturday 25<sup>th</sup> April 2015 to Monday 25<sup>th</sup> May 2015 inclusive. A total of 12 written submissions were received within the statutory time frame in response to the public display period.

## **1.3 Structure of the Report**

Section A addresses each of the 12 written submissions and observations received. It includes the names and addresses of persons or agencies who made the submissions and observations, a summary of the issues raised, the response and recommendation of the Chief Executive on each submission and SEA/AA comments.

Section B outlines the proposed amendments recommended to the text and maps of the variation in response to the Chief Executive's recommendations on the submission received. Any paragraph, policy or objective to be amended in the variation is reproduced in full with deleted text shown ~~struck through~~ and additional text shown underlined.

## 1.4 Next Step

Following receipt of the Chief Executive's Report, the Members of the Council have up to 6 weeks in which to consider the contents of the report and the proposed variation. Members may then accept the proposed variation with or without amendments. Should amendments be proposed which would require a Strategic Environmental Assessment and Habitats Directive Assessment, there is a further public display period (4 weeks) giving members of the public an opportunity to comment on the proposed amendments only. This is followed by the preparation of a second Chief Executive's Report to the Members on any submissions or observations received on the proposed amendments.

Members may then decide to make the variation with or without the proposed amendments or with modifications to the proposed amendments, as they consider appropriate and subject to the provisions of the Planning and Development Act, 2000 as amended. The formal making of the variation is by resolution of the Council.

During the variation process the Council must consider the proper planning and sustainable development of the area, statutory obligations and any relevant plans and policies of the Government or any Minister of the Government.

## 2.0 Persons / Bodies who made Submissions within the Statutory Timeframe

Sub. No.	Submission Received From
1	Dept of Environment, Community and Local Government
2	Office of Public Works
3	National Roads Authority
4	Environmental Protection Agency
5	Southern Regional Assembly
6	Dr.Hassan Kasazchi
7	Dr.Mikael Fernstrom, Lisnagry-Annacotty Action Group.
8	Ms.Carmel O'Connell
9	ESB
10	Development Applications Unit, Dept of Arts Heritage and the Gaeltacht
11	Caroline and Pat O'Brien
12	Dept. of Education and Skills

## **Section A**

### **Submissions, Responses and Chief Executive's Recommendations**

<b>Ref.</b>	<b>Name/Group:</b>	Department of Environment, Community and Local Government
<b>1</b>	<b>Submission summary:</b>	<b>Chief Executive's Response</b>
	<p>Given the role and significance of Limerick/Shannon as one of the key gateways under the National Spatial Strategy (NSS) the Department fully supports the intent behind this proposal.</p> <p>The proposal is consistent with the NSS, the Regional Planning Guidelines and the relevant S28 Departmental Guidelines.</p> <p>The Planning Authority is reminded to have regard to any issues that may be raised separately by the Dept of Arts, Heritage and the Gaeltacht, the National Roads Authority, the EPA, the National Parks and Wildlife Service, and Irish Water.</p>	<p>Comments noted - I would like to thank the Department of Environment, Community and Local Government for their response and I am pleased to see the level of support for the proposed Variation and their satisfaction that it complies with the objectives of higher level plans and strategies such as the Regional Planning Guidelines and the National Spatial Strategy.</p>
	<b>Chief Executive's Recommendations:</b>	
	No change	
	<b>SEA/AA comments</b>	
	N/A	

<b>Ref.</b>	<b>Name/Group:</b>	Office of Public Works
<b>2</b>	<b>Submission summary:</b>	<b>Chief Executive's Response</b>
	<p>(a) The submission refers to 'The Planning System and Flood Risk Management Guidelines for Planning Authorities (with Technical Appendices) published in November 2009 (OPW/DoEHLG)' and gives a brief overview of the three-stage Flood Risk Assessment process to identify whether and the degree to which flood risk is an issue. The Guidelines highlight the need for a Sequential Approach to managing flood risk. A precautionary approach shall</p>	<p>(a) Comments Noted</p>

	<p>be implemented to reflect uncertainty in flood risk.</p> <p>(b) The OPW welcomes the detailed Flood Risk Assessment for Proposed Variation No.4 to Limerick County Development Plan 2010-2016 carried out by Hydro Environmental Ltd, commissioned by Roughan O'Donovan Ltd on behalf of Limerick City and County Council.</p> <p>(c) The OPW welcomes the considered comments made throughout the FRA in particular to Section 3.2 outlining the process for assessment of flood risk in accordance with the Planning System and Flood Risk Management Guidelines for Planning Authorities (November 2009) and in the application of the Justification Test in Section 7.</p> <p>(d) The OPW agree with the conclusions set out in Section 7.3 that the proposal to progress the Limerick Northern Distributor Road project passes the justification test set out in the Flood Risk Management Planning Guidelines (Nov 2009), <i>"given the clear strategic nature of the proposed road transport development, the sequential approach involved in the route corridor selection process and the findings from the flood risk assessment that flood risk to the proposed road development can be adequately managed and mitigated for and that the construction and operation of the road can be engineered not to cause unacceptable adverse flood impacts elsewhere."</i></p>	<p>(b) Comments noted and welcomed.</p> <p>(c) Comments noted and welcomed</p> <p>(d) Comments noted</p>
--	---	--

	<p>(e) The OPW welcomes reference to the Shannon CFRAM Flood Maps, such as in <i>Figure 4.1 Draft CFRAM River Shannon Flood Mapping (Draft mapping November 2014)</i> of the SFRA. The draft downstream model extent is available at <a href="http://shannoncframstudy.ie/interactive/shannon_upperlower/pdfs/N16/N16_Extent_Map06.pdf">http://shannoncframstudy.ie/interactive/shannon_upperlower/pdfs/N16/N16_Extent_Map06.pdf</a> and would represent the flood zones more accurately in the figure.</p> <p>(f) The OPW are impressed with the amount of work gone into this FRA and adherence to the Planning System and Flood Risk Management Guidelines. It would be welcomed if the Proposed Variation No. 4 to the Limerick County Development Plan 2010 – 2016 includes the recommendations highlighted in the SFRA.</p>	<p>(e) Comments Noted I note the OPW reference to CFRAMS Map and confirm that the flood extent indicated in that map is also included in Figure 4.5 of the Flood Risk Assessment document so has therefore been considered as appropriate background information in the assessment carried out.</p> <p>(f) All the information contained within the FRA has been taken into account when formulating the proposed Variation No.4. In the interest of clarity it is recommended that the following recommendations as listed in Section 8 of the FRA are included in the final SEA Environmental Report:</p> <p><i>"All watercourse crossings both culverts and bridges should be designed not to impede the flood conveyance through the structure and not cause any significant change in flood levels, flow depths and velocities that would result in any noticeable increase in flood risk or erosion/accretion either locally in the vicinity of the crossing or more remotely both in the upstream and downstream reaches.</i></p> <p><i>The proposed road should be set at a minimum level that provides sufficient freeboard above the 100year with climate change flood event (200year combined tide event in respect to the Knockasheen Area) so as to have a low flood risk over its design life and sufficiently elevated for its storm drainage system to function</i></p>
--	---	---

		<i>appropriately during flood events. "</i> Additional text should also be added to the variation text as follows: "All mitigation measures outlined in the Environmental Report and Natura Impact Report shall be taken into account at project level".
	<b>Chief Executive's Recommendations:</b>	
	(a) -(e) No change (f) I recommend that the above additional text as recommended in the FRA be included in the final SEA Environmental Report and the variation text should be expanded to indicate that mitigation measures shall be taken into account at project level.	
	<b>SEA/AA comments</b>	
	References to the mitigation measures above reinforce the environmental protection objectives of the Environmental Report and NIR.	

Ref.	Name/Group:	National Roads Authority
<b>3</b>	<b>Submission summary:</b>	<b>Chief Executive's Response</b>
	(a) With respect to this project identified in the proposed variation and objective IN O14: "Limerick Northern Distributor Road" the Authority advises that the Members and Executive of the Council should be aware and evaluate the consequences of the special requirements of the tolling scheme (N18 and Limerick Tunnel Scheme) and the financial implications for the Exchequer of the Limerick Northern Distributor Road. Details of these implications have already been circulated to the Chief Executives within the jurisdiction and also in submissions made by the Authority during the preparation of the Draft Mid-West Area Strategic Plan and appraisal of scheme route options.	I thank the NRA for their submission regarding proposed Variation no. 4 to the Limerick County Development Plan and acknowledge the issue regarding the N18 and Limerick tunnel scheme and the possible impacts that the Limerick Northern Distributor route may have on this scheme and those relevant provisions outlined in the letter dated 25th January 2012 which was attached to the submission.  It is not envisaged that the LNDR will compete with the Limerick Tunnel as the proposed route is a distributor road to the north of Limerick. LNDR has an altogether different purpose to the Limerick Tunnel. It serves local needs in terms of access to education and employment, and the reduction of socio-economic deficit currently being experienced by certain parts

		of Limerick. The need for the scheme has been identified in local, regional and national planning policy. I wish to point out that the potential impacts of the LNDR scheme on the N18 and Limerick Tunnel Scheme have been considered, as part of the Costs Benefit Analysis (CBA) which was carried out as part of the Route Selection Report for the LNDR scheme.
	<b>Chief Executive's Recommendations:</b>	
	I recommend no changes be made to the proposed Variation no. 4 arising from this submission.	
	<b>SEA/AA comments</b>	
	N/A	

Ref.	Name/Group:	Environmental Protection Agency
<b>4</b>	<b>Submission summary:</b>	<b>Chief Executive's Response</b>
	<p>(a) Recommend that the Variation (and associated projects or related developments which may arise out of adoption of the Variation) should not conflict with the environmental related policies and objectives in the CDP, in particular in relation to the construction phase. In implementing the Variation (and projects/developments arising out of its implementation), the requirements of the Habitats, Water Framework, EIA and Floods Directives need to be fully incorporated, as relevant and appropriate.</p> <p>(b) It would also be useful to include a summary of the key significant environmental effects in the Variation, as identified in the SEA and NIR, and how the Variation proposes to mitigate / manage these effects. This could be achieved by including a summary table showing the key</p>	<p>(a) Comments noted - The Habitats Directive Assessment has assessed the proposed Variation at all stages of the process and will continue to do so also at project stage.</p> <p>(b) I would like it to be noted that Limerick City and County Council is fully aware of our obligations and responsibility in relation to both national and EU legislation and guidance and take all necessary steps to ensure compliance with the relevant documents. The SEA</p>

	<p>environmental policies/objectives in the CDP responsible for protecting environmental sensitivities which need to be considered, in implementing the Variation and any projects/developments arising out of the Variation.</p> <p>(c) They note the findings of the flood risk assessment carried out for the Variation. It should be ensured that the development of the required infrastructure is appropriately designed and constructed in accordance with the <i>Flood Risk Management Guidelines</i> (DEHLG/OPW, 2009), and does not significantly cause adverse flood risk impacts either upstream or downstream.</p> <p>(d) The SEA should include and describe the relationship with the Shannon Integrated Framework Plan (SIFP) to a greater degree. Potential environmental effects associated with the SIFP may relate to increased traffic using the LNDR which may need to be taken into account. In addition, the environmental commitments made in the SIFP should also be taken into account and integrated</p>	<p>and NIR contain a summary of the key environmental impacts expected as a result of the proposed Variation. Where necessary mitigation to ensure these impacts are not adverse have been formulated. Moreover as you will note in response to specific queries from the DAHG, as part of their submission, aspects of the NIR have been elaborated on. In the interest of clarity in this Chief Executives (CE) Report I recommend a table of the environmental policies/objectives to be included in the final SEA ER. This table will also be presented in the SEA Statement.</p> <p>(c) Comments noted - The comments regarding the Flood risk Assessment are noted and I would like to assure the EPA that the required infrastructure will be appropriately designed and constructed in accordance with the <i>Flood Risk Management Guidelines</i> (DEHLG/OPW, 2009), and will not significantly cause adverse flood risk impacts either upstream or downstream.</p> <p>(d) With regard to the potential in-combination effects of the proposed variation and the Shannon Integrated Framework Plan (SIFP) – the SEA Environmental Report will be updated to include a description of the relationship between the Shannon Integrated Framework Plan and the proposed Variation No. 4. The details of this will be added to the SEA Statement. In</p>
--	--	---

