



Draft
Ireland West Airport Knock
Local Area Plan 2012-2018

Natura Impact Report



**In accordance with Article 6(3) and 6(4) of the Council Directive
92/42/EEC on the conservation of natural habitats and of wild flora and
fauna (the Habitats Directive)**

Mayo County Council
Comhairle Contae Mhaigh Eo

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1 Introduction

1.1 Scope

Following the application by Mayo County Council in 2008 to designate the lands in the vicinity of Ireland West Airport Knock (IWAK) as a Strategic Development Zone (SDZ), the DoEHLG advised adopting a best practice approach similar to other SDZ designations by the preparation of a Local Area Plan (LAP).

It is proposed that the main aim of the LAP is to facilitate the development potential of the area, while ensuring the efficient and effective running of the airport. Hence, the development includes, *inter alia*, provision of business park developments which will likely be to the north and north west of the current airport boundary, accommodating up to 50,000 m² of gross floor space and generating a working population of circa 5000 people. Development is envisaged to aspire to this target over a 20-year period.

An Appropriate Assessment Screening was prepared for this draft LAP and concluded that the impacts of the plan and its components on one Natura 2000 site in the proximity were not known, but there were potential conflicts with regard to, *inter alia*, indirect and cumulative effects on water quality, water volume, soil stability and possible introduction of invasive species. Specifically, because of the unknown / possible effects on the conservation objectives of the Annex I habitats and Annex II species for which the cSAC in this area has been designated, a Stage 2 Appropriate Assessment was considered necessary.

This document entitled comprises the 'Natura Impact Report' to facilitate the Appropriate Assessment of the IWAK Local Area Plan by Mayo County Council.

1.2 Methodology

This document is being prepared for the draft IWAK LAP with reference to the following European, national and DEHLG guidance documents on Habitats Directive Assessment:

- *Managing Natura 2000 Sites, The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC*. European Commission, 2000;

- *Assessment of plans and projects significantly affecting Natura 2000 sites; Methodological Guidance on the provisions of Articles 6(3) and (4) of the Habitats Directive 92/43/EEC.* European Commission, 2002;
- Department of Environment, Heritage and Local Government Circular Letter PD 2/07 and NPWS 1/07, 2007;
- Department of Environment, Heritage and Local Government Circular Letter SEA 1/08 and NPWS 1/08, February 2008;
- Department of Environment, Heritage and Local Government Circular Letter SEA L8/08, September, 2008;
- *Appropriate Assessment of Plans and Projects in Ireland, Guidance for Planning Authorities.* DoEHLG, 2009.

The methodology involved a desk study, consultation and literature reviews, site walkovers and detailed site surveys.

The desk study referred to the specific Natura 2000 site adjacent to the plan area, as described by the National Parks and Wildlife Service of the Department of Arts, Heritage and the Gaeltacht. Detailed information on the cSAC pertaining to the plan was reviewed and examined in detail. Data evaluated included Natura 2000 Standard Data Form, the specific site synopsis which describes the qualifying interests for which the site was designated in addition to the site's generic conservation objectives.

Site walkovers were undertaken to develop a clear knowledge and affinity with the plan area and began on 1st December 2011. Surveys were conducted on 5th, 8th and 12th January 2012. Weather conditions, in general, were mild with strong gusts from the north west on 5th January and heavy drizzle on 8th January. Aquatic macroinvertebrate monitoring was undertaken for the purpose of this appropriate assessment though the optimum time for monitoring of this type is from March to May and September to November.

2 Plan Description

2.1 Location

Ireland West International Airport (IWAK) is located on a 243.6 ha site in the townland of Kilgarriff West and is centrally located along the National Primary Route (N17 Galway / Sligo) and approximately 7 km from the National Primary Road (N5) which links Mayo and Dublin. Broadly, general operations of any airport can be categorised into two distinct land uses which include airside and landside land uses. Existing airside uses include the runway; taxiway; aprons and navigational aids for the running of the airport. The area in the terminal which includes departure gates is also considered airside use. This area is defined on the ground by the airport security fence. Landside uses comprise of the parking areas, the car rental area and the area within the terminal that includes check in desks and cafe. This also includes a small business park at the airport campus.

2.2 Nature of Draft LAP

The draft Local Area Plan, prepared as a precursor for the application by Mayo County Council to the Minister for Environment, Community and Local Government, to designate the lands in the vicinity of the airport as a Strategic Development Zone. The draft LAP will include:

- Zoning of lands for particular purposes for the plan period but with a longer vision for the continuing development of the airport and adjoining lands;
- Provision of infrastructure; transport; protection of heritage and environment; airport infrastructure; operations and economic activities;
- Development of the airport to its full potential;
- Identification of Public Safety Zones (PSZ) for the Airport and Noise Contour Maps;
- Development of a business park;
- Provision for guidance on the layout and design of development;
- Other works not currently identified but may be necessary as the plan evolves.

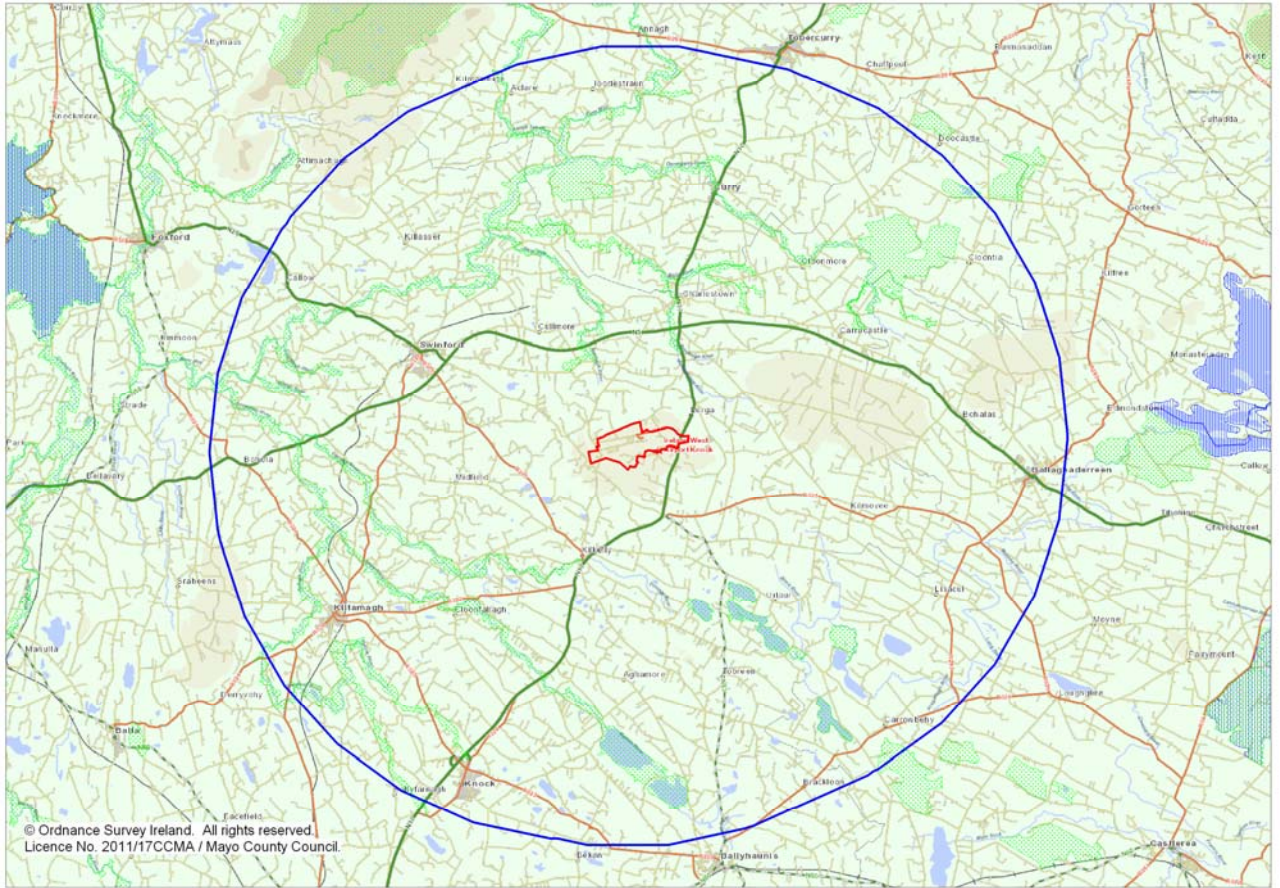


Figure 2.1 IWAK LAP boundary (red) within 15 km zone of impact (dark blue polygon) showing River Moy cSAC to the north and south (lime green)

3 Habitats Directive Assessment Methodology

3.1 Introduction

The format of this Habitats Directive Assessment follows the Commission's methodical guidance which promotes a four-stage process including:

Stage 1 Screening

Screening for Appropriate Assessment is the introductory stage where the proposed plan or project is examined with reference to its effects on the conservation objectives of a Natura 2000 site. The outcome of a screening assessment is essentially a statement concluding whether or not it is necessary to proceed to the succeeding step. Screening addresses the questioning statements or tests of Article 6(3), firstly, whether a plan or project is directly connected to, or necessary for the management of the Natura 2000 site. One example of this may be a conservation management plan for an SAC (not including SPAs) as referred to in Article 6(1) of the Habitats Directive. The second test questions whether the plan or project, either alone or in combination with other plans or projects, is likely to have significant effects on a Natura 2000 site in view of its conservation objectives.

Where doubt exists as to the likelihood on the risk of significant effects, the application of the precautionary principle would indicate that an appropriate assessment must be carried out.

Stage 2 Appropriate Assessment

This may be regarded as the most complex stages of the HDA in that it includes a comprehensive study of the proposed plan or project and considers whether it, either alone or in combination with other plans or projects, will have significant effects on the integrity of the conservation objectives of a Natura 2000 site. Incorporating a Natura Impact Report (NIR) for a proposed plan with the aim of providing adequate information from the plan proponent to undertake an appropriate assessment, additional documentation associated with this assessment includes the AA Conclusion Statement. Briefly, the appropriate assessment identifies any adverse effects on a Natura 2000 site, either alone or in combination with other plans or projects, and includes mitigation measures to avoid, reduce or offset negative effects and assessment of these measures. If, however, the adverse effects on the integrity of the site cannot be excluded, Stage 3 should be initiated.

Stage 3 Alternative Solutions

Following a Stage 2 negative result, that is, adverse effects cannot be excluded; an examination of alternative solutions or options, described in Article 6(4) of the Directive should be initiated. These alternative solutions which should have been identified in the appropriate assessment stage should then return to be reassessed by a Stage 2 appropriate assessment, similar to a new plan or a variation of an existing plan.

Alternatively, should no alternative solution which does not adversely effect a Natura 2000 site be identified, the ‘least damaging’ option should be considered with regard to Stage 4.

Stage 4 Imperative Reasons of Overriding Public Interest (IROPI) / Derogation

Described as the derogation process of Article 6(4), this final stage allows for the plan or project to proceed in the knowledge that it will have adverse effects on the conservation objectives and as a consequence the integrity of a Natura 2000 site. This is essentially an assessment of the compensatory measures which should be proposed to offset damage to the site and should be practical, implementable, enforceable and approved by the Minister and referred to the European Commission.

To summarise, while the first two stages (1 and 2) focus on the proposed plan or project and its potential adverse effects on the conservation objectives of a proximate Natura 2000 Network, Stage 3 examines alternative solutions to prevent adverse impacts on the integrity of Natura 2000 sites. Stage 4 of the HDA, also deemed a derogation process, is employed when it has been established that the proposed plan or project will have adverse impacts on the Natura 2000 sites, but no less damaging alternative solution exists. Essentially, it is an iterative process and the outcome at each successive stage determines whether a further stage in the process is required.