	<p>as appropriate.</p> <p>(e) In the interests of clarity, it would be helpful to include in the SEA Environmental Report a specific chapter relating to the Variation-specific mitigation measures (or summarising the key relevant CDP mitigation measures). It would also be useful to summarise the type of projects required to support the implementation of the Variation. These should be taken into consideration in the assessment of likely significant effects.</p> <p>(f) In relation to monitoring considerations, it would be useful to include a commitment to link the SEA and Variation-related monitoring aspects, in collaboration with adjacent Local Authorities where possible.</p>	<p>conclusion with the application of the environmental safeguards specified in the County Development Plan and the measures specified in the NIR for both variations it is considered that there is no potential for cumulative impacts to arise.</p> <p>With regard to the EPA's concerns regarding increased traffic levels and usage of the LNDR, I note from the SEA ER that it is not expected that the traffic use of the proposed route would create any significant environmental impacts.</p> <p>(e) The Council notes the EPA's recommendations regarding the highlighting of the mitigation measures presented in the SEA ER. In the interests of completeness, I consider it appropriate that a list of all mitigation be included in the SEA statement.</p> <p>(f) The EPA's suggestion to link the SEA and Variation-related monitoring aspects, in collaboration with adjacent Local Authorities where possible has been taken into account and it is agreed that this would be a good approach to take. It will be noted in the SEA Statement that where transboundary monitoring can occur that this will be done in conjunction with Clare County Council.</p>
--	--	---

	<p>(g) Following adoption of the Variation, an SEA Statement, should summarise the following:</p> <ul style="list-style-type: none"> <li>• How environmental considerations have been integrated into the Variation;</li> <li>• How the Environmental Report, submissions, observations and consultations have been taken into account during the preparation of the Variation;</li> <li>• The reasons for choosing the Variation adopted in the light of other reasonable alternatives dealt with; and,</li> <li>• The measures decided upon to monitor the significant environmental effects of implementation of the Variation.</li> </ul>	<p>(g) In relation to the requirement to prepare an SEA Statement, Limerick City and County Council is aware of the requirements in this regard and the SEA Statement will be prepared in due course.</p>
--	---	---

**Chief Executive's Recommendations:**

(d) With regard to the Shannon Integrated Framework Plan (SIFP) - the SEA Statement will include a description of the relationship between the Shannon Integrated Framework Plan and the proposed Variation No. 4 of the Limerick County Development Plan and an assessment of the cumulative impacts.

<b>Policy or legislation instrument</b>	<b>Summary and likely influence &amp; links/relationship to Proposed Variation of Clare County Development Plan</b>	<b>Influence on SEA process</b>	<b>Is there a risk from the proposed Variation of significant 'in combination' effects with this policies/plans/ programmes</b>
<p>Shannon Integrated Framework Plan (SIFP) Adopted Variation No. 3 of Limerick County Development Plan</p>	<p>Variation No. 3 involves making changes to the Limerick County Development Plan 2011-2017 to incorporate the Strategic Integrated Framework Plan (SIFP) for the Shannon Estuary and to zone lands for marine-related industry. The SIFP will be included in the development plan as a new volume (Volume 7 ).</p>	<p>No specific SEA Objective has been included to address this strategy.</p>	<p>No significant cumulative or in combination effects perceived. In conclusion with the application of the environmental safeguards specified in the County Development Plan and the measures specified in the NIR for Variation No.4 to the Limerick County Development Plan, it is considered that there is no potential for cumulative</p>

				impacts to arise in association with SIFP.
(b) and (e) SEA and NIR to be amended in relation to mitigation measures				
<b>SEA/AA comments</b>				
<p>The SEA Statement will include a description of the relationship between the Shannon Integrated Framework Plan and the proposed Variation No. 4 as outlined above.</p> <p>The SEA and NIR will both be updated to include additional mitigation measures.</p> <p>No additional SEA or AA screening is required as a result of these changes.</p>				

Ref.	Name/Group:	Southern Regional Assembly (Dominic Walsh)
<b>5</b>	<b>Submission summary:</b>	<b>Chief Executive's Response</b>
	<p>The Regional Assembly is satisfied that the proposed Variation is consistent with and would assist in the implementation of one of the infrastructure priorities identified in the Mid-West Regional Planning Guidelines 2010-2022, namely the Limerick Northern Distributor Road.</p> <p>It is noted that in respect of flood impact, environmental impact generally and impact on Natura sites, the proposal has been subject to a flood risk assessment, a Strategic Environmental Assessment report and a Natura Impact Report.</p> <p>While supportive of the proposal in principle, there are two respects in which either the proposal or its presentation in the plans, should be modified:</p> <p>a) The description of the proposed Variation should include a statement regarding the intention to provide for cycling and walking routes along the length of the proposed distributor road.</p> <p>b) The proposed Variation should also make reference to the</p>	<p>Comments welcomed and noted</p> <p>Objectives COM 026, COM 028 and COM 029 in the County Development Plan already contain objectives to support the objectives of smarter travel and to promote the development of safe and convenient pedestrian and cycle facilities. In accordance with these objectives the LNDR will include sustainable elements including purpose built cycle lanes which may encourage active travel in the proposed Variation area. The Smarter Travel initiative recognises the vital importance of continued investment in transport to ensure an efficient economy and continued social development as well as identifying the necessary steps to ensure that people choose more</p>

	<p>potential for integration with the Limerick Smarter Travel network.</p> <p>c) Mapping contained within the proposed variation and accompanying environmental reports should clearly distinguish by way of colour or other means the sections of the Northern Distributor located in county Limerick from the sections which are located in County Clare.</p>	<p>sustainable transport modes such as walking, cycling and public transport. The LNDR will seek to ensure connectivity between existing schemes is achieved where possible.</p> <p>The extent of the LNDR route corridor in each county is defined by the River Shannon Crossing point. The route in total is illustrated in the variation documents and the environmental assessments to ensure that sections of the route were not considered in isolation and that the cumulative impacts of the route could be assessed. In combination impacts are also examined and contained within both the SEA ER and NIR which accompany the proposed variations for each county.</p>
<b>Chief Executive's Recommendations:</b>		
	I recommend no changes be made to the proposed Variation no. 4 arising from this submission.	
<b>SEA/AA comments</b>		
	N/A	

<b>Ref.</b>	<b>Name/Group:</b>	Dr Hassan Kaghazchi Pars House, Mountshannon Rd Lisnagry Co.Limerick
<b>6</b>	<b>Submission summary:</b>	<b>Chief Executive's Response</b>
	<p>The points in this submission have also been made in one other submission (see also no.8 ):</p> <p>The submission suggests that the proposed road is not the most viable option according to a study by Punch consulting group at the route selection stage yet Clare County Council seems to have ignored that and Limerick have followed suit.</p>	<p>General: The contents of the submission prepared by Punch Consulting in April 2012 are noted and were considered in the route Selection process. No change to the preferred route corridor was required.</p>

	<p>The submission states that the proposed road has the following disadvantages:</p> <p>(a) The selection of Cappamore road junction as a docking point will only add more chaos to an already congested junction.</p> <p>(b) The costs of construction would be higher, as the road will be longer than it needs to be; the bridge across the Shannon will be longer than the alternative option at Vistakon; and there is an additional bridge required across the Mulkear.</p> <p>(c) Cars will be obliged to travel further than the alternatives to get to Plassey National Technology Park.</p> <p>(d) The area is prone to frequent flooding.</p>	<p>a) Suitable junction configurations, including the use of a grade separated option, will be considered in order to achieve the required capacity.</p> <p>(b) The costs of construction relate to the preferred route corridor as identified under the five key criteria of environment, safety, economy, access and integration. The option at Vistakon was discounted in the route selection process on environmental grounds. The preferred route corridor does not require a crossing of the River Mulkear.</p> <p>(c) Significantly improved access to the National Technological Park (NTP) will be provided for traffic from County Clare, as compared to the present. Use of the Vistakon option would have generated unacceptable direct traffic impacts on the operations of the NTP</p> <p>(d) Potential flooding effects have been considered in the Flood Risk Assessment prepared in support of Variation No. 4. I note submission received from the OPW (no. 2 above) and in particular their comment that they are impressed with the amount of work gone into the FRA and the adherence to the Planning System and Flood Risk Management Guidelines</p>
--	--	--

	<b>Chief Executive's Recommendations:</b>	
	I recommend no changes be made to the proposed Variation no. 4 arising from this submission	
	<b>SEA/AA comments</b>	
	N/A	

Ref.	Name/Group:	Dr. Mikael Fernström on behalf of Lisnagry Annacotty Action Group
<b>7</b>	<b>Submission summary:</b>	<b>Chief Executive's Response</b>
	<p>Submission is made on behalf of the Lisnagry-Annacotty Action Group, formed by residents in that area. A copy of the report by Punch consulting engineers commissioned by them for their previous submission is attached to this submission for reference. The submission states that his report is still fully valid.</p> <p>The main points of the submission are:</p> <p>a) That the Council has acknowledged in its documents that there will be substantial noise pollution and flood risk, to the residents of Mountshannon and Lisnagry.</p>	<p>General: The contents of the submission prepared by Punch Consulting in April 2012 are noted and were considered in the Route Selection Process. No change to the preferred route route corridor was required. The Route Selection Report was published in September 2012.</p> <p>(a) The comments quoted are from the SEA Environmental Report which serves to carry out a 'strategic' level assessment of the proposed Variation. Site specific issues will be dealt with at project level and will involve detailed investigation as part of an Environmental Impact Assessment (EIA). At project development stage mitigation measures will be identified in order to keep noise levels to recognised limits at residential and other properties.</p> <p>Potential flooding effects have been considered in the Flood Risk Assessment prepared in support of Variation No. 4. I note submission received from the OPW (no. 2 above) and in particular their comment that</p>

	<p>b) The Council claim that there is no viable alternative to this route: the Action Group dispute that there is no alternative.</p> <p>i. The Limerick tunnel is underutilised and the further diversion of traffic will only exacerbate this.</p> <p>ii. The Council has not carried out proper route options assessment on all possible routes, only the Groody and Lisnagry routes.</p> <p>iii. The possibility to use the existing road bridge across the Shannon linking two sides of the UL campus has not been explored from the County Clare side.</p>	<p>they are impressed with the amount of work gone into the FRA and the adherence to the Planning System and Flood Risk Management Guidelines</p> <p>(i) The Limerick Tunnel does not satisfy the scheme objectives of the proposed LNDR. . The potential impacts of the LNDR scheme on the N18 and Limerick Tunnel Scheme have been considered, as part of the Costs Benefit Analysis (CBA) which was carried out in the route selection process for the LNDR scheme.</p> <p>(ii) A large number of viable options were considered in the route selection process. The Groody and Lisnagry options were analysed and compared in accordance with the required methodology following elimination of other options as described in the Route Selection Report.</p> <p>(iii) There is currently no appropriate road access to the north campus of UL from County Clare. Access to the north campus from the Limerick side, using the existing UL Shannon Crossing, is not viable because of severe traffic congestion on the Plassey Road.</p>
--	--	--

	<p>c) The Natura Impact Report is vague. The submission claims that important species are found in this area, such as otters, barn owls, bats and kingfishers, that are evidence of an 'undisturbed unique landscape' . The Report does not address the potential impact of routes on their habitats.</p> <p>d) Requests that the Council immediately organise a Public Information and Consultation Event in a local venue in the affected area, for instance Lisnagry National School.</p>	<p>(c)The potential impacts of all routes on the receiving environment were considered in detail as part of the route selection process and this has been summarised in the Natura Impact Report submitted. The selection process included the eliminaton of several route options on the grounds of concern over impacts on the existing ecological regime.</p> <p>(d)Public consultation events in relation to the proposed route selection process were held in July 2011 (Grenhills Hotel) and in January and March 2012 (Radisson Hotel). It is not a statutory requirement to hold a public forum in relation to variations to the County Development Plan and the variation process was carried out in accordance with the Planning and Development Act 2000 (as amended).</p>
	<b>Chief Executive's Recommendations:</b>	
	I recommend no changes be made to the proposed Variation no. 4 arising from this submission	
	<b>SEA/AA comments</b>	
	N/A	

<b>Ref.</b>	<b>Name/Group:</b>	Carmel O' Connell, Mountshannon, Lisnagry
<b>8</b>	<b>Submission summary:</b>	<b>Chief Executive's Response</b>
	Submission makes the same points as submission no.6 (Dr Hassan Kaghazchi).	See response to Submission No 6 above.
	<b>Chief Executive's Recommendations:</b>	
	I recommend no changes be made to the proposed Variation no. 4 arising from this submission	
	<b>SEA/AA comments</b>	
	N/A	

Ref	Name/Group:	ESB (Colm Cummins)
9	Submission summary:	Chief Executive's Response
	<p>ESB supports the preferred route for the Limerick Northern Distributor Road. They request that the Council give due consideration to the following points:</p> <p>(a) The location of critical underground and overhead services should be verified and considered prior to the commencement of the design process.</p> <p>(b) The channel capacity of the River Shannon or Tailrace Canal should not be reduced.</p> <p>(c) Vehicular access should be provided underneath each side of the proposed tailrace bridge to facilitate maintenance.</p> <p>(d) Elements of the development that impact on inland waters should be carried out in an environmentally sensitive manner.</p>	<p>(a) Information on the existing transmission network was sourced during the route selection process and has been considered in the recommendation of the preferred route corridor for the scheme. As the design is progressed and where conflict arises, provision will be made to relocate the services as necessary.</p> <p>(b) Design will ensure that there is no reduction in the capacity of the River Shannon or the Tailrace Canal.</p> <p>(c) Required vehicular access will be provided in the design of the proposed tailrace bridge</p> <p>(d) Consideration of effects on fish life was made in the Route Selection Report, supported by ecological surveys. These effects are further considered in the Environmental Report and the Natura Impact Report prepared in support of Variation No 4 to the Limerick County Development Plan.</p> <p>Appropriate conditions and restrictions will be laid down in the development proposals for the LNDR scheme at construction and operation stage, including season restrictions on working periods and a requirement to include specific measures to prevent contamination of receiving waters which contain fishlife.</p>

	(e) There is a requirement for continuous consultation between the Council and the ESB as the project moves to a preliminary design stage.	(e) The relevant ESB NetArea Manager will be contacted so as to achieve the required agreements as the project progresses.
	<b>Chief Executive's Recommendations:</b>	
	I recommend no changes be made to the proposed Variation no. 4 arising from this submission	
	<b>SEA/AA comments</b>	
	N/A	

<b>Ref.</b>	<b>Name/Group:</b>	Development Applications Unit, Dept of Arts, Heritage and the Gaeltacht.
<b>10</b>	<b>Submission summary:</b>	<b>Chief Executive's Response</b>
	<p>It is the Department's view that there is currently a lack of data and analysis of the possible effects of the proposed variation on the conservation objectives of the European site to support a conclusion, that, as currently proposed, it will not adversely affect the integrity of the Lower Shannon SAC. Further data and analysis are more targeted mitigation measures are required in order to reach a complete precise and definite conclusion to the Appropriate Assessment, prior to making a decision on the Variation.</p> <p>The Natura Impact Report (NIR) appears to be ambiguous as to whether the priority Annex 1 Habitat alluvial woodland (91E0) occurs within the footprint of the proposed road. The conservation objective for this habitat type is its restoration to a favourable conservation condition. This will require amongst other things, that the woodland size is stable or increasing, in order to reduce habitat fragmentation, and to benefit species requiring deep woodland conditions. Another requirement is that the necessary hydrological regime for</p>	<p>General:</p> <p>The issue of the possible effects of the proposed variation on the conservation objectives of a European site is dealt with in proposed revisions to the Natura Impact Report. These proposed revisions are included in Section B as follows:</p> <p>B1: Contains updated version of Table 9.1 in Chapter 9.</p> <p>B2: Contains updated version of Chapter 11</p> <p>B3: Contains updated version of Chapter 13.</p> <p>B4: Contains a summary of ecological surveys carried out.</p>

	<p>maintenance of alluvial vegetation is maintained.</p> <p>The following ambiguities in the NIR are noted, and will need to be resolved:</p> <p>a) Reference in p20 of the NIR to the route corridor crossing over an area of woodland that has the potential to develop into a priority Annex 1 habitat. The impact that the corridor would have on the conservation objective to expand the Annex 1 habitat is not considered.</p> <p>b) References are unclear in p40 of the NIR as to the status of the 'narrow strip of woodland habitat' which is 'present on the east bank of the River Shannon at the crossing location'. Is this a link to the annexed habitat or is it a part of the annexed habitat itself?</p>	<p>(a) It is recommended that the NIR is updated to include additional information with mitigation measures which will reduce the possibility of adverse effects. This will also be reflected in design stage with additional text included in Table 11.1 Mitigation Measures of the NIR (included in Section B2).</p> <p>Hydrological issues also arise in relation to woodland and the riparian habitats. For these habitats it is important that current hydrological regime remains in place. The Flood Risk Assessment submitted as part of the plan documentation indicates that the hydrological regime and the intensity of the flooding will not be affected by the LNDR proposal. This will maintain a favourable hydrological regime for riparian habitats.</p> <p>(b) as indicated above the mitigation measures outlined above will allow " a narrow strip of woodland" to continue to develop into alluvial woodland. As noted in the earlier NIR this has the potential to continue to develop and mitigation measures provided will ensure that it can continue to do so.</p> <p><u>In order to address the ambiguities in the text on p.40 of the NIR the following changes will be made to this paragraph entitled 'River Shannon Crossing':</u></p> <p><u>"A narrow strip of alluvial riparian</u></p>
--	---	---

	<p>c) In Fig.6.10 the labelling of the wooded strip on the Limerick side of the crossing, as 'WL2 Treelines' appear to be inconsistent with the labelling of the alluvial woodland elsewhere in the immediate vicinity as 'WN5-corresponds with alluvial woodland (91E0) Annex 1 habitat under EU interpretation manual (Eur27)'.</p>	<p><u>woodland habitat is present on the east bank of the River Shannon at the crossing location. It has been determined that this woodland has the potential to develop into is linked to the priority Annex I habitat Alluvial Woodland 91E0 with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i>, <i>Alnion incanae</i>, <i>Salicion albae</i>). There is also a thin strip of the Annex 1 Marsh Habitat on the west bank. Although this is not a qualifying interest of the Lower River Shannon SAC it is important that any proposed bridge is designed to leave a clear riparian strip and that it provides sufficient clearance to allow the maintenance of the existing vegetation and ensure riparian habitat connectivity....."</u></p> <p>(c) This was an error- Corrected maps furnished with revised NIR.</p>
<p><b>Chief Executive's Recommendations:</b></p>		
<p>It is recommended that the NIR is elaborated on as outlined above.</p>		
<p><b>SEA/AA comments</b></p>		
<p>see updated documentation.</p>		

Ref.	Name/Group:	Caroline and Pat O'Brien Shravokey, Clonlara, Near Limerick.
11	Submission summary:	Chief Executive's Response

	<p>The flood impact assessment on which the proposed route is based is inherently flawed because of its reliance on the inaccurate and incomplete CFRAMs study, which in any event is only at Draft stage.</p> <p>The OPW operate a disclaimer policy relating to the use of information from the current draft maps: <i>'they should not be used for any other purpose or decision making process. They are likely to be updated, refined or changed before finalisation.'</i></p> <p>The submitters have been told by their legal advisers that the making of any variation to any County Development Plan based on the CFRAM study is totally indefensible and inevitably would be subject to legal action and result in Bord Pleanala rejection of the proposal.</p> <p>The submission also states that they have been informed that this matter is currently being reviewed by Clare county Council's legal advisers.</p>	<p>The justification for the scheme at the location of the proposed Shannon crossing, in terms of management of the flood regime, has not been based on the use of CFRAMS mapping. Reference to this mapping was included as evidence of all relevant information gathered in accordance with the recommendations of the Planning System and Flood Risk Management Guidelines for Planning Authorities (November 2009).The Flood Risk Assessment document outlines the methodology adopted in the analysis carried out.This should remove any concerns about the legalisty or otherwise of the use of the CFRAMS information.</p> <p>I note submission received from the OPW (no. 2 above) and in particular their comment that they are impressed with the amount of work gone into the FRA and the adherence to the Planning System and Flood Risk Management Guidelines</p>
	<b>Chief Executive's Recommendations:</b>	
	I recommend no changes be made to the proposed Variation no. 4 arising from this submission	
	<b>SEA/AA comments</b>	
	N/A	

<b>Ref.</b>	<b>Name/Group:</b>	Department of Education and Skills
<b>12</b>	<b>Submission summary:</b>	<b>Chief Executive's Response</b>
	The Department of Education and Skills has noted the contents and has no comment to make.	Comments noted
	<b>Chief Executive's Recommendations:</b>	
	No change	
	<b>SEA/AA comments</b>	
	N/A	

## Section B

### Proposed Amendments to Proposed variation No. 4 to Limerick County Development Plan 2010 – 2016

(To be read in association with Section A)

Omit wording ~~struck through~~ and insert wording underlined. Where policies or objectives are proposed to be included or amended the policy/objective numbers of those existing may need to be revised

#### Chapter 8

- Page 8-14, new objective to be added under Policy IN P8 and existing objectives to be re-numbered accordingly:

Objective IN O14: Limerick Northern Distributor Road:

It is the objective of Limerick City and County Council to support the Limerick Northern Distributor Road, which will connect the Coonagh Knockalisheen Road Scheme to the existing R445 (old N7) to the east of Limerick City, and will involve the construction of a new bridge crossing over the river Shannon'. - (See map below)

Full consideration of all environmental requirements, including application of the Habitats Directive, has been made in the progression of the scheme to date. This will continue up to and including project level\*. All mitigation measures outlined in the Environmental Report and Natura Impact Report shall be taken into account at project level".

\*Section 11 of the Natura Impact Report for Proposed Variation No. 4 (dated April 2015) provides details of water quality mitigation measures which will apply to any future development of the LNDR.

## Amendments to SEA Environmental Report

- Appendix A of the SEA Environmental Report will be updated to include a description of the relationship between the Shannon Integrated Framework Plan and the proposed Variation No. 4 as follows:

Policy or legislation instrument	Summary and likely influence & links/relationship to Proposed Variation of Clare County Development Plan	Influence on SEA process	Is there a risk from the proposed Variation of significant 'in combination' effects with this policies/plans/ programmes
Shannon Integrated Framework Plan (SIFP) Adopted Variation No. 3 of Limerick County Development Plan	Variation No. 3 involves making changes to the Limerick County Development Plan 2011-2017 to incorporate the Strategic Integrated Framework Plan (SIFP) for the Shannon Estuary and to zone lands for marine-related industry. The SIFP will be included in the development plan as a new volume (Volume 7).	No specific SEA Objective has been included to address this strategy.	No significant cumulative or in combination effects perceived. In conclusion with the application of the environmental safeguards specified in the County Development Plan and the measures specified in the NIR for Variation No.4 to the Limerick County Development Plan, it is considered that there is no potential for cumulative impacts to arise in association with SIFP.

- SEA sections 1.3, 8.1.1, 8.4 and section 10 to be amended with the following text,

Based on the ecological information available and the proposed route corridor of Limerick Northern Distributor Road, the assessment identified additional mitigation measures to ensure that there would be no adverse affect on the integrity of the Lower River Shannon SAC. The wording of these additional mitigation measures is as follows:

.The design of the River Shannon Bridge shall be informed by the overriding requirement to avoid adverse impacts on the qualifying interests of alluvial woodland, otter and lamprey species when assessed under the Habitats Directive

.The bridge abutments will be set back a sufficient distance to allow for the retention of any existing riparian habitats or areas with the potential to develop into alluvial woodland, this will ensure maintenance of ecological connectivity on both banks of the River Shannon.

.The bridge deck will be constructed at a sufficient distance to allow for the development of any alluvial woodland present on both banks of the River Shannon and there will be no net loss of habitat.

In addition to the above matters due to the nature of the proposed variation which involves introducing a preferred route corridor within which the road will be located there still remains a considerable amount of uncertainty as to the exact scale, type and construction methodology of the river crossings in particular. However, by undertaking the appropriate assessment process and assessing the cumulative and in-combination effects the most significant effects have been eliminated through avoidance, removal or specifying certain bridge design measures at crossing locations. In order to ensure no significant effects remain at project level and to ensure the current variation has been appropriately assessed further mitigation as outlined in Table 11.1 of the NIR have also been included to ensure any remaining scientific uncertainty is avoided at project level and consideration of Article 6(4) in particular is undertaken should it be deemed necessary at that stage.