This stage – Stage 2 Appropriate Assessment adheres to the following steps:

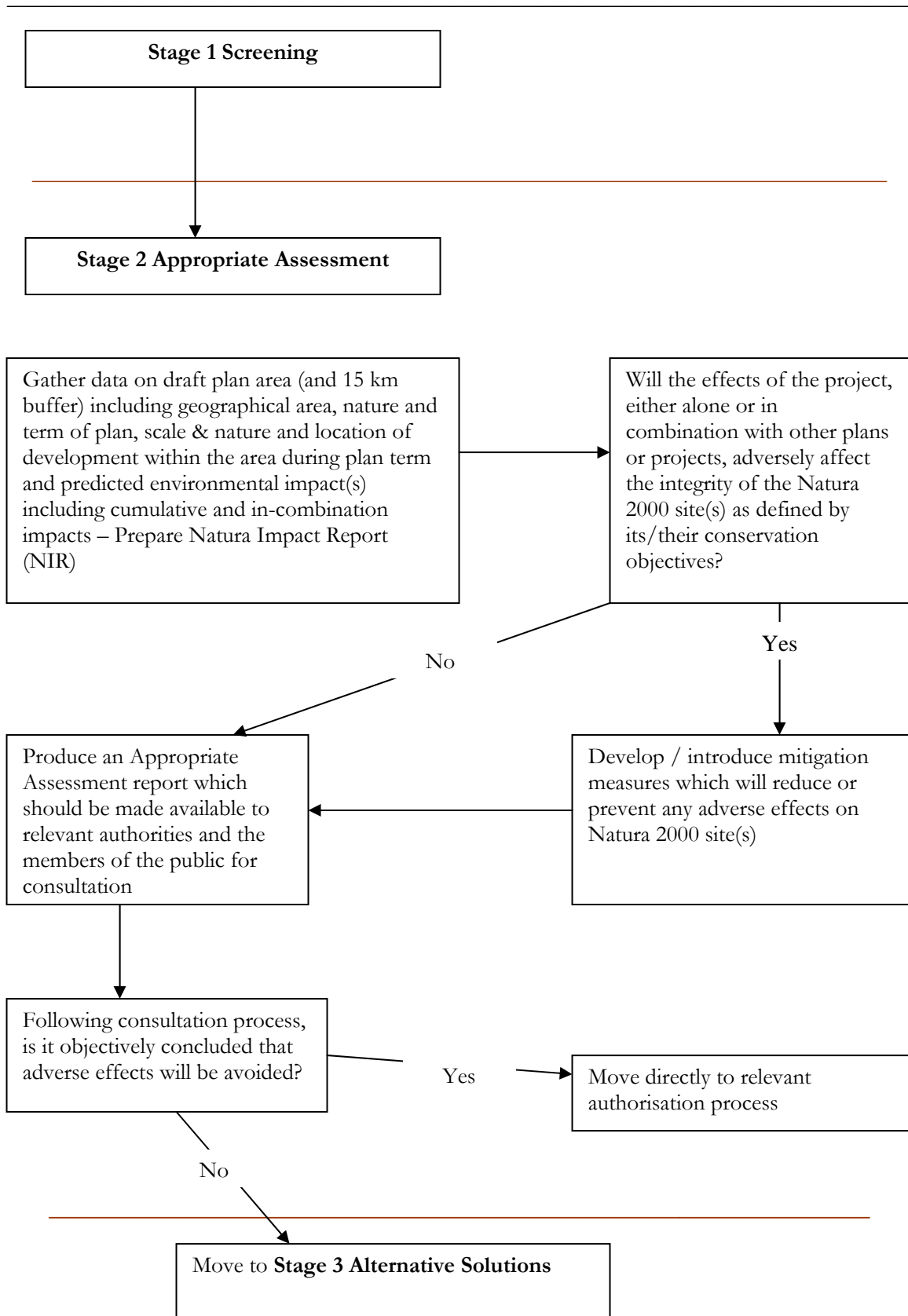


Figure 3.1 Stage 2 Appropriate Assessment steps

4 Existing Environment

4.1 Soils

The plan area immediately within the airport complex is comprised of concreted ground; runway strip and other developed areas for the general airport use. Surrounding this, the area is essentially composed of blanket bog and till. Peat deposits in the vicinity vary from 0.2 m to 1.3 m in depth below ground level (bgl) with a thin layer of clayey gravel with cobbles and boulders encountered below the peat layer. Bedrock exposure is apparent in a number of locations and as such, bedrock is deemed to be shallow throughout the plan area.

4.2 Geology

The plan area overlies mainly Ordovician rock unit group, particularly Horan, Carracastle and Tawnyinagh. Outcrops of intrusive igneous rocks such as feldspar / quartz porphyry are also present to the south west, north east and south east regions of the plan area.

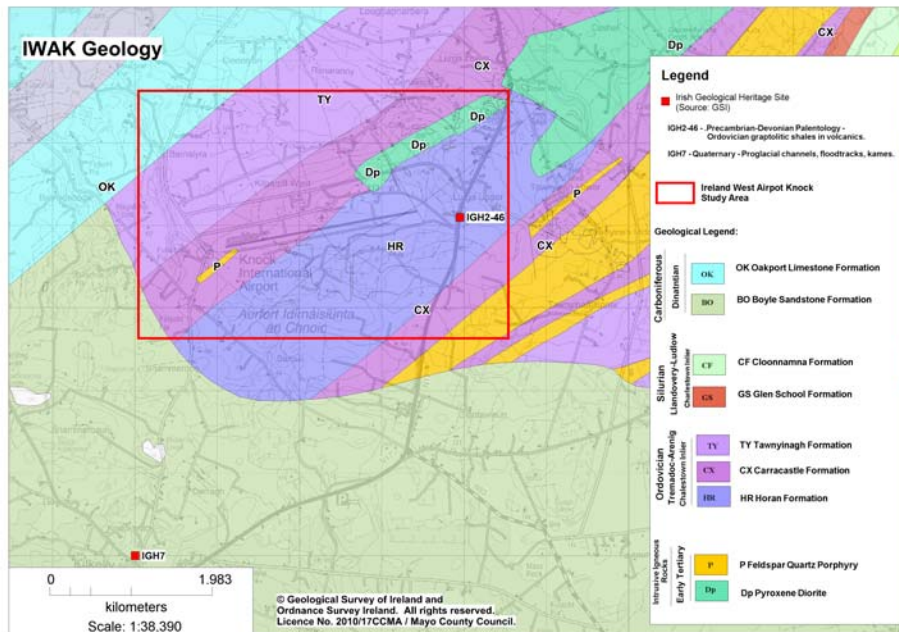


Figure 4.1 Geology of plan area and environs

Briefly, Horan, Carracastle and Tawnyinagh formations describe basalt, siltstone and chert; intermediate volcanic breccias; and tuff and minor chert formations respectively. Feldspar / quartz porphyry sequence of rocks are generally fine grained quartzo-feldspatic groundmass with large quartz of plagioclase crystals.

4.3 Hydrogeology

The plan area overlies two separate groundwater bodies; Kilkelly-Charlestown and Curlew Mountains, the first of which is in the administration area of the Western River Basin District (RBD) and the latter within the Shannon RBD. Both are described as of good status¹ and assigned the objective to remain at this status, thereby requiring protection rather than restoration by 2015 (or 2021). To the south west, west and north west the Moy SG groundwater body encroaches the plan area and it too is currently designated good status whereas the fourth water body adjacent to the plan area described as poor. This water body – Swinford – was designated in consideration of the chemical status of its groundwater but since it is located north west of the plan area and essentially a separate system, this status is noteworthy but not significant or of great consequence to the current plan. The following tables illustrate the key data pertaining to all four groundwater bodies.

Table 4.1 Summary data on groundwater body Kilkelly-Charlestown; including current status, risk data and current measures to achieve objectives

WaterBody Name: Kilkelly-Charlestown		WaterBody Code: IE_WE_G_0032
Chemical and quantitative status	Overall risk result	Overall objectives
Good	2a – Probably Not At risk	Protect
All measures to achieve objectives; 23 applicable		
Legislative measures to achieve objectives (Directives and associated transposed legislation; Regulations) <ul style="list-style-type: none"> ○ Habitats Directive ○ Drinking Waters Directive ○ Major Accidents & Emergencies Directive ○ Environmental Impact Assessment Directive ○ Sewage Sludge Directive ○ Urban Waste Water Directive ○ Plant Protection Products Directive ○ Nitrates Directive ○ Integrated Pollution Prevention Control Directive 	Other measures – stipulated and as appropriate <ul style="list-style-type: none"> ○ Cost recovery for water use ○ Promotion of efficient and sustainable water use ○ Protection of drinking water sources ○ Control of abstraction and impoundment ○ Control of point source discharges ○ Control of diffuse source discharges ○ Authorisation of discharges to groundwaters ○ Control of priority substances ○ Controls on physical modifications to surface waters ○ Controls on other activities impacting on water status ○ Prevention or reduction of the impact of accidental pollution incidents ○ On-site waste water systems ○ Water Pollution Act licences requiring review ○ Forestry guidelines and regulations 	

¹ Under the WFD and all associated legislation pertaining to water status, groundwaters are ranked in one of just two status classes: Good or Poor

Table 4.2 Summary data on groundwater body Curlew Mountains; including current status, risk data and current measures to achieve objectives

WaterBody Name: Curlew Mountains		WaterBody Code: IE_SH_G_073
Chemical and quantitative status	Overall risk result	Overall objectives
Good	2a – Probably Not At risk	Protect
All measures to achieve objectives; 25 applicable		
Legislative measures to achieve objectives (Directives and associated transposed legislation; Regulations) <ul style="list-style-type: none"> ○ Habitats Directive ○ Drinking Waters Directive ○ Birds Directive ○ Major Accidents & Emergencies Directive ○ Environmental Impact Assessment Directive ○ Sewage Sludge Directive ○ Urban Waste Water Directive ○ Plant Protection Products Directive ○ Nitrates Directive ○ Integrated Pollution Prevention Control Directive 	Other measures – stipulated and as appropriate <ul style="list-style-type: none"> ○ Cost recovery for water use ○ Promotion of efficient and sustainable water use ○ Protection of drinking water sources ○ Control of abstraction and impoundment ○ Control of point source discharges ○ Control of diffuse source discharges ○ Authorisation of discharges to groundwaters ○ Control of priority substances ○ Controls on physical modifications to surface waters ○ Controls on other activities impacting on water status ○ Prevention or reduction of the impact of accidental pollution incidents ○ On-site waste water systems ○ IPPC licences requiring review ○ Water Pollution Act licences requiring review ○ Forestry guidelines and regulations 	

Table 4.3 Summary data on groundwater body Moy SG; including current status, risk data and current measures to achieve objectives

WaterBody Name: Moy SG		WaterBody Code: IE_WE_G_0064
Chemical and quantitative status	Overall risk result	Overall objectives
Good	2a – Probably Not At risk	Protect
All measures to achieve objectives; 24 applicable		
Legislative measures to achieve objectives (Directives and associated transposed legislation; Regulations) <ul style="list-style-type: none"> ○ Habitats Directive ○ Drinking Waters Directive ○ Major Accidents & Emergencies Directive ○ Environmental Impact Assessment Directive ○ Sewage Sludge Directive ○ Urban Waste Water Directive ○ Plant Protection Products Directive ○ Nitrates Directive ○ Integrated Pollution Prevention Control Directive 	Other measures – stipulated and as appropriate <ul style="list-style-type: none"> ○ Cost recovery for water use ○ Promotion of efficient and sustainable water use ○ Protection of drinking water sources ○ Control of abstraction and impoundment ○ Control of point source discharges ○ Control of diffuse source discharges ○ Authorisation of discharges to groundwaters ○ Control of priority substances ○ Controls on physical modifications to surface waters ○ Controls on other activities impacting on 	

- water status
- Prevention or reduction of the impact of accidental pollution incidents
- On-site waste water systems
- Shellfish Pollution Reduction Plan (PRP)
- Water Pollution Act licences requiring review
- Forestry guidelines and regulations

Table 4.4 Summary data on groundwater body Swinford; including current status, risk data and current measures to achieve objectives

WaterBody Name: Swinford		WaterBody Code: IE_WE_G_0033
Chemical and quantitative status	Overall Risk Result	Objectives
Poor	1a – At risk	Restore by 2021

All measures to achieve objectives; 25 applicable

<p>Legislative measures to achieve objectives (Directives and associated transposed legislation; Regulations)</p> <ul style="list-style-type: none"> ○ Habitats Directive ○ Drinking Waters Directive ○ Major Accidents & Emergencies Directive ○ Environmental Impact Assessment Directive ○ Sewage Sludge Directive ○ Urban Waste Water Directive ○ Plant Protection Products Directive ○ Nitrates Directive ○ Integrated Pollution Prevention Control Directive 	<p>Other measures – stipulated and as appropriate</p> <ul style="list-style-type: none"> ○ Cost recovery for water use ○ Promotion of efficient and sustainable water use ○ Protection of drinking water sources ○ Control of abstraction and impoundment ○ Control of point source discharges ○ Control of diffuse source discharges ○ Authorisation of discharges to groundwaters ○ Control of priority substances ○ Controls on physical modifications to surface waters ○ Controls on other activities impacting on water status ○ Prevention or reduction of the impact of accidental pollution incidents ○ On-site waste water systems ○ Shellfish Pollution Reduction Plan (PRP) ○ IPPC licences requiring review ○ Water Pollution Act licences requiring review ○ Forestry guidelines and regulations
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The above summarises the measures which are currently ongoing and being undertaken to protect / restore water bodies, as the case may be, and any proposed plan / project should not impinge on any one of the measures. Alternatively, the policies and objectives of the draft plan for IWAK should encompass the above measures or parts thereof with the sole objective of either restoring or protecting the relevant groundwater body. It should also be noted that some measures, while applicable to the groundwater body, may not necessarily apply to the portion of the water body on which the draft IWAK plan area overlies. One

example is the reference to the IPPC licence review within the Curlew Mountains groundwater body and the Shellfish PRP within the Moy SG – these elements are not within the limits of the current study area.

4.4 Surface hydrology

The draft IWAK plan area drains primarily into a tributary of the Sonnagh River, itself a tributary of the River Moy. While the Sonnagh itself is not currently listed as a salmonid water system under the First Schedule of the EU (Quality of Salmonid Waters) Regulations (S.I. No. 293/1998), it is part of the River Moy cSAC. As a consequence its quality is of particular importance.

Under the requirements of the Water Framework Directive² (WFD) the surface water within the plan area and its environs have been designated under the Western River Basin District surveillance monitoring programme. Briefly, all surface water bodies³ were monitored for their ecological status including biological, hydromorphological, chemical and physico-chemical and general elements to designate a status of high, good, moderate, poor and bad, where water bodies of high and good status must be protected and water bodies of less than good must be restored by 2015 (or 2021 / 2027, as the case may be).

The following highlights the surface water quality within the plan area and its 15 km radial buffer zone. Immediately within the plan area, water bodies are designated as poor and good. Adjacent to the plan area, there are water bodies of moderate and high status, with no bad water bodies in proximity. This indicates the pressure already in place on surface waters and sources apportioned for the ‘less-than-good’ status water bodies include agricultural diffuse and point discharges, discharges from Water Pollution Act licences, urban wastewater and rural septic tanks discharges, forestry discharges and other possible sources. (The portion of the buffer zone not colour-designated lies within the Shannon RBD and has been designated as shown with indicators and arrows).

² Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy

³ a discrete and significant element of surface water such as a lake, a reservoir, a stream, river or canal, part of a stream, river or canal, a transitional water or a stretch of coastal water

Water status is assigned by a number of quality elements (biological quality elements and their supporting chemical and physico-chemical elements and hydromorphological elements) including macroinvertebrates, macrophytes and phytobenthos, fish, general chemical and physico-chemical conditions, specific pollutants and hydromorphology. Essentially, classification is based on a ‘one-out-all-out’ system where the lowest classification for each of the elements monitored is utilised for the water body status assignment.

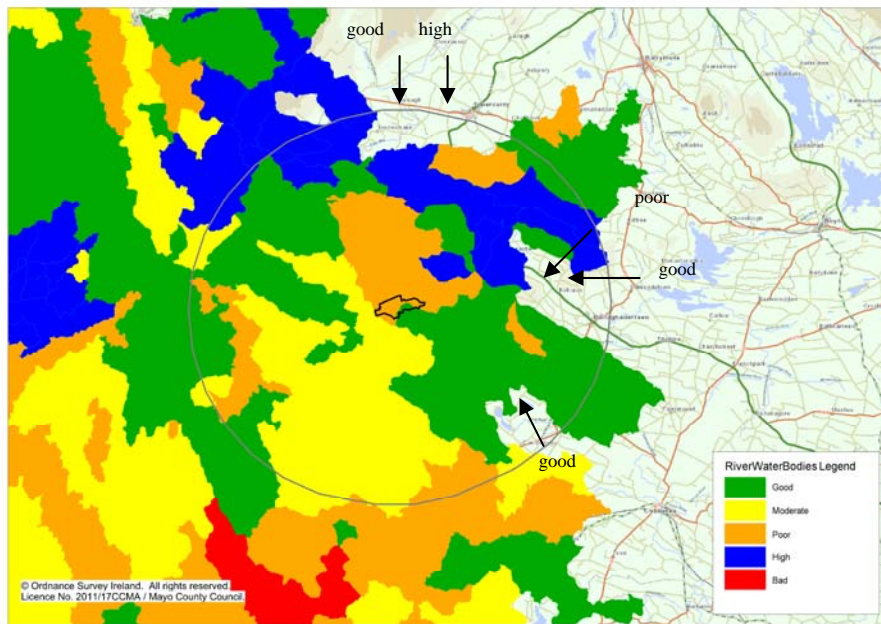


Figure 4.2 Water body statuses with draft IWAK LAP area and within 15 km buffer zone

The status of lentic waters within the plan area and buffer zone is summarised in the following map.

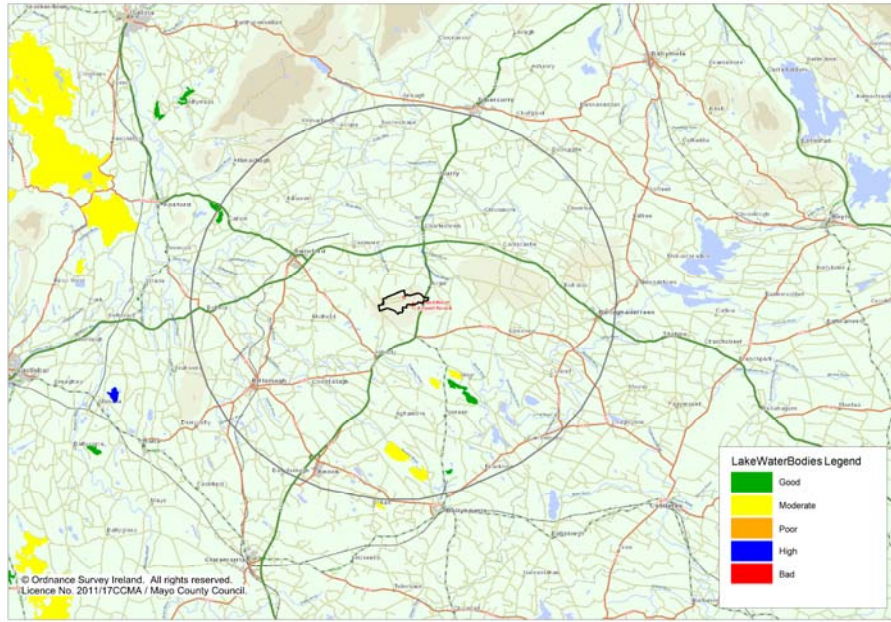


Figure 4.2 Lentic water statuses with draft IWAK LAP area and within 15 km buffer zone

In addition, the Moy Water Management Unit Action Plan summarises invaluable data including point and diffuse sources of pollution affecting the Moy Water Management Unit⁴ (WMU) of 112 river and 10 lake water bodies. Other conclusions on the status of the Moy WMU is that 11 water bodies are at poor status (including the Sonnagh River) while 54 are currently at good status and 24 at high. The WRBD-generated data is extremely useful in managing the protection and restoration of the WMU; identifying key impacts, stresses and pressures which demand urgent attention.

4.5 Habitats

Within the plan area, a variety of habitats exist which will be directly impacted; removed or fragmented by the development. These include Cutover Bog (PB4), Wet Heath (HH3), Improved Agricultural Grassland (GA1), Acid Grassland (GS3) and Wet Grassland (GS4). No priority habitats are in the immediate vicinity, and representatives of all of the above have been identified elsewhere within the extended area, ensuring their possible

⁴ A geographical sub unit of a river basin district consisting of a number of water bodies relevant to a particular sub catchment

fragmentation and / or removal will not result in the inability of certain communities of flora and fauna to regenerate or maintain themselves on a long-term basis as a viable component of their natural habitats or the natural range of the species is neither being reduced nor is it likely to be reduced for the foreseeable future. In addition, there should be a sufficiently large habitat to maintain its populations on a long-term basis.

4.6 Designated sites of conservation importance

The River Moy cSAC constitutes an area of 805 km², a small portion of which is located within the draft IWAK Plan 15 km zone of impact. Consisting of the River Moy and its 16 tributaries, the cSAC also comprises Loughs Conn and Cullin. Two priority habitats are found within the cSAC; alluvial wet woodlands and raised bog in addition to a number of other Annex I habitats including old oak woodlands, alkaline fens, degraded raised bog and Rhynchosporion. Five Annex II species are noted including otter (*Lutra lutra*), white-clawed freshwater crayfish (*Austropotamobius pallipes*), sea and brook lamprey (*Petromyzon marinus* and *Lampetra planeri*) and Atlantic salmon (*Salmo salar*). Other notable species include plants such as bog asphodel (*Narthecium ossifragum*), carnation sedge (*Carex panicea*) and the moss

Campylopus atrovirens, bog mosses (*Sphagnum* spp.) and white beaked-sedge (*Rhynchospora alba*) are present. The draft IWAK LAP area is not within the Moy cSAC, but since portions of the Moy and its tributary, the Sonnagh River traverse the north, northwest, west and southwest of the zone of impact applied to the Plan area, impacts on the Natura 2000 site are probable. Further detail on the Moy cSAC is in Appendix III.

The qualifying habitats and species for which the cSAC has been designated are in the following tables.

Table 4.5 River Moy cSAC qualifying Annex I habitats

Habitat code	Habitat name	% cover	Representativity†	Conservation status#
7110	*Active raised bogs	1	B	C
7120	Degraded raised bogs still capable of natural regeneration	3	B	C
7150	Depressions on peat substrates of the	1	B	C

7230	<i>Rhynchosporion</i> Alkaline fens	1	A	B
91A0	Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles	1	A	B
91E0	*Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i>	1	B	B

† where A is excellent representativity and B is good representativity

where B is good conservation and C is average or reduced conservation

Table 4.6 River Moy cSAC qualifying Annex II species

Species code	Species name	Population significance†	Conservation significance#
1092	<i>Austropotamobius pallipes</i>	C	A
1095	<i>Petromyzon marinus</i>	C	A
1096	<i>Lampetra planeri</i>	C	C
1106	<i>Salmo salar</i>	C	A
1355	<i>Lutra lutra</i>	C	A

† where C is 2-0% (size and density of the population of the species present on the site in relation to the populations present within national territory; A is 100-15% and B is 15-2%)

where A is excellent conservation and C is average or reduced conservation

5 Impact Prediction

5.1 Introduction

This section identifies impacts; indirect, secondary and cumulative on the integrity of the Natura 2000 site previously identified. As an assessment of impacts at a strategic level, it must be emphasised that specific details are not included on planned projects; direct or indirect impacts from other plans or projects will be subject to detailed assessments at project / plan level. In Stage 1 Screening five Natura 2000 sites were examined and the potential impacts of this plan on their specific conservation objectives were identified. Due to the lack of a hydrological link between the catchment in which the draft plan is located and four of the cSACs it was concluded that the River Moy cSAC only would be potentially impacted by the plan. In addition, further evaluation of this site pertaining to its location to the plan, in addition to the plan's transport requirements, excavation requirements, infrastructural needs, it was concluded that any impacts to the Moy cSAC would be cumulative and indirect in nature, and likely in combination with other plans and projects.