Limerick City and County Council determined that, on the basis of the objective information provided in the Natura Impact Report and with the adoption of the additional mitigation measures described above, Proposed Variation No. 4 of the Limerick County Development 2010 – 2016, either alone or in-combination with the existing objectives of Limerick County Development Plan or other plans and projects, will have no significant effect on any Natura 2000 site.

- The following mitigation measures from the FRA report shall also be included in section 8 and 10:
  - All watercourse crossings both culverts and bridges should be designed not to impede the flood conveyance through the structure and not cause any significant change in flood levels, flow depths and velocities that would result in any noticeable increase in flood risk or erosion/accretion either locally in the vicinity of the crossing or more remotely both in the upstream and downstream reaches.
  - The proposed road should be set at a minimum level that provides sufficient freeboard above the 100year with climate change flood event (200year combined tide event in respect to the Knockasheen Area) so as to have a low flood risk over its design life and sufficiently elevated for its storm drainage system to function appropriately during flood events.

## Amendments to Natura Impact Report

Replace Table 9.1 with the following :

**Table 9.1: Review of Detailed Conservation Objectives**

Qualifying Interest	Attributes	Target	Potential adverse effect	Reason (if No)	Mitigation required	
<b>Sea Lamprey</b>	Distribution (anadromy) and river accessibility	Greater than 75% of main stem length of rivers accessible from estuary	No	Construction activities will not impact migration	No	
	Juvenile population structure	3 age/size groups present	Yes - disturbance by construction		Yes	
	Juvenile density in sediment	Density at least 1/m <sup>2</sup>	Yes - disturbance by construction		Yes	
	Extent and distribution of spawning habitat	No decline	Yes – potential water quality impact		Yes	
	Availability of juvenile habitat	More than 50% sample sites positive	Yes - disturbance by construction		Yes	
<b>Brook &amp; River Lamprey</b>	Distribution and accessibility	Access to all watercourses down to first order streams	Yes – culvert design of lower order watercourses unknown.		Yes	
	Juvenile population structure	3 age/size groups present	Yes		Yes	
	Juvenile density in fine sediment	Density at least 2/m <sup>2</sup>	Yes		Yes	
	Extent and distribution of spawning habitat	No decline	Yes		Yes	
	Availability of juvenile habitat	More than 50% sample sites positive	Yes		Yes	
<b>Atlantic Salmon</b>	Distribution and river accessibility	100% of river channels down to second order accessible	Yes – culvert design of lower order watercourses unknown.		Yes	
	No. of adult spawning fish	Conservation Limit exceeded	No	Construction will not impact migration	No	
	Salmon fry abundance	-	Yes		Yes	
	Out migrating smolt abundance	No significant decline	No	Construction will not impact migration	No	
	Number and distribution of redds	No decline	Yes		Yes	
	Water quality	EPA Q4 at all sites	Yes – potential water quality impact		Yes	

Variation No. 4 to Limerick County Development Plan: Section 13 (4) (a) Chief Executive's Report to Members

Qualifying Interest	Attributes	Target	Potential adverse effect	Reason (if No)	Mitigation required
<b>Otter</b>	Distribution	No significant decline	Yes		Yes
	Extent of terrestrial habitat	No significant decline	Yes		Yes
	Extent of marine habitat	No significant decline	No	Scheme does not affect marine habitat area	No
	Extent of freshwater habitat	No significant decline	Yes – culvert design of lower order watercourses unknown.		Yes
	Extent of freshwater lake/lagoon habitat	No significant decline	No	Scheme does not affect freshwater lake/lagoon area	No
	Couching sites and holts	No significant decline	No	None encountered in surveys	No
	Fish biomass available	No significant decline	Yes – potential water quality impact		Yes
	Barriers to connectivity	No significant increase	Yes		Yes
<b>Alluvial forests</b>	Habitat area	Area stable or increasing	Yes – potential impact at Shannon crossing and potential indirect hydrological impact at Knockalisheen		Yes
	Habitat distribution	No decline	Yes – potential impact at Shannon crossing and potential indirect hydrological impact at Knockalisheen		Yes
	Woodland size	Area stable or increasing	Yes – potential impact at Shannon crossing and potential indirect hydrological impact at Knockalisheen		Yes
	Woodland structure: cover and height	Diverse structure with relatively close canopy containing mature trees	Yes – potential impact at Shannon crossing and potential indirect hydrological impact at Knockalisheen		Yes
	Woodland structure: community diversity and extent	Maintain	Yes – potential impact at Shannon crossing and potential indirect hydrological impact at Knockalisheen		Yes
	Woodland structure: natural regeneration	Seedlings, saplings and pole age classes occur in adequate proportions	Yes – potential impact at Shannon crossing and potential indirect hydrological impact at Knockalisheen		Yes
	Hydrological regime	Maintain	Yes – crossing of Knockalisheen Stream could impact existing hydrology.		Yes

Variation No. 4 to Limerick County Development Plan: Section 13 (4) (a) Chief Executive's Report to Members

Qualifying Interest	Attributes	Target	Potential adverse effect	Reason (if No)	Mitigation required
	Woodland structure – dead wood, veteran trees, local distinctiveness	n/a	No	None present	No
flooding	Vegetation composition – native tree cover	No decline. Native tree cover not less 95%	Yes		Yes
	Vegetation composition – typical species	Variety of typical species present	Yes		Yes
	Vegetation composition – negative indicator species	Negative indicator species, particularly non-native invasive species absent or under control	Yes		Yes
<b>Watercourses of plane to montane levels</b>	Habitat area	Stable or increasing	Yes – potential water quality impact		Yes
	Habitat distribution	No decline	Yes – potential water quality impact		Yes
	Hydrological regime – river flow	Maintain	Yes		Yes
	Hydrological regime – tidal influence	Maintain natural tidal regime	No		No
	Hydrological regime – freshwater seepage	Maintain	No	Salinity regime not critical for habitat type	No
	Substratum – particle size distribution	Maintain appropriate particle sizes	N	Habitat sufficient far away from scheme	No
	Water quality	Concentration of nutrients sufficiently low	Yes – potential water quality impact		Yes
	Vegetation composition – typical species	Typical species present and in good condition	Yes – potential water quality impact		Yes
	Floodplain connectivity	Area of active floodplain maintained	Yes		Yes
	Riparian habitat	Area of riparian woodland upstream of the bryophyte rich sub-type maintained	Yes		Yes

**Replace text relating to River Shannon Crossing Mitigation in Section 11.2 of the NIR report with the following**

**To avoid potential adverse impacts on the Lower River Shannon SAC as a result of the new crossing point**

The design of the structure across the River Shannon is critical to ensure that there is no impact on the river edge habitats, that there is sufficient light under the bridge to ensure retention of the existing vegetation and that the habitat connectivity is maintained.

The design of a structure of this magnitude is a significant undertaking and a balance has to be struck between an objective which restricts the design process and an objective which strengthens the protection of the SAC.

The following mitigation measures will be observed at the design and construction stage:

- **MM2 The design of the River Shannon Bridge shall be informed by the overriding requirement to avoid adverse impacts on the qualifying interests of alluvial woodland, otter and Lamprey species when assessed under the Habitats Directive**
- **MM3 The bridge abutments will be set back a sufficient distance to allow for the retention of any existing riparian habitats or areas with the potential to develop into alluvial woodland, this will ensure maintenance of ecological connectivity on both banks of the River Shannon.**
- **MM4 The bridge deck will be constructed at a sufficient distance to allow for the development of any alluvial woodland present on both banks of the River Shannon and there will be no net loss of habitat.**

Explanatory text:

The proposed bridge over the River Shannon shall be so designed that it will allow for the retention of any existing alluvial and otter habitat/connectivity present on the banks of the Shannon at the crossing location. The necessary ecological assessment of the bridge design will be informed and supported by a detailed review and assessment of similar development in comparably sensitive environments. The construction of the bridge will be required to be monitored by a suitably qualified ecologist.

As mentioned previously lamprey ammocete beds may occur in the river banks along the River Shannon at the proposed crossing point. In order to address these concerns appropriate surveys to establish any presence of this species will be carried out at the crossing location prior to construction works beginning and where deemed necessary these areas will be salvaged

In addition to the above matters due to the nature of the proposed variation which involves introducing a preferred route corridor within which the road will be located there still remains a considerable amount of uncertainty as to the exact scale, type and

construction methodology of the river crossings in particular. However, by undertaking the appropriate assessment process and assessing the cumulative and in-combination effects the most significant effects have been eliminated through avoidance, removal or specifying certain bridge design measures at crossing locations. In order to ensure no significant effects remain at project level and to ensure the current variation has been appropriately assessed further mitigation as outlined in Table 11.1 has been included to ensure any remaining scientific uncertainty is avoided at project level and consideration of Article 6(4) in particular is undertaken should it be deemed necessary at that stage.

**Table 11.1: Additional Mitigation Measures**

<u>Reference</u>	<u>Mitigation Measures</u>
	<u>Design level</u>
<u>DL1</u>	<u>The preferred route corridor has been subject to Appropriate Assessment and the production of an NIR at Plan level, however at project design stage should issues arise under Article 6(3) of the Habitats Directive and the associated assessment produces a finding of adverse effects on the integrity a European site, an alternative solution may be required.</u>
<u>DL2</u>	<u>In selecting the exact watercourse crossing locations within the preferred route corridor, there shall be full compliance with Article 6(3) (and, if warranted, Article 6(4), including compensatory measures) of the Habitats Directive.</u>
<u>DL3</u>	<u>Pre Construction surveys shall be conducted by suitable qualified ecologists to ensure the design stage Appropriate Assessment has a sufficient level of scientific data to inform the Assessment.</u>
<u>DL4</u>	<u>A full suite of geomorphological, hydrological and topographical surveys shall be required and provided at project design stage to inform the project level Appropriate Assessment.</u>
<u>DL5</u>	<u>The Construction Method Statement shall form part of the overall project design together with the development of an Environmental Construction Management Plan (ECMP) which together shall be subject to Appropriate Assessment as part of the overall project assessment.</u>
<u>DL6</u>	<u>All permits and consents required as part of the project shall be addressed at project design stage and incorporated as part of the overall Appropriate Assessment</u>
<u>DL7</u>	<u>Ongoing monitoring to assess the real time environmental impact of all site preparation, construction and post construction works shall take place, by suitably qualified ecologists</u>
<u>DL8</u>	<u>The design of any in-stream structure shall not lead to any alteration of the channel morphology, flow regime, depositional patterns or interfere with habitat continuity.</u>
<u>DL9</u>	<u>The bridge deck will be constructed at a sufficient height to allow for the development of riparian habitats</u>

<b>Conservation Objective specific mitigation measures</b>		
<b>Otter</b>		
<u>O1</u>	<b><u>Direct physical loss/damage to habitats</u></b>	<u>Detailed otter surveys shall be required and provided for in order to fully understand and mitigate for this risk at design stage.</u>
<u>O2</u>	<b><u>Direct physical damage to mobile species</u></b>	<u>The use of protective netting or grids shall be made during the construction stage.</u>
<u>O3</u>	<b><u>Indirect disturbance or loss of habitat</u></b>	<u>Minimize the use of high noise emission activities such as impact pilling and blasting (should it be required).</u> <u>Enforce speed limits for all equipment used during construction and establish a code of conduct to avoid disturbance to otters both at the construction site and in transit to construction areas if entering areas of habitat usage or distribution.</u>
<u>O4</u>	<b><u>Direct disturbance</u></b>	<u>Given the potential for otter movement along the bank any temporary obstruction to connectivity during construction works between the main River Shannon and the tailrace where commuting routes may occur should be alleviated through the installation of appropriately designed Otter passes which shall be routinely checked throughout the duration of the works.</u>
<b>Alluvial woodland</b>		
<u>AW1</u>	<b><u>Direct physical loss/damage to habitat</u></b>	<u>At the project design stage all works shall be carefully designed to ensure no direct loss of the priority Annex 1 habitat and/or it's corresponding four vegetation types.</u>
<u>AW2</u>	<b><u>Indirect disturbance</u></b>	<u>For areas with the potential to develop into alluvial woodland, measures shall be taken both at design and project implementation stage to ensure that it will continue to develop as such subject, to natural processes.</u> -
<u>AW3</u>	<b><u>Indirect disturbance or loss of habitat</u></b>	<u>There shall be no alteration to the hydrological regime necessary for maintenance of alluvial vegetation. Periodic flooding is essential to maintain alluvial woodlands along river floodplains.</u>
<u>AW4</u>	<b><u>Biological disturbance</u></b>	<u>The project design stage shall ensure negative indicator species, particularly native invasive species remain absent or under control.</u>