5.2 Potential pressures and threats to River Moy cSAC

The following tables detail the potential threats and pressures to the qualifying habitats and species of the Moy cSAC *both generally and as a result of the draft plan.*

Table 5.1 Potential pressures and threats on qualifying habitats and species

Habitat / species code	Habitat / species name	Principle threats and pressures
7110	*Active raised bogs	Accidental and deliberate burning, overgrazing by sheep, afforestation, peat extraction (mechanical), drainage/land reclamation, increased access to the bog by all terrain vehicles, tourism/trackway erosion, trampling, tourism, wind farm development, peat extraction (manual), abuse of grazing rights, climate change, spread of invasive species, air pollution, large scale construction (industrial development)
7120	Degraded raised bogs still capable of natural regeneration	Accidental and deliberate burning, overgrazing by sheep, afforestation, peat extraction (mechanical), drainage/land reclamation, increased access to the bog by all terrain vehicles, tourism/trackway erosion, trampling, tourism, wind farm development, peat extraction (manual), abuse of grazing rights, climate change,

		spread of invasive species, air pollution, large scale construction (industrial development)
7150	Depressions on peat substrates of the <i>Rhynchosporion</i>	Accidental and deliberate burning, overgrazing by sheep, afforestation, peat extraction (mechanical), drainage/land reclamation, increased access to the bog by all terrain vehicles, tourism/trackway erosion, trampling, tourism, wind farm development, peat extraction (manual), abuse of grazing rights, climate change, spread of invasive species, air pollution, large scale construction (industrial development)
7230	Alkaline fens	Accidental and deliberate burning, overgrazing by sheep, afforestation, peat extraction (mechanical), drainage/land reclamation, increased access to the bog by all terrain vehicles, tourism/trackway erosion, trampling, tourism, wind farm development, peat extraction (manual), abuse of grazing rights, climate change, spread of invasive species, air pollution, large scale construction (industrial development)
91A0	Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles	Accidental and deliberate burning, drainage/land reclamation, increased access to the woods by all terrain vehicles, tourism/trackway erosion, trampling, wind farm development, climate change, spread of invasive species (e.g. <i>Rhododendron ponticum</i>), air pollution, disease, large scale construction (industrial development), indiscriminate removal of flora,
91E0	*Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i>	Accidental and deliberate burning, drainage/land reclamation, increased access to the woods by all terrain vehicles, tourism/trackway erosion, trampling, wind farm development, climate change, spread of invasive species (e.g. <i>Rhododendron ponticum</i>), air pollution, disease, large scale construction (industrial development), indiscriminate removal of flora,
1092	<i>Austropotamobius pallipes</i>	Water pollution, increased municipal, commercial and industrial discharges, poor agricultural practises, habitat disturbance / destruction, increased siltation / silt-laden runoff, predation, disease, invasive species competition, channel modifications – culverts/weirs etc., introduction of pesticides / priority substances (and PHS), toxic agents
1095	<i>Petromyzon marinus</i>	Physical stream barriers (anadromous fish), increased municipal, commercial and industrial discharges, agricultural practises, habitat disturbance / destruction, increased siltation / silt-laden runoff, predation,

		disease, invasive species competition, channel modifications – culverts/weirs etc., introduction of pesticides / priority substances (and PHS), toxic agents
1096	<i>Lampetra planeri</i>	Physical stream barriers (anadromous fish), increased municipal, commercial and industrial discharges, agricultural practises, habitat disturbance / destruction, increased siltation / silt-laden runoff, predation, disease, invasive species competition, channel modifications – culverts/weirs etc., introduction of pesticides / priority substances (and PHS), toxic agents
1106	<i>Salmo salar</i>	Physical stream barriers (anadromous fish), increased municipal, commercial and industrial discharges, agricultural practises, habitat disturbance / destruction, increased siltation / silt-laden runoff, predation, disease, invasive species competition, channel modifications – culverts/weirs etc., introduction of pesticides / priority substances (and PHS), toxic agents
1355	<i>Lutra lutra</i>	Prey loss / depletion, introduction of pesticides / priority substances (and PHS), toxic agents, increased municipal, commercial and industrial discharges, agricultural practises, habitat disturbance / destruction, increased siltation / silt-laden runoff, predation, disease, invasive species competition, channel modifications – culverts/weirs etc.

5.3 Potential ‘in combination’ impacts - projects

As stated in Article 6(3) of the Habitats Directive (92/43/EEC); ‘*Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives.*’

‘In combination’ impacts reflect the potential impacts arising from policies and objectives of additional plans or projects. While not attributed to the causation of direct impacts, ‘in combination’ impacts may produce cumulative effects. These are notable as they refer to a

series of potentially innocuous impacts which in combination with other modest impacts may produce significant impacts. Examples for this purpose include all new plans or projects or amendments to plans or projects within or adjacent to the Natura 2000 sites identified in this assessment which are likely to cause potential conflicts relating to water quality, water volume and flooding, soil instabilities and / or other unidentified potential impacts.

Within the plan area of approximately 3.5 km², there are currently a number of projects which are likely to cause potential impacts on Natura 2000 sites located *outside* of the plan area. These include, *inter alia*, the Ireland West Airport Knock Wastewater Treatment Plant which has a design population equivalent (PE) of 700 and provides to secondary treatment of domestic sewage by the use of a Sequencing Batch Reactor (SBR). Currently discharging to the Sonnagh River, the BOD loading is almost 30 times less than the waste assimilative capacity (WAC) of the river (at normal daily flow from Plant). Likewise, regarding ammonia and suspended solids, the final effluent has been demonstrated to be sufficiently treated so as not to exceed the waste assimilative capacity of the receiving water; the Sonnagh River. The phosphorus loading (as orthophosphate), however, with phosphorus (P) as the principal element associated with eutrophication and a vital consideration in terms of the protection of good and high water body status and restoration of less-than-good water bodies, demonstrated an exceedance of the WAC at maximum effluent flow while at normal daily flow, was marginally within the WAC but with little scope for minor increases in P concentration (details in Appendix I). Under the Waste Water Discharge (Authorisation) Regulations, 2007 (as amended) and Article 6(3) and 6 (4) of the Habitats Directive, this Wastewater Treatment Plant is currently subject to Appropriate Assessment Screening to determine whether it is subject to an AA. This issue of elevated orthophosphate will, no doubt, be a consideration as exhibiting an indirect impact on the River Moy cSAC and a mitigating measure of including tertiary treatment i.e. P-removal by chemical precipitation or alternative should be a future recommendation. Since a Plant extension is envisioned to cater for an increasing population, this proposed change will necessitate its specific Appropriate Assessment Screening.

Water abstraction for the provision of drinking water for IWAK is currently from a well located in the townland of Kilgarriff known locally as ‘Harringtons Well’. A new booster station with 40m³ storage and chlorination facilities was constructed in 2007. Results of a well test carried in 2004 estimated a safe yield of between 350 – 400 m³/day which is capable of providing for the short-term needs of the airport and any proposed business park. However, the long term proposal for water supply at IWAK will either involve the extension of the Lough Mask Regional Water Supply Scheme from Knock Village or the provision of drinking water from the proposed North East Mayo Regional Scheme with its source at Lough Conn. Ultimately, water abstraction activities exert pressures on a groundwater supply which may lead to impacts on Annex I habitats which may be groundwater-dependant, in addition to aquatic or water-dependant Annex II species. In addition, extension of the existing water supply scheme or extending an alternative scheme to supply IWAK will incorporate activities involving construction, operational and decommissioning phases may pose a contamination threat to groundwaters which are currently classified as good. As with new wastewater treatment projects, water supply projects and any amendments to such projects will undergo screening for appropriate assessment.

Additionally, *outside* of the draft plan area, but within the 15 km buffer zone, there are a number of projects / considerations which could potentially impact on the integrity of adjacent Natura 2000 sites, particularly on a cumulative scale and in combination with the draft plan. Details of these are included in summary format in Table 5.1, and amendments to any projects will necessitate appropriate assessment under Article 6(3) and 6 (4) of the Habitats Directive.

Table 5.2 ‘In combination’ projects adjacent to plan area

‘In combination’ projects within 15km radial buffer zone	Wastewater Treatment Plants	Discharge licences	Authorised waste facilities	Historic landfills (pending RA)	Group Water Schemes	Public Water Schemes
Number	5	3	2	2	50	5

Other ‘in combination’ impacts may arise from projects emitting point and diffuse sources within and adjacent to the draft plan area including closed landfills and quarries, discharges from public and private forestry plantations, agricultural sources of pollution and rural septic tanks.

5.4 Potential ‘in combination’ impacts - plans

All plans have the capacity to produce impacts, and generally do. While plans are drafted with specific aims and policies to achieve a specific objective, for example, the development of economic and transport infrastructure within a region, there may be impacts which will prove negative to another aspect of a region; specifically on Annex I habitats or Annex II species. On saying this, plans may have the capacity to introduce very positive objectives in the area of environmental protection. These include the WFD River Basin Management Plans and their associated sub-basin plans and Pollution Reduction Plans (PRP).

Generally, Regional Planning Guidelines provide a long-term strategic planning framework for the development of a region, County Development Plans set out a 6-year framework and associated objectives for the sustainable development of a county and Local Area Plans are based on detailed development plan objectives for specific areas. There is a hierarchical system involved in planning; with National Plans at the uppermost tier and Regional, County and Local Area Plans becoming increasingly detailed and specific and usually pertaining to smaller geographical areas. Local Area Plans must be consistent with the land use policies and objectives identified within the County Development Plan.

Regarding this current draft plan, there are a number of plans with the capacity to produce ‘in combination’ impacts which should be considered and are listed in the following table.

Table 5.3 Plans that have potential to cause ‘in combination’ impacts

Strategic Planning
National Development Plan, Ireland 2007 to 2013
Sustainable Development – A Strategy for Ireland
National Spatial Strategy 2002 to 2020

National Planning Guidelines

Regional Planning Guidelines for the West Region (2010 to 2022)

County Development Plan 2008 to 2014

Mayo Renewable Energy Strategy

Water Quality

Western River Basin District Management Plan

Shannon River Basin Management Plan

Sub-basin Management Plans

Pollution Reduction Programmes

National Action Plan for Sustainable Use of Pesticides

Moy Water Management Unit Action Plans

Invasive Species

EU Strategy on Invasive Alien Species (due 2012)

Climate Change

National Climate Change Strategy 2007 - 2012

Importantly, the County Development Plan 2008 to 2014 includes a number of strategies pertaining to ideals such as housing, retail development, infrastructure, renewable energy and urban and rural settlement. Those which are regarded as the most relevant to this draft plan are documented in Appendix II.

5.5 Impact prediction on conservation status of Natura 2000 sites

The conservation objectives of a designated or classified Natura 2000 site have the principal aim of restoring or maintaining the favourable conservation status of a habitat or species at a site. The favourable conservation status of a habitat is achieved when:

- Its natural range, and area it covers within that range, are stable or increasing, and
- The specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and
- The conservation status of its typical species is favourable.

The favourable conservation status of a species is achieved when:

- Population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and
- The natural range of the species is neither being reduced nor is it likely to be reduced for the foreseeable future, and
- There is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

Site-specific conservation objectives for each habitat and species for which a site has been afforded protection as a designated site, are developed from detailed data on habitat and species defined by a list of attributes and targets. A brief example might include the extent of spawning habitat for brook lamprey (*Lampetra planeri*) as an attribute, m² and occurrence as a measure and a target to prevent the decline of the extent and distribution of spawning beds.

Since site-specific conservation objectives have not been developed for the River Moy cSAC, the generic conservation objectives must be referred to when considering the impact prediction on this site, by the draft IWAK LAP alone, or in combination with other plans or projects.