<b>Sea Lamprey</b>		
<u>SL1</u>	<b>Indirect disturbance or loss of habitat</b>	<u>Any potential impacts to water quality which may lead to an in-direct effect on the extent and distribution of spawning habitat shall be avoided</u>
<b>Brook or River Lamprey</b>		
<u>BRL1</u>	<b>Direct physical loss/damage to habitat</b>	<u>On all lower order watercourses all culverts should be designed in such a way as not to impede distribution and accessibility.</u>
<u>BRL1</u>	<b>Indirect disturbance or loss of habitat</b>	<u>Any potential impacts to water quality which may lead to an in-direct effect on the extent and distribution of spawning habitat shall be avoided</u>
<b>Atlantic Salmon</b>		
<u>AS1</u>	<b>Direct physical loss/damage to habitat</b>	<u>On all lower order watercourses all culverts should be designed in such a way as not to impede distribution and accessibility.</u>
<u>AS2</u>	<b>Indirect disturbance or loss of habitat</b>	<u>Any potential impacts to water quality which may lead to an in-direct effect on the extent and distribution of spawning habitat shall be avoided</u>
<b>Molinia Meadows</b>		
<u>MM1</u>	<b>Direct physical loss/damage to habitat</b>	<u>At the project design stage all works shall be carefully designed to ensure no direct loss of habitat.</u>
<u>MM2</u>		<u>Detailed, targeted surveys will be required and shall be provided in order to maintain or increase (subject to natural processes) the overall habitat area and distribution within the SAC in particular for areas which were previously unmapped.</u>
<b>Watercourses of plane to montane levels</b>		
<u>WC1</u>	<b>Direct physical loss/damage to habitat</b>	<u>At the project design stage all works shall be carefully designed to ensure no direct loss of habitat.</u>
<u>WC2</u>	<b>Indirect disturbance</b>	<u>Detailed, targeted surveys will be required and shall be provided in order to maintain or increase (subject to natural processes) the overall habitat area and distribution within the SAC.</u>
<u>WC3</u>	<b>Indirect disturbance or loss of habitat</b>	<u>Any potential impacts to water quality which may lead to an in-direct effect on the concentration of nutrients or the expected typical vegetation composition shall be avoided.</u>

Replace Chapter 13 with the following:

## **13.0 NIR CONCLUSIONS**

This Natura Impact Report has considered the potential for significant impacts arising from the Proposed Variation No. 4 of the Limerick County Development Plan 2010 – 2016 that would have the potential to adversely affect any Natura 2000 site; with regard to their qualifying interests and conservation objectives. The Proposed Variation has the potential to impact on the Lower River Shannon SAC (002165) in the absence of any appropriate mitigation measures

The potential for direct, indirect and cumulative impacts affecting the Lower River Shannon SAC has therefore been assessed in this NIR. The appraisal undertaken in this NIR has been informed by site specific investigations and specialist reporting with reference to the ecological communities and habitats potentially affected by the Proposed Variation, in order to provide a scientific basis for evaluations.

Measures for impact reduction have been incorporated into the variation, including design-stage avoidance, in addition to mitigation measures proposed in the NIS for avoidance and reduction of impacts on the qualifying interest features and conservation objectives of the designated Natura 2000 sites.

In addition to the above, due to the nature of the Proposed Variation which involves introducing a preferred route corridor within which the road will be located, naturally details as to the exact scale, type and construction methodology of the river crossings in particular at this 'plan-level' have not yet been finalised. However, by undertaking the appropriate assessment process and assessing the cumulative and in-combination effects, significant effects at this plan level have been eliminated through avoidance, removal or specifying certain bridge design measures at crossing locations. Moreover, in order to ensure the current variation has been appropriately assessed further mitigation, arising from this plan level HDA process has been.

On the basis of the Appropriate Assessment for the Proposed Variation no risk of adverse effects on the integrity of a European site would remain through the adoption of the variation. However, this does not rule out the need for project level assessment. At the variation stage it cannot be definitively determined at this 'plan level' whether or not the potential for adverse effects will remain at the subsequent project level following the application of the relevant appropriate assessment measures from the variation. It is possible that a specific, detailed project may come forward within the preferred route which can avoid direct impact on a qualifying interest of a Natura 2000 site, the permanent loss of habitat or in-direct effects on a qualifying interest using the appropriate assessment measures. In such situations the project proponent will need to demonstrate that it is commensurate with the Proposed Variation appropriate assessment in terms of avoidance, reduction and mitigation and prove that no residual impacts remain following further assessment.

In conclusion, subject to the full and proper implementation of the mitigation measures outlined in this SEA Environmental Report and Natura Impact Report,

including appropriate site level investigations it is considered that the Proposed Variation will avoid adverse effects on the integrity of a European site.

## Section B 4

### LIMERICK NORTHERN DISTRIBUTOR ROAD

#### VEGETATION SURVEY OF ROUTE OPTIONS WITHIN THE LOWER RIVER SHANNON cSAC

By Katharine Duff

November, 2011

#### Introduction

This report builds on an earlier report 'Limerick Northern Distributor Road (LNDR) Assessment of Route Options within the Lower River Shannon cSAC' by EirEco (April 2011). It provides further detailed vegetation data of the proposed LNDR route options which cross the Lower River Shannon cSAC. This work has been requested by the National Parks and Wildlife Service, and provides the information on which the potential ecological impacts are assessed, and the preferred route options selected based on least ecological impact to the cSAC

#### Methods

The proposed cSAC crossings were visited on 1<sup>st</sup> to 3<sup>rd</sup> June 2011 and 1<sup>st</sup> November 2011. Habitats were classified initially following Fossitt 2000 classification. All habitats were assessed for their links with habitats listed on Annex I of the EU Habitats Directive (92/EEC/43). The vegetation of the grassland habitats was surveyed in more detail following the National Grassland Survey (O'Neill et al. 2009) approach. The criteria for determining if a grassland habitat corresponds to an Annex I habitat is outlined in 'Appendix 5: Annex I assessment indicator species and criteria' of the O'Neil report.

#### Habitat Descriptions

The proposed LNDR has 4 route options which cross the Lower River Shannon cSAC at two locations as follows:

- a) **At Plassey**, where they cross the River Shannon upstream and downstream of Limerick University. The banks of the River Shannon at this location are typically fringed with swamp (FS1), Marsh (GM1) and riparian woodland (WN5) vegetation and further inland areas of wet grassland.
- b) **At Knockalisheen**, where they cross Knockalisheen stream and adjacent swamp, marsh, riparian woodland and extensive areas of wet grassland

Habitats are described below and shown on Figures XX. The *relevé* data collected in the field is tabulated in Appendix 1.

### Swamp (FS1)

The swamp along the banks of the River Shannon is mainly dominated by reed canary grass (*Phalaris arundinacea*) with localised areas of common reed (*Phragmites australis*), reedmace (*Typha latifolia*), and reed sweet-grass (*Glyceria maxima*). It forms a fringe along the water's edge and adjoining low river bank. It varies in width from 2m wide to approximately 15m wide, but is mostly a narrow band of less than 5m.

At Knockalisheen, at the northern end of the site there is an extensive area of reedmace swamp dominated by (*Typha latifolia*) and horsetail (*Equisetum fluviatile*) on floodplain adjacent to the Knockalisheen Stream.

### Marsh (GM1)

The swamp vegetation described above grades into marsh further up the river bank, (but still subject to flooding). Reed canary grass is still frequent with the occurrence of a diversity of other herbaceous species including occasional water dropwort (*Oenanthe crocuta*) meadow sweet (*Filipendula ulmaria*), willowherb (*Epilobium hirsutum*), Iris (*iris pseudacorus*), nettle (*Urtica dioica*), wild turnip (*Brassica rapa*) and rough-stalked meadow-grass (*Poa trivialis*). The invasive plant; Himalayan balsam (*Impatiens glandulifera*) is frequently dominant within this habitat and giant hogweed (*Heracleum mantegazzianum*) is also locally abundant. The substrate is alluvial silty, sandy loam and is moist. This habitat becomes colonised with sapling willows (*Salix spp.*) and alder (*Alnus glutinosa*) over time.

There are three locations of tall herbaceous marsh vegetation dominated by meadowsweet with some of the above species and also horsetail (*Equisetum arvense*), bindweed (*Calystegia sepium*) and purple loosestrife (*Lythrum salicaria*) which correspond to the Annex I habitat ***Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels (6430)***, as listed in the EU Habitats Directive and described in the Irish Semi-natural Grassland Survey (O'Neill et al. 2009). It includes the diagnostic and differential species listed in the Filipendulion vegetation alliance (White and Doyle (1982). This habitat is crossed by Routes A3, A2 and D1. See Figure XX.

### Riparian woodland (WN5)

The woodland growing on alluvial substrate along the low-lying river banks has a canopy dominated by alder and willow species which include *Salix alba*, *S. Fragilis*, *S. Cinerea* and *S. viminalis* and likely hybrids of the latter. The ground flora includes many of the marsh species listed above. On the landward side of this habitat where the substrate is somewhat drier other species such as angelica (*Angelica sylvestris*), meadowsweet, remote sedge (*Carex remota*), cleavers (*Galium aparine*), bramble (*Rubus fruticosus agg.*), hogweed (*Heracleum sphondylium*) are found as well. Where the canopy is fairly open, there is a greater extent of marsh vegetation beneath. Trees are up to 15m high, and are mainly semi-mature to mature, measuring 15cm – 30cm diameter at breast height.

This habitat is described in The Classification of Native Woodlands in Ireland (Cross 2010) under sub-type *Salix-Urtica* (SU). It corresponds to the Priority Annex I habitat ***\*Alluvial Forest with Alnus Glutinosa and Fraxinus excelsior (Alno-***

*Padion, Alnion incanae, Salicion albae*) (91E0), as listed in the EU Habitats Directive and described in the Interpretation Manual of European Union Habitats (2007). The extent of the habitat along the River Shannon bank is generally from 8m-20m wide and is usually delimited on the landward side by an embankment and pathway. Ash (*Fraxinus excelsior*) trees may also be found close to the embankment. There is a wider band of alluvial woodland (40m) at the Route C.1 crossing (S. Bank).

At Knockalisheen, the alluvial woodland is widest (up to 60 m wide) at the northern end of the site where it is crossed by Routes A2, and A3. Where A.2.1 crosses the stream, the riparian vegetation is comprised of a treeline of alder and willow along the steep river bank.

### **Wet grassland (GS4)**

Two of the proposed River Shannon crossings traverse areas of wet grassland, adjacent to the northern bank of the river near Castletroy. The grassland situated on former floodplain is a lush meadow with vegetation height 90cm. Meadow foxtail (*Alopecurus pratensis*) is abundant along with meadowsweet, sweet vernal grass (*Anthoxanthum odoratum*), red fescue (*Festuca rubra*), ribwort plantain (*Plantago lanceolata*), greater birdsfoot trefoil (*Lotus pedunculatus*), red clover (*Trifolium pratense*) and buttercup (*Ranunculus acris*) among others. The grassland area traversed by Route D.1 is at a slightly lower elevation and the vegetation is typical of a wetter soil denoted by the occurrence of species such as the jointed rush (*Juncus articulatus*) and brown sedge (*Carex distica*) and occasional iris. Although this habitat has very few of the negative species associated with agricultural intensification, and it has a good diversity of grasses and herbs, it does not have enough of the positive indicator species as outlined in (O'Neill 2009) to classify as the EU Annex I habitat **Lowland hay meadows (6510)**.