5.6 Impacts arising from the draft IWAK LAP

The following provides the framework for the draft IWAK LAP by identifying the plans key policies and objectives and their consequent impacts on the River Moy cSAC, in terms of the conservation objectives of the site and the maintenance or restoration of the favourable status of the site's habitats and/ or species. Specifically the habitats and species which will be considered include:

- [1092] *Austropotamobius pallipes*
- [1095] *Petromyzon marinus*
- [1096] *Lampetra planeri*
- [1106] *Salmo salar*
- [1355] *Lutra lutra*

- [7110] Active raised bogs (priority habitat)
- [7120] Degraded raised bogs still capable of natural regeneration
- [7150] Depressions on peat substrates of the *Rhynchosporion*
- [7230] Alkaline fens
- [91AO] Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles
- [91EO] Alluvial forests with *Agnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion*, *Alnion incanae*, *Salicion albae*) (priority habitat)

In addition to the above, other faunal and floral species afforded protection under additional legislation include, *inter alia*, mammals such as *Lutra lutra*, *Meles meles*, *Lepus timidus hibernicus* and *Martes martes*, all protected under the Wildlife Act, 1976 and the extensive list of plant species protected under the 1999 Flora Protection Order.

Greater detail relating to the River Moy cSAC is included in Appendix III.

Table 5.4 Impact prediction on River Moy cSAC arising from specific policies and objectives of the draft IWAK LAP (significant negative impact policy / objective underlined and highlighted)

Reference	Policy / objective	Potential impacts identified
<i>Strategic development</i>		
Policy SDP1	It is the policy of the Council to promote and support the development of Ireland West Airport Knock (IWAK) as a strategically important international gateway to the Region through the continued growth of the Airport as a major transportation hub	An overall positive impact for the area with no negative impacts on River Moy cSAC qualifying interests of Annex I habitats or Annex II species envisaged
Policy SDP2	It is the policy of the Council to support and promote the development potential of the IWAK LAP areas as a strategic economic/enterprise hub for the Region.	An overall positive impact for the area with no negative impacts on River Moy cSAC qualifying interests of Annex I habitats or Annex II species envisaged
Objective SDO1	It is an objective of the Council to facilitate the strategic importance and sustainable development of the LAP area as a transportation and economic/enterprise hub for the Region through the implementation of the policies; objectives and design standards/guidance of the IWAK Local Area Plan.	An overall positive impact for the area with no negative impacts on River Moy cSAC qualifying interests of Annex I habitats or Annex II species envisaged
<u>Objective SDO2</u>	It is an objective of the Council to ensure that there is sufficient appropriate land uses zoned to facilitate the sustainable development of the IWAK LAP area as a strategic transportation and economic/enterprise hub for the Region.	An overall positive impact for the area, however, the zoning of lands as a strategic transportation and economic/enterprise hub for the Region will potentially indirectly impact on the conservation objectives of the River Moy cSAC qualifying interests (Annex I habitats and Annex II species) as individual projects and plans are proposed

Objective SD03	It is an objective of the Council to promote the orderly development of all lands zoned within the IWAK LAP area by encouraging, where necessary, land assembly and shared access arrangements	An overall positive impact for the area, not likely to increase or supplement negative impacts on the River Moy cSAC Annex I habitats and Annex II species
Objective SDO4	It is an objective of the Council to ensure that the development all lands zoned as ‘Airport Development’ in Section 4 of this LAP are managed in a sustainable way through the framework of master planning and phasing of development (outlined in Section 4 of this LAP)	An overall positive impact for the area with an inferred focus on the maintenance of the favourable conservation status of the River Moy cSAC habitats and species
Objective SDO5	It is an objective of the Council to ensure that all development proposals consider that aspects of access, permeability and open space respond to the key landforms features and rural character of the IWAK LAP area.	An overall positive impact for the area with an inferred focus on the maintenance of the favourable conservation status of the River Moy cSAC habitats and species
Objective SDO6	It is an objective of the council to promote the development of the IWAK LAP area in terms of the ‘Green Economy’ through the provision of polices; objectives and design standards relating to sustainability outlined throughout this LAP	An overall positive impact for the area, not likely to impact negatively on the River Moy cSAC conservation objectives for its qualifying interests
<u>Objective SDO7</u>	It is an objective of the Council to request the Minister for Environment, Community and Local Government to designate the area of the IWAK Local Area Plan as a Strategic Development Zone following the adoption of this LAP	An overall positive impact for the area though the conservation objectives of the River Moy cSAC qualifying interests (Annex I habitats and Annex II species) may be indirectly impacted by the projects developed within the Strategic Development Zone
Objective SDO8	It is the objective of the Council to ensure that all development proposals comply with the Design Standards and Guidance outlined in Section 6 of this LAP	An overall positive impact for the area, not likely to impact negatively on the River Moy cSAC conservation objectives for its qualifying interests

Land use

Policy LP1	It is the policy of the Council to rationalise the use of lands within the IWAK LAP area through appropriate land use zoning objectives as outlined in Section 4 of this LAP	An overall positive impact for the area, which is not envisaged to impact on the conservation objectives of the River Moy cSAC habitats and / or species
Objective LO1	It is an objective of the Council to ensure that all development proposals comply with the land use zoning objectives outlined in Section 4 of this LAP; other uses may only be considered when it is demonstrated that they do not conflict with the primary land use zoning objective	An overall positive impact for the area with an indirect focus on the maintenance of the favourable conservation status of the River Moy cSAC habitats and species.
<u>Objective LO2</u>	It is an objective of the Council to ensure that all proposed development is absorbed into the surrounding landscape so that it does not impinge in any significant way upon the character, integrity or uniformity of the landscape.	An overall positive impact for the character, integrity or uniformity of the landscape within the area but proposed development, during construction and operation may indirectly impact on the conservation objectives of the River Moy cSAC qualifying interests (Annex I habitats and Annex II species)

Sustainability options

Policy SP1	It is the policy of the Council to promote and encourage use of sustainable options for all development proposals to further develop the ‘Green Economy’ concept within the IWAK LAP area.	An overall positive impact for the area with a specific focus on sustainable development, environmental protection and the inferred maintenance of the favourable conservation status of the River Moy cSAC habitats and species
Objective SO1	It is an objective of the Council to encourage the use of energy efficiency in all new development proposals to achieve a Carbon Neutral Status for the IWAK LAP area	An overall positive impact for the area
Objective SO2	It is an objective of the Council to support raising public awareness of the value of the water	An overall positive impact for the area with a specific focus on sustainable development, environmental protection and the

	resources by encouraging conservation, reuse and protection of water, in addition to the elimination of wastage of water through waste-water detection and enforcement of repairs and to replace deficient sections of pipe work where necessary	inferred emphasis on the principal objectives of the Western River Basin District Management Plan
Objective SO3	It is an objective of the Council to promote the reduction of energy consumption through appropriate use of materials and new technology in developments within the IWAK LAP area and to increase public awareness of best energy efficiency practices	A positive impact, not likely to impact on the conservation objectives of the River Moy cSAC habitats and / or species
Objective SO4	It is an objective of the Council to require that all new developments make adequate provisions for the reduction, reuse and recycling of waste, in both construction and post-construction stages and to implement the recommendations outlined in the Replacement Waste Management Plan for the Connacht Region 2006-2011 and any subsequent Waste Management Plan.	A positive impact for the area, with the inferred objective of complying with the objectives and policies of the <i>Peat Management and Disposal Plan for IWAK LAP</i>

Transport

<u>Policy TP1</u>	It is the policy of the Council to encourage and support the use of more sustainable modes of transport to, from and within the IWAK LAP area including public transport; walking and cycling and to ensure that new developments accord with this aim	Indirect impact: changes to water quality A positive impact for the entire area, but new developments initiated to achieve this aim may have potential to cause contamination of water bodies, prevent the restoration of the Sonnagh water body status to good by 2021
<u>Policy TP2</u>	It is the policy of the Council to support the improvement of accessibility and vehicular movements to, from and within the IWAK LAP area	Indirect impact: changes to water quality A positive impact for the entire area, but new developments initiated to achieve this aim may have potential to cause contamination of water bodies, prevent the restoration of the

Policy TP3

It is the policy of the Council to secure the implementation of the N17 Charlestown Bypass.

Objective TO1

It is the objective of the Council to protect lands adjoining the route for the proposed N17 Charlestown Bypass, within IWAK, from unsuitable and inappropriate development that could jeopardise the project.

Objective TO2

It is an objective of the council to comply with the requirements of the National Roads Authority in relation to National Roads in the Plan area.

Objective TO3

It is an objective of the Council to review, as the need arises, the circulation of traffic within the Plan area and to support the provision of any alterations in order to provide for the safe and efficient movement of vehicular and/or pedestrian traffic and to implement appropriate traffic management measures as required.

Objective TO4

It is an objective of the Council to assess, as the need arises, the adequacy of the road network, in terms of capacity, width, alignment or surface condition within the IWAK LAP area to cater for increased traffic usage due to the implementation of this LAP and to highlight that any deficiencies identified are adequately addressed within a reasonable timeframe by the relevant authority.

Objective TO5

It is the objective of the Council encourages the used of shared access points onto the public road network

Objective TO6

It is an objective of the Council to co-operate with

Sonnagh water body status to good by 2021

A road development of this scale will have the potential to impact directly and indirectly on Annex I habitats and Annex II species, by its scale and excavation requirements and direct disturbance and reduction of habitat area.

A road development of this scale will have the potential to impact directly and indirectly on Annex I habitats and Annex II species, by its scale and excavation requirements and direct disturbance and reduction of habitat area.

A very worthy objective; the document entitled *Guidelines for the Assessment of Ecological Impacts of National Road Schemes* was published in 2004 with this objective at its core

A positive impact for the entire area

Indirect impact: changes to water quality

New developments initiated to achieve this objective may have potential to cause contamination of water bodies and prevent the restoration of the Sonnagh water body status to good by 2021, in addition to indirectly impacting on the qualifying interests of the River Moy cSAC

An overall positive impact for the area

An overall positive impact for the area

A positive impact for the entire area

relevant interests to encourage the provision of a high standard of public transport services to the IWAK LAP area.

Indirect impact: changes to water quality
New developments initiated to achieve this aim may have potential to cause contamination of water bodies and prevent the restoration of the Sonnagh water body status to good by 2021, in addition to the indirect impacts to the River Moy cSAC qualifying interests

Objective TO7

It is an objective of the Council to support the reinstatement of the Western Rail Corridor and to support the provision of a rail link from the Western Rail Corridor to the IWAK LAP area

Indirect impact: changes to water quality
Direct impacts on Annex I habitats and disturbance of Annex II species
Though the disused railway line infrastructure is partially in place, the laying of new railway tracks and associated infrastructural improvements will impact on surface waters with increased siltation and introduction of peat-bound nutrients. Also, a development of this scale will have the potential to impact directly and indirectly on Annex I habitats and Annex II species, by its scale and excavation requirements and direct disturbance and reduction of habitat area.

Objective TO8

It is an objective of the Council to support the provision of car parking facilities, as the need arises, for the IWAK LAP area.

Indirect impact: changes to water quality and quantity
Though SuDS would be a beneficial inclusion in the car park development, fugitive discharges may result and impact on the Sonnagh and consequently the River Moy cSAC.

Objective TO9

It is an objective of the Council to identify, support and secure a footpath and cycle path network for the IWAK LAP area

Indirect impact: changes to water quality and quantity
An overall positive impact for the area, but transport infrastructural projects may again impact on surface waters, including, indirectly, on the Annex I habitats and Annex II species of the River Moy cSAC and their conservation objectives

Infrastructure Provision

Policy IP1

It is the policy of the Council to facilitate the provision of all infrastructure, including water,

Indirect impact: water pollution
The provision of infrastructural development will necessitate

waste, energy and communications, necessary to support the existing and future sustainable development of the IWAK LAP area in accordance with all national and EU legislation

excavation and disturbance of land within and adjacent to the plan area, in addition to potential emissions and discharges to surface waters and the environment in general. Within the Moy catchment, a taxon which is susceptible to increased siltation and present in both the upper and lower reaches of the Sonnagh River is the Annex II species *Austropotamobius pallipes*. *A. pallipes* must have high habitat heterogeneity to thrive and ensure its favourable conservation status is maintained. An increase in nutrients /enrichment of water quality (water quality must be Q3-4 [moderate status] or better) and possible lowering of water pH from peat runoff is also very undesirable for the conservation status of this species. The months of end-May to July are particularly important for avoidance of works as females carrying young crayfish are most susceptible during this period.

Indirect impact: soil instability

Indirect impact: water pollution

A positive impact which will have an overall positive impact for the area, but contamination of surface waters is a possibility during construction phases or extensions to existing Water Treatment Plants, if deemed necessary. In addition, conditions set in licence or certificate issued by the EPA and based on local, district, regional, national and European legislation should be strictly adhered to

A positive impact since the protection of surface waters, as potential drinking water is governed by the WFD, transposed Irish legislation and WRBD Management Plans and sub-plans. Protection of water supply at source will have benefits for the Moy cSAC surface waters. In addition, a high quality water supply network coincides with one aim of the WFD

A positive impact since the protection of surface waters, as potential potable will have benefits for the Moy cSAC surface

Objective IO1

It is an objective of the Council to co-operate / co-ordinate, as appropriate, with the relevant Water Services Authority to ensure that an adequate supply of water is available to meet the current and future needs of the IWAK LAP area

Objective IO2

It is an objective of the Council to co-operate / coordinate, as appropriate, with the relevant Water Services Authority to ensure high water quality standards are maintained by implementing the relevant European Community Water Quality Directives

Objective IO3

It is an objective of the Council to co-operate/co-ordinate, as appropriate, with the relevant Water

<p>Objective IO4</p>	<p>Services Authority to ensure that all drinking water in the area complies in full with the European Communities (Drinking Water) (No. 2) Regulations, or any subsequent regulations. It is an objective of the Council to co-operate/co-ordinate, as appropriate, with the relevant Water Services Authority in providing sufficient medium to long term supplies of potable water and waste water treatment facilities for IWAK LAP area</p>	<p>waters. In addition, a high quality water supply network coincides with one primary aim of the WFD</p>
<p>Objective IO5</p>	<p>It is an objective of the Council to monitor the situation regarding adequacy of piped water supply, as well as wastewater collection and treatment of the IWAK LAP area. Where the Council considers there are existing deficiencies in the provision of water supplies or sewerage facilities to meet the needs of a proposed development, such a development may be considered premature</p>	<p>Indirect impact: water pollution A positive impact which will have an overall positive impact for the area, but contamination of surface waters is a possibility during construction phases of Water and Wastewater Treatment Plants, if deemed necessary. In addition, conditions set in licence or certificate issued by the EPA and based on local, district, regional, national and European legislation should be strictly adhered to A positive impact should existing water and wastewater infrastructure be considered adequate</p>
<p>Objective IO6</p>	<p>It is an objective of the Council to manage surface water systems in a sustainable manner by encouraging the re-use of surface water where possible and to require that all new development proposals provide surface water drainage systems designed in accordance with Sustainable Urban Drainage Systems (SuDS)</p>	<p>An overall positive impact for the area</p>
<p>Objective IO7</p>	<p>It is an objective of the Council to ensure that surface water is adequately and safely disposed of in a manner compatible with achieving and maintaining ‘salmonid water’ quality in the receiving waters. (S.I. No. 293/1988: European Communities</p>	<p>A positive impact since the disposal of surface waters adequately and in a safe manner compatible with achieving and maintaining salmonid waters is an implied objective cited in the WRBD Management Plan and its associated plans and measures. In addition the River Moy and many of its tributaries have been</p>

<u>Objective IO8</u>	<p>(Quality of Salmonid Waters) Regulations It is an objective of the Council to support any expansion and upgrading of the Electricity Network to meet the needs of the IWAK LAP area.</p>	<p>listed in the First Schedule of S.I. No. 293/1988 Indirect impact: changes to water quality and quantity The expansion and upgrade of the Electricity Network to the plan area will likely involve the dismantling of the current line to facilitate upgrade of the network. Development / excavation works for this purpose could directly impact on the water quality of the upper reaches of the Sonnagh and, cumulatively with other deterioration in water quality, the lower Sonnagh discharging to the River Moy may deteriorate by increasing siltation, nutrient-bound peat and lowering of water pH. While the aforementioned <i>A. pallipes</i> is susceptible to habitat degradation resulting from increased silt, otter (<i>Lutra lutra</i>) inhabiting the Sonnagh at a stretch just north and south of the disused railway, may be affected by changes in fish and crustacean populations as a result of water quality alterations. Otter paw prints, noted on right bank on morning of 8th January are indicative that otter are present along this river stretch; the water is now described as of poor status</p>
<u>Objective IO9</u>	<p>It is an objective of the Council to support any expansion of the Metropolitan Area Networks (Communication System) to meet the needs of the IWAK LAP area.</p>	<p>Indirect impact: noise / light / air pollution Indirect impact: changes to water quality While the facilitation of any expansion of the MAN networks would be hugely advantageous for the region, consequential excavation / cable laying may result in land disturbance / instability with indirect deterioration of surface waters and groundwater</p>
<u>Objective IO10</u>	<p>It is an objective of the Council to support the introduction of any new information and communication technologies to meet the needs of the IWAK LAP area</p>	<p>Indirect impact: changes to water quality While the introduction of new information and communication technologies should aim for remote access / prevention of extensive excavation works; there may be consequential disturbance of land area with indirect deterioration of groundwater and surface waters including the Sonnagh River and consequently the Moy</p>

Objective IO11	It is an objective of the Council to assess any future provision of telecommunications infrastructure having regard to National policies, as well as interests of social and economic progress; public health; environmental quality and the protection of amenities and local heritage.	Potentially a very positive impact for the entire area and unlikely to impact on the conservation objectives of the River Moy cSAC habitats and / or species
<u>Objective IO12</u>	It is an objective of the Council to support any extension of the gas network to meet the needs of the IWAK LAP Area.	Indirect impact: changes to water quality Potential contamination of surface waters with possible deterioration of Sonnagh River and subsequent impact on conservation objectives of River Moy cSAC, particularly during the construction phase. The WRBD objective of good status of the Sonnagh water body by 2021 may be compromised
Objective IO13	It is an objective of the Council to implement the Development Contribution Scheme and any Supplementary Contribution Schemes for future infrastructure upgrades for IWAK	An overall positive impact for the area, not envisaged to impact on the conservation objectives of the River Moy cSAC habitats and / or species

Airport infrastructure and operations

<u>Policy AP1</u>	It is the policy of the Council to support the current and future operational, safety, technical and development requirements of the Airport.	An overall positive impact for the area but with possible impacts on the surrounding environment, including the River Moy cSAC qualifying interests, as development occurs
Policy AP2	It is the policy of the Council to promote appropriate land uses at IWAK by implementing the recommendations of the report “Public Safety Zones and Noise Contour Maps for Ireland West Airport Knock”, prepared for Mayo County Council by APD Ltd	An overall positive impact for the social interest of the airport and its vicinity
<u>Objective AO1</u>	It is an objective of the Council to support any extension to the existing runways and to safeguard the potential for future runway development	Indirect impact: changes to water quality and quantity Potential contamination of surface waters including toxic compounds and siltation with consequent deterioration of Sonnagh River and subsequent impact on conservation

<u>Objective AO2</u>	It is an objective of the Council to support the development of new taxi-ways where necessary	objectives of River Moy cSAC, particularly during the construction phase. The WRBD objective of good status of the Sonnagh water body by 2021 may be compromised. Increased built ground may lead to increased flooding Indirect impact: changes to water quality and quantity Potential contamination of surface waters with toxic compounds such as aviation fluid with consequential deterioration of Sonnagh River and subsequent impact on conservation objectives of River Moy cSAC, particularly during the construction phase of taxi-way development. The WRBD objective of good status of the Sonnagh water body by 2021 may be compromised.
<u>Objective AO3</u>	It is an objective of the Council to support the orderly expansion of aircraft apron areas, to provide for improved aircraft facilities	Indirect impact: changes to water quality and quantity Potential contamination of surface waters with possible deterioration of Sonnagh River and subsequent impact on conservation objectives of River Moy cSAC, particularly during the construction phase of expansion of aircraft apron areas. The WRBD objective of good status of the Sonnagh water body by 2021 may be compromised.
Objective AO4	It is an objective of the Council to encourage the on-going augmentation and improvement of freight / cargo facilities at IWAK	An overall positive impact for the area not likely to impact on the integrity of the River Moy cSAC habitats and / or species
Objective AO5	It is an objective of the Council to ensure that there are sufficient lands zoned on the airfield with good access to the aircraft apron area and to the road network to cater for freight / cargo and other aircraft apron facilities.	An overall positive impact for the area not likely to impact on the integrity of the River Moy cSAC habitats and / or species
<u>Objective AO6</u>	It is an objective of the Council to encourage the on-going development of terminal facilities at IWAK	Indirect impact: changes to water quality and quantity Potential contamination of surface waters with possible deterioration of Sonnagh River and subsequent impact on conservation objectives of River Moy cSAC, particularly during the construction phase of augmentation and improvement

works to the terminal facilities. The WRBD objective of good status of the Sonnagh water body by 2021 may be compromised. Increased built ground may lead to increased flooding

Heritage and Environment

Policy HP1	It is the policy of the Council to preserve, protect and enhance the Natural Heritage of the Area.	A key policy with positive objectives for the integrity of the River Moy cSAC and its habitats and species
Policy HP2	It is the policy of the council to support and encourage a high standard of environmental awareness throughout the Plan area.	A key policy with positive objectives for the integrity of the River Moy cSAC and its habitats and species
Policy HP3	It is a policy of the Council to implement Article 6(3) of the EU Habitats Directive, and to subject any future plan (e.g. master plan) or project arising from the Plan likely to impact on Natura 2000 or European Sites (SACs, SPAs), whether directly, indirectly or in combination with other plans or projects, to an appropriate assessment in order to inform the decision making process.	An excellent key policy with a focus on the maintenance of the favourable conservation status of the River Moy cSAC habitats and species. Forms the basis of the main mitigation measure for the IWAK LAP
Policy HP4	It is the policy of the Council to have regard to the Convention Biological Diversity and support the implementation of the National Heritage and Biodiversity Plan; the County Heritage Plan and Local Biodiversity Action Plan and to encourage the 'halt biodiversity loss by 2010 – and beyond' campaign in accordance with the 2006 EU Biodiversity Action Plan	An excellent key policy with a focus on the maintenance of the favourable conservation status of the River Moy cSAC habitats and species
Policy HP5	It is the policy of the Council to prevent the spread of, aquatic and terrestrial, invasive and alien invasive species	An excellent key policy with a focus on the maintenance of the favourable conservation status of the River Moy cSAC habitats and species
Objective HO1	It is an objective of the Council to protect the	A positive impact, but not likely to impact on the conservation

	archaeological heritage and especially sites identified in the Record of Monuments and Places, National Monuments in the ownership or guardianship of the State and National Monuments that are subject to Preservation Orders and to safeguard the integrity of the archaeological sites in their setting	objectives of the River Moy cSAC habitats and / or species
Objective HO2	It is an objective of the Council to require that planning applications within the zones of archaeological potential as outlined on the Record of Monuments and Places include an archaeological assessment set out in accordance with the requirements of the Mayo County Council. Any archaeological assessment shall also have regard to natural heritage legislation.	A positive impact, not likely to impact on the conservation objectives of the River Moy cSAC habitats and / or species
Objective HO3	It is an objective of the Council to require that all significant planning applications (i.e. development of lands on 0.5ha. or more and 1km. or more in length) include an appropriate archaeological assessment in accordance with the requirements of the Council. Any archaeological assessment shall also have regard to natural heritage legislation	A positive impact, not likely to impact on the conservation objectives of the River Moy cSAC habitats and / or species
Objective HO4	It is an objective of the Council to require an ecological assessment, undertaken by a suitably qualified person, to inform decision making of all proposed significant planning applications, where it is considered that the proposed development may have an adverse impact on the environment of designated site.	A key objective with a specific focus on environmental protection and sustainable development
Objective HO5	It is an objective of the Council to ensure that any development proposals, alone or in combination with other developments, do not have an adverse	A key objective with a specific focus on the protection and maintenance of the Natura 2000 Network – a key mitigation measure in the context of this draft plan

impact on any Natura 2000 site in the wider area. The Council may require Appropriate Assessment in accordance with Article 6(3) of the EU Habitats Directive