At Knockalisheen, the grassland west of Knockalisheen Stream occurs on poorly drained soil. The fields around Knockalisheen Refuge Centre (traversed by Routes A.3 and A.2) are elevated and they slope down towards the stream to the north-east and down to adjoining fields to the south. Further south, the fields traversed by routes A2.1 and A. 1 are low-lying and flatter. The grassland vegetation is quite variable, but overall it is rush and grass dominated and in localised areas supports a good diversity of sedges and herbs. The main species of rush is sharp-flowered rush (*Juncus acutiflorus* / *articulatus*) as well as occasional soft rush (*J. Effusus*) and hard rush heath wood rush (*Luzula multiflora*). In the low lying fields to the south *Juncus inflexus* is local. Of the grasses Yorkshire fog (*Holcus lanatus*) is the most abundant, but also, creeping bent grass (*Agrostis stolonifera*). Rough meadow grass (*Poa trivialis*), sweet vernal grass, red fescue (*Festuca rubra*) and cocksfoot (*Dactylis glomerata*) are locally common. Purple moor grass (*Molinia caerulea*) is not present. Among the sedges were *Carex flacca*, *C. Panacea*, *C. Hirta*, *C. ovalis* and *C. Nigra* are localised and the pale sedge *Carex pallescens* is rare. Although patchy in their distribution, the diversity of herbs includes greater bird's foot trefoil (*Lotus pedunculatus*) meadow buttercup (*Ranunculus acris*), selfheal (*Prunella vulgaris*), silverweed (*Potentilla anserine*), lady's smock (*Cardamine pratensis*), marsh

bedstraw (*Galium palustre*), meadowsweet (*Filipendula ulmaria*), sorrel (*Rumex acetosa*), meadow vetchling (*Lathyrus pratensis*), and red clover (*Trifolium pratense*). Ragged robin (*Lychnis flos-cuculi*), Yellow rattle (*Rhinanthus minor*) and fleabane (*Pulicaria dysinterica*) were local, and one plant of marsh orchid (*Dactylorhiza maculata*) was noted. The moss cover is generally low and includes mainly *Caliergonella cuspidata*, and occasionally *Rhytidiadelphus squarrosus*, and *Brachythecium rutabulum*. This wet grassland habitat is quite variable due to the topography and variation in wetness. Although predominantly rush dominated grassland with associated sedges and herbs typical of the habitat, there are two localised areas (see relevé Q2 and Q3 in Appendix 1) that have a high diversity of associated species which correspond to the Annex I habitat ***Molinia meadows on calcareous, peaty or clayey-silt laden soils (Molinion Caerulea) (6140)***. It also has strong similarities to the *UK National Vegetation Classification NVC M23* (Rodwell, 1992), which is included in the *EU Interpretation Manual for EU Habitats* (2007) for this Annex I habitat. One species which is missing is *Molinia caerulea*, but there are enough other positive indicative species present to fulfil the assessment criteria as outlined by O'Neil *et. al.* (2009). None of the listed negative indicator species for this habitat were noted on the site. These areas are small within a larger wet grassland matrix.

There is another wetter marshy grassland on low-lying former floodplain behind the north bank of the River Shannon at Route D.1 Here the grass growth dominated by *Alopecurus pratensis* is more lush reaching a height of >90cm. *Juncus acutiflorus* is frequent and *Carex distica* also occurs. There is a good proportion of herbaceous species notably iris and meadowsweet, however there is much less overall species diversity and it does not appear to correspond with the Annex I habitat '***Lowland hay meadows***' (6510).

## Dry grassland (GS)

On some of the steeper slopes which slope down towards Knockalisheen stream, the grassland community is comprised of drier species, with a reduction in the abundance of rushes and many of the sedges and an increase in the cover of grasses. Drainage works for a sports pitch in a field south of the driveway to the Refugee Centre have altered the grassland composition in these drier areas, there are less rush species and mosses, and more grasses including *Cynosurus cristatus*, and sweet vernal grass, along with ribwort plantain (*Plantago lanceolata*), and cat's ear (*Hypochaeris radicata*). The drainage channels expose the soil profile which includes a shallow brown silty loamy substrate and underlying creamy coloured marl. This dry neutral grassland is classified (GS1) per Fossitt (2000). Where it not managed or grazed, it has become rank and includes species such as cocksfoot (*Dactylis glomerata*) and meadow fescue (*Festuca pratensis*) it conforms to dry meadows and grassy verges (GS2).

## Discussion

All of the woodland habitat within the cSAC crossed by the proposed routes corresponds to the priority Annex I habitat '***Alluvial forests***' (91E0). The wet grassland includes areas of the Annex I habitat '***Hydrophilous tall herb fringe***'

*communities'* (6430) along the floodplain of the both the River Shannon and Knockalisheen Stream. Two small areas of species-rich wet grassland on the poorly drained soils at Knockalisheen meet the assessment criteria for the Annex I habitat '*Molinia meadows on calcareous, peaty or clayey-silt laden soils* (6140). The remaining wet grassland areas within the study site are generally lowland meadows with a good diversity of species and without the species that are indicative of agricultural intensification. They include some of the indicator species associated with '*Lowland hay meadows* (6510), but not enough to meet the criteria for inclusion in this Annex I habitat type. Two of the qualifying interests of the Lower River Shannon cSAC include **Alluvial Forests (91EO)** and *Molinia meadows* (6140).

## **Conclusion**

The habitats within the cSAC that are traversed by the proposed LNDR routes have been surveyed in detail and areas of habitats corresponding to Annex I habitats under the EU Habitats Directive were mapped. The grassland vegetation is described and classified following the methodology of the Irish Semi-natural grassland survey (2009).

## Bibliography

- Anon. (2007). *Interpretation manual of European Union habitats*. EUR 27. European Commission, DG Environment
- Anon. (2008). *The Status of EU Protected Habitats and Species in Ireland*. National Parks & Wildlife Service, Dublin.
- Cross, J, Perrin P., Little, D. (2010) *The Classification of Native Woodlands in Ireland and its application to Native Woodland Management*. Woodlands of Ireland.
- Fossitt, J.A. (2000) *A Guide to Habitats in Ireland*. Published by the Heritage Council
- Kent, M. & Coker, P. (1992). *Vegetation description and analysis: a practical approach*. Belhaven Press, London.
- O'Neil, F, Martin, J, Perrin, P., Delaney, A. Mc Nutt, K, Devaney, F. (2009) *BEC Consultants Irish Semi-natural grasslands survey. Annual Report No. 2 Counties Cavan, Leitrim, Longford and Monaghan*. Unpublished report.
- BEC Consultants (2011) Irish Semi-natural grasslands survey. Grassland survey data for Site 1659 Knockalisheen Marsh, Co. Clare*. Unpublished data.
- Rodwell, J.S. (ed.) (1991). *British plant communities Volume 1: Woodlands and Scrub* Cambridge Community Press, Cambridge.
- Rodwell, J.S. (ed.) (1992). *British plant communities Volume 3: Grasslands and Montane Communities* Cambridge Community Press, Cambridge.
- Rodwell, J.S. (ed.) (1995). *British plant communities Volume 4: Aquatic communities, swamps and tall-herb fens*. Cambridge Community Press, Cambridge.
- Scannell, M.J.P., Synnott, D.M. (1987) *Census Catalogue of the Flora of Ireland*. Published by the Stationary Office
- Webb, D.A, Parnell, J. Doogue, D. (1996) *An Irish Flora*. Dundalgan Press
- White, J. & Doyle, G. (1982). The vegetation of Ireland: a catalogue raisonné. *Journal of Life Sciences, Royal Dublin Society* **3**, 289-368

## APPENDIX 1

### LNDR Revelee Data

Relevee		Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
<b>ID</b>	<b>Grid</b>										
<b>Ref:</b>		R63003 58765	R56105 60628	R56273 60375	R56302 60347	R56394 60536	R56562 60580	R56367 60916	R56762 60272	R62938 58985	R6292 58998
<b>Plant species</b>											
<i>Agrostis capillaris</i>											
<i>Agrostis gigantea</i>											
<i>Agrostis stolonifera</i>											
<i>Alopecurus pratensis</i>											
<i>Anthoxanthum odoratum</i>											
<i>Brachythecium rutabulum</i>											
<i>Bromus racemosus</i>											
<i>Calliergonella cuspidata</i>											
<i>Cardamine pratensis</i>											
<i>Carex distica</i>											
<i>Carex flacca</i>											
<i>Carex hirta</i>											
<i>Carex nigra</i>											
<i>Carex ovalis</i>											
<i>Carex pallescens</i>											
<i>Carex panacea</i>											
<i>Centaurea nigra</i>											
<i>Cerastium fontanum</i>											
<i>Cirsium arvense</i>											
<i>Cirsium palustre</i>											
<i>Crepis sp.</i>											
<i>Cynosurus cristatus</i>											
<b>Relevee</b>		<b>Q1</b>	<b>Q2</b>	<b>Q3</b>	<b>Q4</b>	<b>Q5</b>	<b>Q6</b>	<b>Q7</b>	<b>Q8</b>	<b>Q9</b>	<b>Q10</b>
<i>Dactylis glomerata</i>											
<i>Epilobium sp.</i>											
<i>Equisetum arvense</i>											
<i>Festuca pratensis</i>											
<i>Festuca rubra</i>											
<i>Filipendula ulmaria</i>											
<i>Galium palustre</i>											
<i>Holcus lanatus</i>											
<i>Hypericum tetrapterum</i>											
<i>Hypochaeris radicata</i>											
<i>Iris pseudacorus</i>											
<i>Isolepis setacea</i>											
<i>Juncus acutiflorus/articulatus</i>											

<i>Juncus conglomeratus</i>			1							
<i>Juncus effusus</i>		3						4	2	
<i>Juncus inflexus</i>										
<i>Kindbergia praelongum</i>										
<i>Lathyrus pratensis</i>	1		2						1	
<i>Lotus pedunculatus</i>		4	2	2	2	2	4			
<i>Luzula multiflora</i>			2		3		1			
<i>Lychnis flos-cuculi</i>		2	2						1	
<i>Mentha aquatica</i>			2							
<i>Phleum pratense</i>										
<i>Plantago lanceolata</i>			2	4		3	4			
<i>Poa pratensis</i>						3				
<i>Poa trivialis</i>		5						1	5	
<i>Polygonum bistorta</i>	1									
<i>Potentilla anserina</i>										
<i>Potentilla erecta</i>		1								
<i>Prunella vulgaris</i>					2					
<i>Pullicaria dysenterica</i>			1							
<b>Contd....</b>	<b>Relevee</b>									
<b>ID</b>	<b>Q1</b>	<b>Q2</b>	<b>Q3</b>	<b>Q4</b>	<b>Q5</b>	<b>Q6</b>	<b>Q7</b>	<b>Q8</b>	<b>Q9</b>	<b>Q10</b>
<i>Ranunculus acris</i>			2	1		2		2	1	
<i>Ranunculus repens</i>		5	2				3		4	
<i>Rhinanthus minor</i>										
<i>Rhytidadelphus squarosus</i>		2		2	2					
<i>Rumex acetosa</i>					1	5		4		
<i>Senecio jacobea</i>										
<i>Stellaria graminea</i>			2	1		4	2			
<i>Taraxacum agg.</i>			1	1						
<i>Trifolium pratense</i>		1	2				2			
<i>Trifolium repens</i>			1							
<i>Urtica dioica</i>	1									
<b>Total species no.</b>	<b>7</b>	<b>20</b>	<b>28</b>	<b>10</b>	<b>13</b>	<b>10</b>	<b>11</b>	<b>10</b>	<b>13</b>	<b>1</b>
<b>soil pH</b>	7	6.8	6.9		5.7	6	5	5.8	7.2	
<b>Fossitt habitat Classification</b>	GS2	GS4	GS4	GS1/GS4	GS4	GS2/GS4	GS1/GS4	GS4	GS4	GS4
<b>Annex I Assessment criteria</b>										
<i>Broadleaf herb %</i>		35	75	25	20	20	20	25	35	3
<i>Sward height cm</i>		50	35	35	45	40	50	30	85	4
<i>Litter cover %</i>		10	15	15	15	18	15	2	5	1
<i>Bare ground %</i>		0	1	0	0	0	0	10	0	
<i>Grazing and disturbance</i>		No	No	No	No	No	No	grazed	No	No
<i>No. High quality species present</i>	0	1	1	0	0	0	0	0	0	
<i>No. positive indicator species present</i>	1	7	7	3	1	5	2	2	4	
<b>Correspondance to Annex I habitat:</b>										
<i>Molinia meadows (6410)</i>	Fail	Pass	Pass	Fail						

Lowland hay meadow (6510)	Fail		Fail							
---------------------------	------	--	------	------	------	------	------	------	------	------

## LIMERICK NORTHERN DISTRIBUTOR ROAD

### ASSESSMENT OF ALLUVIAL WOODLAND HABITAT WITHIN LOWER RIVER SHANNON SAC

#### EirEco Environmental Consultants

10<sup>th</sup> November 2011

The proposed Limerick Northern Distributor Road has five route options which all cross the River Shannon in the vicinity of Plassey within the Lower River Shannon SAC. Three of these options cross riparian zones supporting some alder and willow and clarification is sought as to whether these areas constitute the Priority habitat **Alluvial Forest with *Alnus Glutinosa* and *Fraxinus excelsior* (*Alno-Padion*, *Alnion incanae*, *Salicion albae*) (91E0)**.