- | | | |
|-----------------------|--|---|
| Objective HO6 | It is an objective of the Council to continue to protect all watercourses, in this regard any proposed development adjacent or close to watercourses shall be carefully assessed to ensure that there is no adverse impact to the watercourse or to any other water body into which it flows. | A key objective with a specific focus on environmental protection and sustainable development |
| Objective HO7 | It is an objective of the Council to implement the relevant policies and objectives outlined in the Western River Basin District Management Plan. | With the general objective of achieving good water status and restoring less-than-good water by 2015 (or later), the policies and objectives outlined in the WRBD Management Plan will compliment the protection and conservation of Natura 2000 habitats and species – a key objective |
| Objective HO8 | It is an objective of the Council to prevent deterioration of water bodies of good status and to improve those water bodies to status of at least good in accordance with national and EU legislation, within the Plan area | The general objective of achieving good water status and restoring less-than-good water by 2015 (or later), the policies and objectives outlined in the WRBD Management Plan will compliment the protection and conservation of Natura 2000 habitats and species – a key objective |
| Objective HO9 | It is an objective of the Council to comply with the EU Floods Directive 2007/60/EC and S.I. No. 122/2010: European Communities (Assessment and Management of Flood Risks) Regulations | A key objective with a specific focus on environmental protection and sustainable development |
| Objective HO10 | It is an objective of the Council to protect areas prone to flooding within the Plan area from inappropriate development and to ensure that all new developments do not result in an increased risk of flooding within the site or on other lands. All new development proposals within or close to flood risk areas should be subject to Flood Risk Assessment and should incorporate flood | A key objective with a specific focus on environmental protection and sustainable development |

Objective HO11	protection and mitigation measures It is an objective of the Council to ensure that any proposed development is absorbed into the surrounding landscape so that it does not impinge in any significant way upon the character, integrity or uniformity of the landscape.	An overall positive impact for the area
Objective HO12	It is an objective of the Council to promote the retention of all features of historic, architectural or other interest within the LAP area.	A positive impact, not likely to impact on the conservation objectives of the River Moy cSAC habitats and / or species

Economic activities

Policy EP1	It is the policy of the Council to support and promote the strategic growth and sustainable development of IWAK LAP area as a strategic economic /enterprise hub for the Region	No likely significant impact on Natura 2000 sites with an overall positive impact for the area
Policy EP2	It is the policy of the Council to ensure that IWAK is an attractive location for future inward investment and a desirable place to work.	No likely significant impact on Natura 2000 sites with an overall positive impact for the area
Objective EO1	It is an objective of the Council to support the development of appropriate airport related activities within the IWAK LAP as set out in the land use zoning set out in Section 4 of this LAP	No likely significant impact on Natura 2000 sites with an overall positive impact for the area
Objective EO2	It is an objective of the Council to support the location of appropriate tourist related activities, where it is demonstrated that such an activity is required, within the IWAK LAP area	No likely significant impact on Natura 2000 sites with an overall positive impact for the area
Objective EO3	It is an objective of the Council to support and promote the economic development potential of IWAK	No likely significant impact on Natura 2000 sites with an overall positive impact for the area
Objective EO4	It is an objective of the Council to ensure that the	No likely significant impact on Natura 2000 sites with an overall

provision of economic development at IWAK does positive impact for the area
not prejudice the core functions of the Airport

The above policies and objectives have been appraised in the context of the protection and conservation of Annex I habitats and Annex II species within the Moy cSAC as a consequence of development within the Plan area and encompassing a 15 km zone of impact. Those which have been identified as producing a negative significant impact (or those which may potentially result in a negative impact) are listed in the succeeding section, along with appropriate mitigation measures to prevent or minimise these effects.

5.7 Impact Prediction – a summary

While Table 5.4 describes, insofar as possible, the impacts predicted from the policies and objectives of the draft plan for the IWAK, essentially the framework of the local Area Plan, it must be stated that the scope of this draft plan is too broad to focus on a particular aspect of the plan in any great detail; the plan does not provide for in-depth description of its individual elements. On saying that, however, negative impacts, positive impacts and neutral impacts have been identified from the draft IWAK LAP policies and objectives and are illustrated in Table 5.4. Those which are regarded as negative impacts (highlighted and underlined) are repeated in the following section with their appropriate mitigation measures to prevent the impact becoming a reality.

Detailed significant impacts and mitigation measures for Annex II species; both terrestrial and aquatic, or alternatively the measures to be taken to protect Annex I habitats or WRBD-classified water bodies simply cannot be proposed in detail when only the IWAK draft plan policies and objectives are developed. A number of policies and objectives of the draft plan have the potential to impact negatively on the River Moy cSAC and broad generic impacts have been described in as much detail as possible. For example, the provision of infrastructure, be it drinking water, waste water, specific airport or transport developments all have the potential, alone or in combination, to indirectly impact negatively upon the integrity of the receiving Natura 2000 site, the River Moy cSAC, by virtue of its tributary which drains the plan area (and the 15km zone of impact).

The key point is that while these policies and objectives contain very positive future impacts for the development of the plan area (and consequently the county and region), there is potential that these positive changes will be in conflict with the integrity of the River Moy cSAC.

To summarise, the principal effects arising from this plan are envisaged to be indirect and cumulative in nature. Due to the distance, nature of the plan, land-take, resource requirements, emissions etc, this draft plan will not see direct habitat loss or indeed fragmentation. Indirect effects are largely inclusive of alteration to water quality and volume in addition to species disturbance, be it from noise, light or air pollution sources. Indirect

impacts are considerably more difficult to predict and quantify while cumulative impacts are often those which are only evident after a period of time.

The conclusion of this current assessment is that the following impacts are possible as a result of the IWAK LAP and measures must be put in place to mitigate against their effects for the purpose of protection and maintenance of the favourable conservation status of the River Moy cSAC.

o **Deterioration of water quality**

Currently the status of the Sonnagh water body is classified as ‘poor’, based on its macroinvertebrate status. As a consequence, the objectives of the Western River Basin District Management Plan aims that this status should be restored to at least good by 2021 (extended timescale from 2015 due to highly-impacted sites). Increases or introduction of point and diffuse discharges during construction, excavation, operational phases of most projects inevitably occur, and whether the management of such discharges are generally controlled by Water Pollution Act licenses, IPPC licenses, waste facility permits / certificates of registration, there is potential for accidental release and fugitive emissions which may alter the physico-chemical and biological characteristics of a water body. These alterations not only impact on the water quality of the Sonnagh River, but by extension, on the River Moy, into which the Sonnagh flows. Species dependant on this aquatic habitat, *including their predators*, will undoubtedly be impacted.

o **Disturbance of key species**

Key species within the River Moy cSAC may potentially be disturbed through a plethora of pathways – firstly by water quality alteration. The white-clawed freshwater crayfish, *Austropotamobius pallipes* requires quite a diverse habitat to thrive and water quality of at least Q 3-4 (moderate status), while its predator the European otter (*Lutra lutra*) will indirectly be impacted by loss / reduction of crayfish populations (though otters also prey on trout and other fish). *Lampetra planeri* and *Petrozygon marinus* are Annex II species within the River Moy cSAC but were not observed in the Sonnagh and NPWS records do not indicate their presence, or that of *Salmo salar* in the Sonnagh.

Disturbance of both floral and faunal species may also occur due to noise, air and light pollution while increased traffic poses another threat. While no Annex II terrestrial species were noted within the plan area or indeed observed in the cSAC, other terrestrial species afforded protection under different legislation such as *Rana temporaria*, *Meles meles* and *Martes martes* are deemed 'key species' by default.

o **Flood risk**

Increased concrete and built ground will subsequently reduce the area of natural landscape which can accept increased rainfall and precipitation. From new / upgrades to transport infrastructure to cycle pathways and disturbance of peaty soils to increased runoff, the risk of flooding in an already susceptible location may result in indirect impacts again to water quality but also to Annex I habitats within the Moy cSAC. Utilisation of SuDS to restrict flows from any developments to green field areas is a viable option. A strategic Flood Risk Assessment has been carried out and associated flood mitigation measures proposed should ensure that there is no risk of flooding.

o **Soil instability**

The plan is proposed in an area of composed of improved agricultural grassland, dry humid acid grassland, wet grassland, cutover bog, wet heath, dry siliceous heath with eroding upland rivers and exposed siliceous rock. Excavation and development within this catchment with the consequent construction of borrow pits and creation of spoil heaps will, undoubtedly destabilise existing soil, notably the wetter catotelm peat layer, which breaks apart upon disturbance due to its absence of plant roots.

Landslides and 'bogbursts' have been widely described and studied, and, following the Derrybrien incident in October 2003, heavily investigated from a water pollution viewpoint, resulting in a key ECJ court ruling against Ireland pertaining to inadequate environmental assessments for developments within Ireland, *inter alia*, windfarms, pig-rearing facilities, peat-extraction facilities and hotels.

In the Strategic Environmental Assessment prepared for the IWAK LAP, soil elements have been considered in detail in the context of the Plan and appropriate mitigation measures,

where deemed necessary, for the purpose of meeting soil environmental protection objectives (EPOs) have been developed.

o **Introduction of invasive species**

Already a recognised issue in Ireland, invasive species, defined as non-native species, floral or faunal, introduced accidentally or deliberately into an environment where habitats and existing indigenous species are threatened by transformation, destruction, competition, disease, predation etc. Examples of historical species invasion include *Rhododendron ponticum*, *Elodea canadensis* and *Sciurus carolinensis* while more recent introductions include *Fallopia japonica*, *Lagarosiphon major*, and *Neovison vison*. Since invasive non-native plant and animal species are the second greatest threat to biodiversity worldwide after habitat destruction, the pathway to release for each individual species is crucial in combating this problem. Seemingly, upkeep of innocuous ornamental ponds are deemed responsible for the spread of *L. major*, while *Dreissena polymorpha*, originally inhabiting Eurasia and spread by inadequate washing / rinsing of boats and equipment is the path of least resistance for invasion by these Ponto-Caspian taxa.

o **Noise / light / air pollution**

Increased light, noise and air pollution during all phases; construction and operational of the plan will be another anticipated impact to be alleviated. These may impact on both plants and animals and less so on habitats (eroding upland rivers being one exception). Compliance of air pollution licenses and proper management of emissions in addition to the pre-planning decisions on traffic management, building design and energy usage should be considered to reduce impacts from these sources in a bid to alleviate lichen damage and plant disease while noise and artificial light may prove detrimental to aerial mammals, insects and birds within the plan area and ex-situ, within the 15 km zone of impact.

The above list confirms that a number of impacts are predicted as a consequence of the draft Ireland West Airport Knock (IWAK) Local Area Plan. Simply, to protect the habitats and species of the River Moy cSAC and to preserve the conservation objectives of this site, as well as not compromising the undesignated habitats and those species not afforded

protection under the Habitats Directive these impacts, indirect and cumulative in nature, require mitigation measures which are dealt with in detail in the next section.

5.8 Consultation responses

Letters of consultation issued to the NPWS pertaining to draft IWAK LAP received replies bulleted as follows:

National Parks and Wildlife Service (NPWS);

- No sites with nature conservation designations in the SDZ
- SDZ drains towards River Moy cSAC to the south, west and north-west – some potential for effects from run-off, pollution, etc
- SDZ crosses hydrological/catchment boundary between Moy and Upper Shannon catchments. In lowland areas this usually means wetland/peatland systems near the hydrological divide – peatlands show up in aerial photos
- Undeveloped areas of the SDZ dominated by Annex I habitats – mainly bog and heath (wet and dry types) – based on preliminary assessment of aerial photos. Full habitat survey of the SDZ would be required for a ‘plan’ of this type – to produce a baseline habitat map of the SDZ and to calculate areas of different habitats likely to be lost to development
- A wider ecological impact assessment of the SDZ would be advised – to produce an ecological constraints map – habitat map plus other features such as badger setts, otter holts, bat roosts, etc
- Soils of the SDZ are primarily peats – construction will require removal, storage and disposal/recovery of large volumes of peat with ecological and environmental consequences, and probably large amounts of replacement fill. Not sustainable. Peat depth data and a peat stability/landslide risk assessment advisable. Also a peat disposal plan?
- Impacts would need to be considered in the context of cumulative effects of the airport itself – was it subject to EIA?
- For ecology (habitats, flora and fauna), avoidance of impacts is key. Note that the current target (Countdown 2010 – Convention on Biological Diversity) is to halt the loss of Biodiversity by 2010! Also, if protected species and their breeding and resting places are to be disturbed, licences may be required from NPWS. Licences should issue as a last resort only, when it is not possible to avoid such losses or disturbances.

An EIA was undertaken on the cumulative effects of the airport and included a habitat survey in addition to data on badgers, otter and bats and their habitats. Other comments have and will be taken into consideration as the plan progresses through its development phases.

5.9 Conservation status of habitats within the study area – terrestrial habitats

The six qualifying habitats for which the Moy cSAC are not envisaged to be directly removed, reduced, disturbed or fragmented as a result of this local area plan. On the contrary, impacts likely are deemed to be indirect and cumulative in nature, arising from in-combination plans and/ or projects. By the nature of the impacts described in table 5.4, many impacts will be as a consequence of changes to the aquatic habitat due to increased discharges, increased water volume and runoff. Soil instability and risks of landslides are also typical when a peat land habitat is disturbed / excavated. The following table, Table 5.5 illustrates the main habitats that have been identified within the Plan area along with their corresponding code as assigned by the NPWS. The tables 5.6 to 5.11 compare these habitats to those EU Annex I corresponding ones and describes the current conservation status on a national scale.

Table 5.5 Habitats within LAP area

Habitat	Code
Peatland	
Cutover bog	PB4
Heath and dense bracken	
Dry siliceous heath	HH1
Wet heath	HH3
Grassland and marsh	
Improved agricultural grassland	GA1
Dry humid acid grassland	GS3
Wet grassland	GS4
Freshwater	
Eroding / upland rivers	FW1

Exposed rock and disturbed ground

Exposed siliceous rock ER1

Cultivated and built land

Buildings and artificial surfaces BL3

Table 5.6 Cutover Bog PB4

Link to Annex I Habitats	
Corresponds to EU Annex I habitat: Rhynchosporion Depressions (7150)	
Ecological information	
<p>This habitat, in general, is at a favourable conservation status, despite the unfavourable status of habitats within which it generally occurs. While this habitat becomes rare in Ireland above 300 m, it is widespread throughout the country, associated with raised bog in central and mid-west Ireland and lowland blanket bog and wet heath in Western Ireland.</p> <p>Typical species associated include <i>Rhynchospora alba</i>, <i>R. fusca</i>, <i>Drosera intermedia</i>, <i>D. anglica</i> and <i>D. rotundifolia</i>. In addition, <i>Eriophorum angustifolium</i>, <i>Narthecium ossifragum</i> and <i>Sphagnum</i> species are common.</p>	
Conservation status	
Range	Good
Area	Good
Structure and function	Good
Future prospects	Good
OVERALL	GOOD

Table 5.7 Dry Siliceous Heath HH1

Link to Annex I Habitats	
Corresponds to EU Annex I habitat: European Dry Heaths (4030)	
Ecological information	
<p>Typically at risk from afforestation, burning, over-grazing and bracken invasion, the conservation status of these habitats is now designated poor. The most common type in Ireland is found on freely draining, nutrient-poor acidic soils. Typical species on dry heaths include <i>Calluna vulgaris</i>, <i>Erica cinerea</i>, <i>Vaccinium myrtillus</i>, and <i>Ulex gallii</i>.</p>	

Conservation status	
Range	Good
Area	Good
Structure and function	Poor
Future prospects	Poor
OVERALL	POOR

Table 5.8 Wet Heath HH3

Link to Annex I Habitats	
Corresponds to EU Annex I habitat: Wet Heath (4010)	
Ecological information	
<p>This habitat is widespread in the uplands and also in Western Ireland. Generally occurring where there is a fluctuating water table and not on permanently waterlogged peats, this habitat is associated with more shallow peat (30 cm to 80 cm). Notable species found in this habitat include <i>Calluna vulgaris</i>, <i>Erica tetralix</i>, <i>Molinia caerulea</i>, <i>Sphagnum</i> spp, <i>Pleurozium schreberi</i> and <i>Cladonia</i> species.</p>	
Conservation status	
Range	Good
Area	Unknown
Structure and function	Bad
Future prospects	Bad
OVERALL	BAD

Table 5.9 Dry humid acid grassland GS3

Link to Annex I Habitats	
Corresponds to EU Annex I habitats: Species-Rich <i>Nardus</i> grasslands on siliceous substrates in mountain areas (6230)	
Ecological information	
<p>This habitat is found in upland areas which are not waterlogged, but are generally free-draining soils that may be dry or humid. Threats to this habitat include over-grazing (<i>Nardus</i> grassland is maintained by grazing) and loss by abandonment of traditional agricultural</p>	

practices. Species which inhabit these areas include *Nardus stricta*, *Veronica officinalis*, *Galium saxatile*, *Festuca ovina* and *Polygala vulgaris*.

Conservation status	
Range	Good
Area	Bad
Structure and function	Bad
Future prospects	Bad
OVERALL	BAD

5.10 Wet grassland GS4

Link to Annex I Habitats	
Corresponds to EU Annex I habitats: <i>Molinia</i> meadows on calcareous, peaty or clayey-silt-laden soils (6410)	
Ecological information	
Similar to preceding habitats, this also occurs in areas with fluctuating water tables. It occurs largely in the west on acidic soils and rushes are very common. Typical species are quite diverse and include <i>Carex</i> and <i>Juncus</i> species, in addition to <i>Molinia caerulea</i> , <i>Holcus lanatus</i> , <i>Cardamine pratensis</i> , <i>Lychnis flos-cuculi</i> and <i>Ranunculus flammula</i> .	
Conservation status	
Range	Good
Area	Bad
Structure and function	Bad
Future prospects	Bad
OVERALL	BAD

Table 5.11 Exposed siliceous rock ER1[†]

Link to Annex I Habitats	
Corresponds to EU Annex I habitats: Siliceous rocky slopes with chasmophytic vegetation (8220)	
Ecological information	
This species associated with this habitat type are quite specialised and adapted for growth and sustainability between cracks and fissures of the rock faces. Siliceous rocky slopes will	

be colonized by different slopes than non-siliceous (calcareous) geological formations. Such species include arctic-alpine plants such as *Poa alpina*, *Polygonum viviparum*, *Salix herbacea*, *Saussurea alpina*, and *Saxifraga* species.

This habitat is assigned a poor conservation status, mainly due to rock-climbing and hill-walking activities i.e. physical disturbance.

Conservation status	
Range	Good
Area	Poor
Structure and function	Poor
Future prospects	Poor
OVERALL	POOR

† Though corresponding to 8220 (Fossitt, 2000), the map supplied by the NPWS (2008) does not show this habitat in north-east Mayo – where the current plan area is located

(It should be stated that there are no corresponding European Annex I habitats for all habitats listed in Table 5.5, including Improved agricultural grassland (GA1) and buildings and artificial surfaces (BL3).)

5.10 Conservation status of habitats within the study area – aquatic habitats

Eroding / upland rivers have also been identified within the plan area and monitored during this assessment within the plan area as well as within the 15 km zone of impact. The following table provides a detailed description of the current physical characteristics of the Sonnagh River and its tributaries, in addition to its quality and presence of protected species.

Table 5.12 Aquatic habitat within study area - description and overall evaluation

Site	Water quality	Site description summary – Sonnagh River	Protected species present	Fishery potential
A* (34/S/02/0009)	Q3-4 (1989)	Second order tributary of Sonnagh River; 1-2 m wide, draining forestry and rough grazing land	None observed / recorded	O'Reilly (1998) stated that the Sonnagh river holds an excellent stock of trout but is rarely fished.
1	No data, no problems evident	Narrow, fast-flowing first order stream	None observed / recorded	
2	No data; epilithic algae present but not excessive	Fast-flowing, unsheltered stream, wider at this site than Site 1	None observed / recorded	
3	Q4 (2012) ⁵	Approximately 1.3 m, fast-flowing second order stream	None observed / recorded	
4	Q3-4 (2012) ³	Third order and wide stretch of river with riffles and glides	Otter (<i>Lutra lutra</i>) prints on right river bank on 5 th January	
B* (34/S/02/0060)	Q3 (2010)	2 nd order wide stream (2 m) and 0.3m deep. Easy access to cattle d/s on left bank. Flooded riparian zone; no littoral macrophytes but abundant epilithic algae	<i>Austropotamobius pallipes</i> within this 1 km ² grid (NPWS)	
5	No data; no problems evident	Rapidly-flowing stream along western channel of Sonnagh	None observed / recorded	
C* (34/S/02/0070)	Q4 (2010)	Wide (3 m) fast-flowing and quite shallow (0.3 m) fourth order river with moderate filamentous algal growth on river substrate	None observed / recorded	

6 (D) (34/S/02/0075)	Q4-5 (2001)	Deep, sluggish and wide stretch (circa. 2.5 m) downstream main channels confluence	Both <i>L. lutra</i> and <i>A. pallipes</i> found at this location (NPWS)
E* (34/S/02/0090)	Q4 (1989)	Fast-flowing 5m wide river draining improved grassland (sheep in catchment).	None observed / recorded
F* (34/S/02/0100)	Q4-5 (2010)	Approximately 5 m wide, sluggish-flowing fourth order river. Considerably turbid on day of survey with no river substrate visible.	<i>Austropotamobius pallipes</i> within this 1 km ² grid (NPWS)

5.11 Conservation status of qualifying habitats of the River Moy cSAC – terrestrial habitats

In addition to the habitats identified *within* the plan area, a number of additional qualifying habitats have been instrumental in the designation of the Natura 2000 site. These include active raised bogs (a priority habitat), degraded raised bogs still capable of natural regeneration, depressions on peat substrates of the *Rhynchosporion*, alkaline fens, old sessile oak woods with *Ilex* and *Blechnum* in the British Isles, alluvial forests with *Agnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion*, *Alnion incanae*, *Salicion albae*) (the second priority habitat).

With the exception of Depressions on peat substrates of the *Rhynchosporion* (7150), the conservation status of these other habitats is shown in the following tables.

Table 5.13 Active Raised Bogs (7110)

Ecological information	
Currently the conservation status of this habitat is bad, mainly as a result of peat cutting, drainage, forestry operations and burning. In general, following a rapid deterioration in this habitat in recent years (decrease of 35% in 10 years), the habitat is deemed extremely rare and demands protection. Typical species characteristic of active raised bog include <i>Sphagnum</i> species, <i>Calluna vulgaris</i> , <i>Drosera intermedia</i> , <i>D. rotundifolia</i> and <i>Eriophorum angustifolium</i> .	
Conservation status	
Range	Bad
Area	Bad
Structure and function	Bad
Future prospects	Bad
OVERALL	BAD

Table 5.14 Degraded raised bogs still capable of natural regeneration (7120)

Ecological information	
<p>Degraded raised bogs are so named due to the disruption of the natural hydrology leading to species disturbance / loss and desiccation. In