The locations were visited on 9<sup>th</sup> November 2011 with NPWS representatives Jervis Good, Seamus Hassett, Elaine Keegan and Dave Lyons along with Andrew Warwick (Roughan O'Donovan) and Paul Murphy (EirEco) to review their species composition and structure. The conclusion of this visit was that narrow strips of scattered alder and willow with open areas of reed canary grass do not conform while areas of closed canopy where the understorey includes the characteristic species for the habitat would.

However, it was agreed to submit a brief overview of the habitat at the three locations to the NPWS Woodland Ecologist Dr John Cross, to receive a categorical determination of the habitat. A summary description of the riparian zones in the route corridors in question is presented below with accompanying photographs. Confirmation is sought in relation to the conclusions as to whether the habitats conform or otherwise to the Priority Habitat Alluvial Woodland.

#### Route E.1

The most eastern of the route options (Route E.1) (see Figure 5) crosses immediately upstream of the confluence of the Mulkear River with the Shannon. The riparian zone is approximately 8m in width at this location and supports a narrow fringe of scattered alder and willow (primarily *Salix cinerea* with occasional *S. alba*) (See Figure 1). Trees are up to 15m high, and are mainly semi-mature to mature. A tree line of ash, sycamore and hawthorn runs along the top of the embankment on the landward side, which forms the SAC boundary. The ground flora is dominated by reed canary grass and nettle with localised stands of common reed. A narrow fringe of reed swamp comprised of common reed and branched bur-reed occurs along the river edge. This area is considered not to conform to the Annex Habitat Alluvial Woodland.



**Figure 1. Riparian fringe on south bank route E.1**

### Route B.1

Route B.1 crosses to the west of the University of Limerick (UL) lands at Plassey and is the most western of the route options (see Figure 6.). The route crosses at the southern end of a narrow fringe of alluvial woodland which is paralleled by a pedestrian walkway on a raised embankment. A deep dry drainage ditch runs along the landward side of the embankment which is flanked by a mature treeline dominated by ash with occasional oak and sycamore. An area of Alluvial Woodland compensatory habitat, located immediately north of the route corridor, was created to compensate for the loss of this habitat associated with the construction of the Living Bridge further east at UL.

The SAC boundary at this point appears to follow the mature treeline. The width of the riparian strip in the route corridor varies between approximately 12m in the northern half to approximately 5m in the southern. In the northern half (See Figure 2), the canopy species are alder and willow species, mainly semi-mature to mature, though there are numerous multi-stemmed trees. The ground flora is dominated by reed canary grass, nettle, angelica, Himalayan balsam and lesser celandine, with ivy frequent on the larger trees. This is considered to conform to Annex Habitat Alluvial Woodland.



Figure 2. Riparian fringe at northern half of route B.1 corridor.

The southern half of route corridor B.1 has occasional scattered alder and willow with a fringe of young to semi-mature ash, alder and occasional hawthorn along the pathway embankment (see Figure 3). The understorey on the riparian zone is again dominated by reed canary grass and nettle, with abundant Himalayan balsam. This area is considered not to conform to the Annex Habitat Alluvial Woodland.



**Figure 3. Riparian fringe at the southern half of Route B.1 corridor.**

#### **Route B.2**

Route B.2 crosses further north from B.1 in the vicinity of the UL Boat House (see Figure 6.). The riparian zone in this area is approximately 10m in width, and has a species composition and structure identical to that of the northern half of the B.1 corridor. While there has been some localised removal of trees associated with the construction of the slipway and pontoon for the Boat House, this habitat is considered to conform to Annex Habitat Alluvial Woodland (see Figure 4).



**Figure 4. Riparian fringe in vicinity of Route B.2**

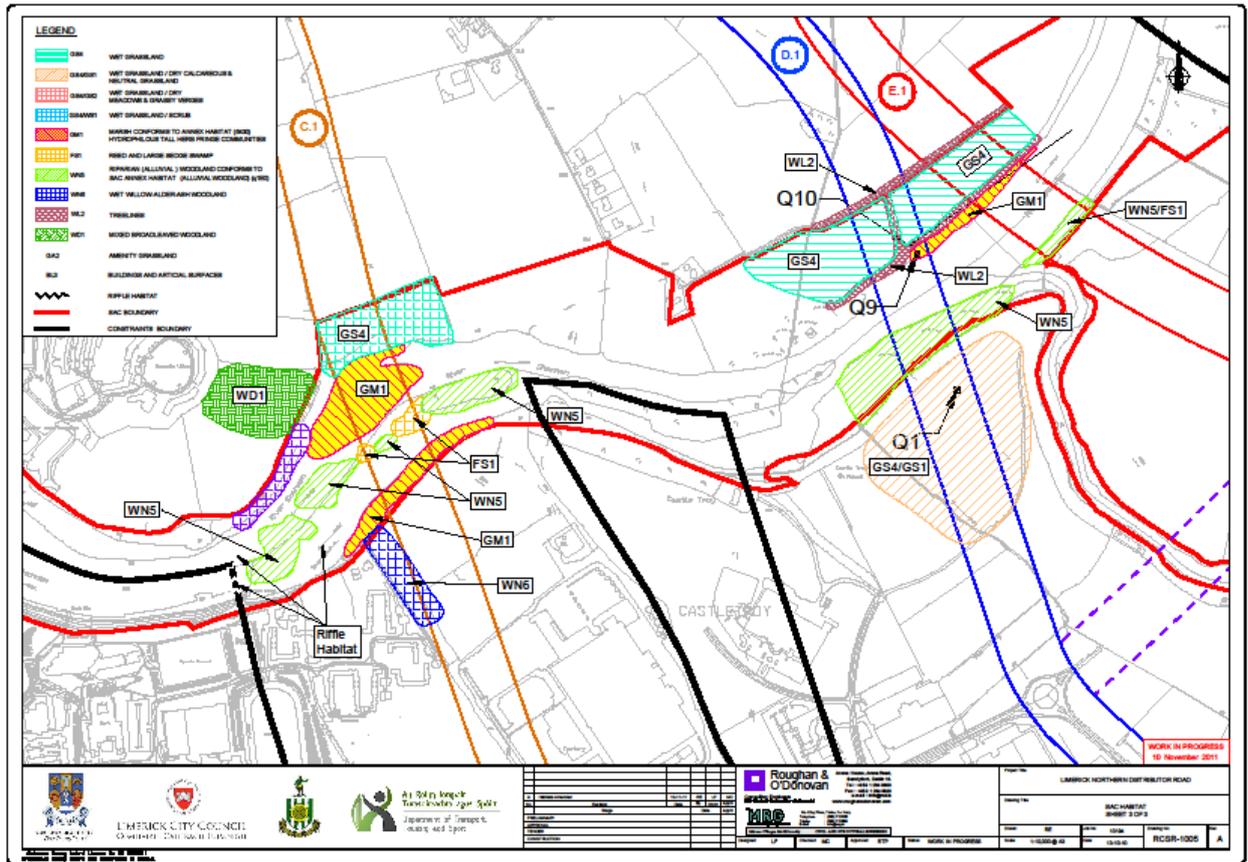


Figure 5. Route E.1

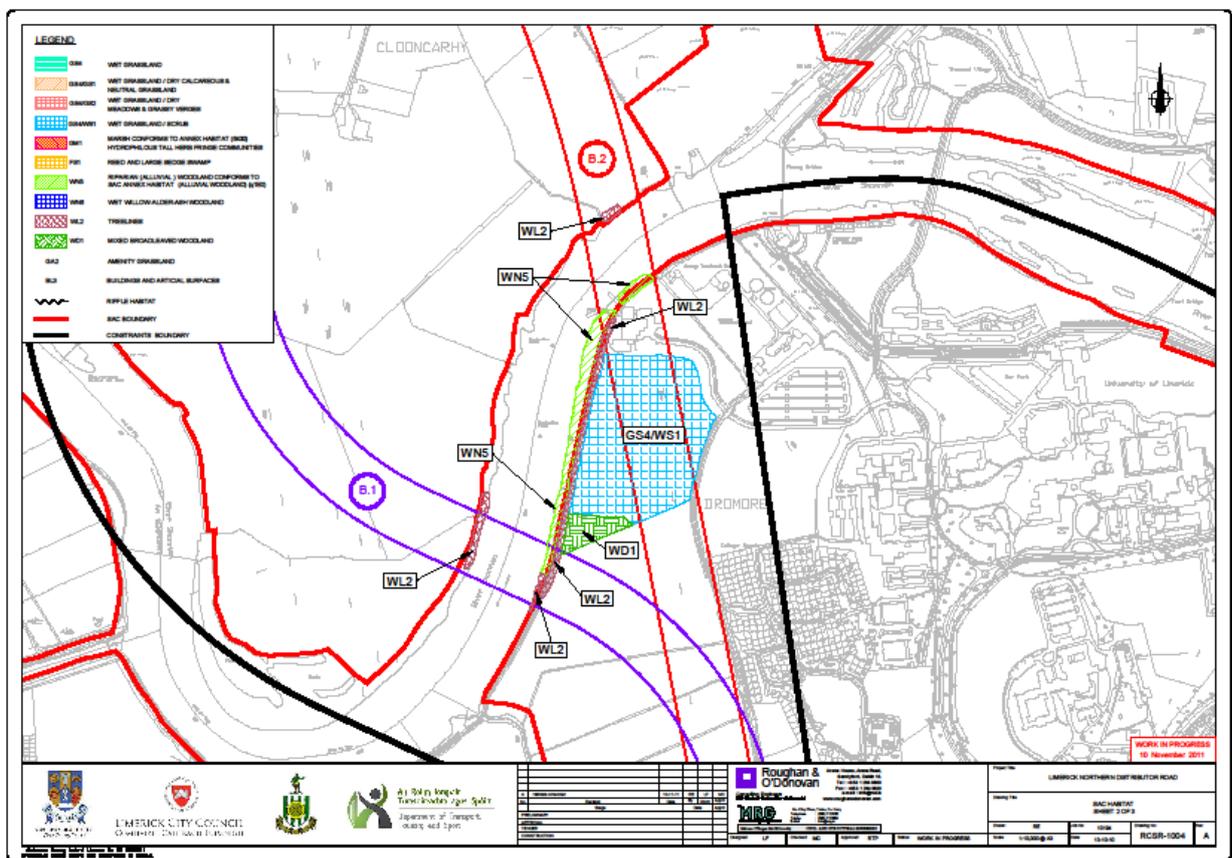


Figure 6. Route B.1 and B.2

# **LIMERICK NORTHERN DISTRIBUTOR ROAD**

## **Results of Wintering Whooper Swan Surveys**

**March 2012**



**EirEco Environmental Consultants**

**Carron  
Co. Clare  
Ireland**

**Tel: +353 (0) 657 089 080**  
**[info@eireco.ie](mailto:info@eireco.ie)**

# LIMERICK NORTHERN DISTRIBUTOR ROAD

## Results of Wintering Whooper Swan Surveys

---

### Contents

<b>1</b>	<b>INTRODUCTION</b> .....	<b>10</b>
1.1	General introduction .....	10
1.2	The EU Conservation of Wild Birds Directive .....	10
1.3	Methods.....	10
<b>2.</b>	<b>RESULTS</b> .....	<b>11</b>
<b>3.</b>	<b>IMPACTS</b> .....	<b>13</b>
<b>4.</b>	<b>CONCLUSION</b> .....	<b>13</b>
<b>5.</b>	<b>REFERENCES</b> .....	<b>14</b>

## LIMERICK NORTHERN DISTRIBUTOR ROAD

### Results of Wintering Whooper Swan Surveys

#### 1 INTRODUCTION

##### 1.1 General introduction

This report has been prepared by Paul Murphy of EirEco Environmental Consultants in association with Roughan O'Donovan Consulting Engineers as part of a Route Corridor Selection for a proposed Limerick Northern Distributor Road. The report presents the results of a series of winter surveys undertaken in the vicinity of the proposed route option Route Option E.1.1 at the confluence of the Mulkear and Shannon Rivers to determine the utilisation of a known foraging site by Whooper Swan (*Cygnus cygnus*). This route option is a deviant of the route option E.1 specifically moved further east to reduce potential impact on the foraging site and to minimise disturbance to the Annex I (Priority) Habitat Alluvial Woodland on the south bank of the River Shannon.

The principle objective of the surveys has been to determine the utilisation of this area by Whooper Swan in order to assess the potential impact of Route Option E.1.1 on the birds. Records of a flock occurring in this area have been reported by the National Parks and Wildlife Service (S. Hassett, pers. com.) and the Irish Whooper Swan Study Group (G. Murphy, pers. comm.). Whooper Swan are afforded protection under the EU Birds Directive and are listed as being of Conservation Concern in the Irish context.

Limerick has relatively few wetlands and this is reflected in the fact that just two core areas support large numbers of Whooper Swans regularly, namely Mungret on the south side of the Shannon Estuary, and around the Lough Gur and the Camoge River area to the southeast of Limerick (Robinson, et. al., 2004). The Shannon Estuary in its entirety supports an internationally important number of Whooper Swan (339 birds in 2010).

##### 1.2 The EU Conservation of Wild Birds Directive

The Council Directive 79/409/EEC on the Conservation of Wild Birds Directive (better known as "The Birds Directive") includes a listing of species (Annex I) that are rare or vulnerable at the European level. Member states are obliged to designate Special Protection Areas where listed species regularly occur for breeding or wintering purposes in significant numbers (variable according to the species). Outside of protection areas (SPA's) member states are obliged to strive to avoid pollution or deterioration of habitats.

##### 1.3 Methods

###### **Winter Bird Surveys**

A series of monthly surveys were undertaken over the winter period from November 2011 through to March 2012 inclusive. These surveys aimed

primarily to determine the occurrence and utilisation by Whooper Swan of the known foraging area at the confluence of the Mulkear and Shannon Rivers, in the vicinity of Route option E.1.1. In addition, the utilisation of the general landscape around Limerick City by Whooper swan was assessed with a view to determining the potential occurrence of flight paths between roosting and/or feeding sites across the proposed study area for the various route options.

This data was augmented by reviewing previous studies and reports on Whooper Swan undertaken in the area. A full list of data sources is presented in the Reference section. The Irish Wetland Bird Survey (IWeBS) data for Limerick City and the upper part of the Shannon Estuary was sourced from BirdWatch Ireland. Consultation was undertaken with the National Parks and Wildlife Service (NPWS) and with the Irish Whooper Swan Study Group (specifically Graham McElwaine and Gerry Murphy).

## 2. RESULTS

### ***Existing Records***

The Shannon & Fergus Estuary is internationally important for a variety of waterbirds. Adjacent agricultural grasslands fringing the estuary are used for grazing by Whooper Swans. Around 50-160 Whooper Swans have been recorded from the Shannon Estuary in the late 1990s with slightly lower numbers recorded in the 1970s and 1980s (Robinson, et. al., 2004). Numbers appear to be increasing in recent years Shannon with a total of 339 swans recorded in 2010, an increase in 54 from the 2005 survey (Boland et. al. 2010), making the estuary also of international importance for Whooper Swan (>210 birds).

During the January 2010 International Swan Census a total of 194 Whooper Swan were recorded from Co. Limerick, a reduction of 19 birds from the 2005 census (Boland et. al. 2010) and 26 birds from the January 2000 census (Robinson, et. al., 2004). The swans are predominantly recorded from just two sites, one near Mungret on south side of the Shannon Estuary, and the second around the Lough Gur / Camoge River area, 16 km to the southeast (ibid). In the Irish Wetland Bird Survey (IWeBS) sub-area from Coonagh to Bunratty, a mean of 106 swans have been recorded over the period 2005 to 2010 (See IWeBS data in Appendix 1).

Around half of the Whooper Swans occurring in the vicinity of the Shannon and Fergus Estuaries occur on the upper estuary section near Mungret, between the Mague Estuary (R4557) and Limerick City (R5757) (Robinson, et. al., 2004). Principal areas used are grasslands at Cooperhill (R5157), Scarlet Reach (R4757) and Newtown (R4957) (ibid.). Birds use these fields for feeding, with average flocks comprising 75 birds. The birds previously used two cement factory lagoons within the sea wall for roosting prior to the construction of the Shannon Tunnel.

Islandavanna (R3269) at the mouth of the River Fergus is another area of low-lying grassland favoured by Whooper Swans (G. Murphy pers.comm.). A

flock of c60 birds was recorded there in February 2012 (pers. ob.). Birds also forage in fields on either side of Latoon Creek (R3671) and at Ballysallagh West / Islandmacnevin (R3666) and roost on the Fergus Estuary (R3367). Shannon Airport Lagoon (R3860) has held up to 138 birds with peaks generally recorded in the autumn months. These birds probably disperse within the estuary or even further afield. Clonderalaw Bay (R1254) supports a flock of around 30-50 birds, with birds primarily using grassland areas along the Crompaun River (R1256) (Robinson, et. al., 2004).

The Lough Gur / Camoge River flock uses a number of sites north of Lough Gur (R6440). Up to 128 birds have been recorded although 100 birds are more regular. The most important foraging areas are the grasslands along the Camoge River between Fedamore (R6043) and Herbertstown (R6741), using Lough Gur as a roost site. An additional flock of around 30 birds utilise sections of the Morningstar River between Athlacca (R5634) and Bruff (R6236), with preferred sites at R5836 and at Rathcannon Bog (Robinson, et. al., 2004).

### ***This study***

A series of monthly surveys were carried out over the period November 2011 through to March 2012 inclusive (see Table 1 for dates of surveys). These surveys were aimed at determining whether the known site at the confluence of the Mulkear and Shannon Rivers was used by Whooper Swan and to determine the importance of this site to the flock. Additional objectives of the surveys were to determine other foraging grounds in the vicinity, roosting sites for the flock and interconnecting flight paths.

No observations were made of Whooper Swan at the confluence of the Mulkear and Shannon Rivers during any of the surveys. From casual discussion with anglers and walkers in the area during the survey periods, there were no anecdotal records for Whooper Swan at the site. Gerry Murphy of the Whooper Swan Study Group has a single record for swan from the site (grid reference R633588) for the 15/1 /1998, when 23 birds were present comprising 15 adults and 8 juveniles. Seamus Hassett (NPWS) has also indicated occasional occurrence of Whooper Swan at the site though does not have any specific records of dates and numbers. During the site survey on 31-1-12, two adult whooper swans were observed with a flock of feral greylag geese approximately 3km to the west (R600 581 on the north bank of the River Shannon).

**Table 1. Winter survey dates for Whooper Swan at the confluence of the Mulkear and Shannon Rivers**

<b>Date</b>	<b>Number of Swans</b>	<b>Other Sites</b>
25-11-11	0	0
21-12-11	0	0
31-1-12	0	2 Adults
22-2-12	0	0
26-3-12	0	0

From the results of these surveys and the available data it appears that the site at the confluence of the Mulkear and Shannon Rivers is not a regularly

used foraging area for Whooper Swan. The main foraging sites for flocks in the Shannon Estuary are all to the west of Limerick on improved, low-lying grasslands. There remains potential for Whooper swans to utilise the site at the confluence of the Mulkear and Shannon Rivers on occasion. Their occurrence at this location may be influenced by a number of factors such as disturbance at other sites, weather events (including flooding levels) and grassland management at the site.

### 3. IMPACTS

There is no evidence of regular utilisation of the site at the confluence of the Mulkear and Shannon Rivers or its immediate surrounds during winter by Whooper Swan. Periodic usage at the site does appear to occur as evidenced by previous records (G. Murphy and S. Hassett, pers.comm.). Two adult Whooper Swans were observed at a site approximately 3km to the west of the confluence of the Mulkear and Shannon Rivers where they were foraging with a flock of feral greylag geese. Improved grasslands along the low-lying floodplain of the River Shannon are primary foraging areas for Whooper Swan, and while the main foraging areas appear to be west of the city of Limerick, occasional foraging can be expected in suitable habitat to the east of the city.

However, as the main foraging and roosting areas for Whooper Swan are west of the Limerick, no regularly used flight paths are likely to be intersected by the proposed Limerick Northern Distributor Road Route Option E.1.1. The infrequency of occurrence of Whooper Swan in the study area would make it exceedingly difficult to identify utilised flight paths to the east of the city, though it is highly probable that the River Shannon would form a likely corridor for movement.

The Limerick Northern Distributor Road Route Option E.1.1 is unlikely to interfere with the ongoing utilization of the site at the confluence of the Mulkear and Shannon Rivers during operation as Whooper Swan. The route option avoids the field utilised by the swans and is separated from it by a treeline which forms both a screen and partial visual barrier. Whooper Swan will habituate to predictable disturbance associated with roads and other activities such as farming, etc.

### 4. CONCLUSION

Overall the Shannon Estuary supports an internationally important number of Whooper Swan (339 birds in 2010) while the inner part of the estuary from Coonagh downstream to Bunratty supported a mean of 106 birds over the period 2005-2010. The main foraging sites for the Whooper Swan flocks recorded from the Shannon Estuary are all to the west of Limerick on improved, low-lying grasslands.

From the results of the surveys carried out as part of this study in conjunction with the existing available data, it appears that the site at the confluence of the Mulkear and Shannon Rivers (in the vicinity of Route Option E.1.1) is not a regularly used foraging area for Whooper Swan. No observations of swans at this site were recorded over the winter 2011-2012, and there are just two previous records of swans occurring at the site. Two adult Whooper Swans were observed at a site approximately 3km to the west of this site where they were foraging with a flock of feral greylag geese.

There remains potential for Whooper swans to utilise the site at the confluence of the Mulkear and Shannon Rivers on occasion. Their occurrence may be influenced by a number of factors such as disturbance at other sites, weather events (including flooding levels) and grassland management at the site. However, the Limerick Northern Distributor Road Route Option E.1.1 is unlikely to interfere with the ongoing utilization of the site at the confluence of the Mulkear and Shannon Rivers during operation as Whooper Swan habituate to predictable disturbance associated with roads.

## 5. REFERENCES

Boland, H., J.G. McElwaine, G. Henderson, C. Hall, A. Walsh & O. Crowe (2010). *Whooper Cygnus cygnus and Bewick's C. columbianus bewickii Swans in Ireland: results of the International Swan Census, January 2010*. Irish Birds 9: 1-10 (2010).

Crowe, O., McElwaine, J.G., Worden, J.G., Watson, G.A., Walsh, A. and Boland, H. 2005. *Whooper Cygnus cygnus and Bewick's C. columbianus bewickii Swans in Ireland: results of the International Swan Census, January 2005*. Irish Birds 7: 483-488.

Fossitt, J.A. (2000). *A Guide to Habitats in Ireland*. Heritage Council, Kilkenny.

Lynas, P., Newton, S. and Robinson, J. A. (2007). *The status of birds in Ireland; an analysis of conservation concern 2008-2013*. Irish Birds 8 (149-167).

National Parks and Wildlife Service. [National Parks and Wildlife Service Public Mapviewer.aspx](#)

Newton, S., Donaghy, A., Allen, D. & Gibbons, D. (1999) *Birds of Conservation Concern in Ireland*. Irish Birds 6, 333-344.

Robinson, JA, K Colhoun, JG McElwaine & EC Rees. 2004. *Whooper Swan Cygnus cygnus (Iceland population) in Britain and Ireland 1960/61 – 1999/2000*. Waterbird Review Series, The Wildfowl & Wetlands Trust/Joint Nature Conservation Committee, Slimbridge.



Replace Fig 6.10 with attached:

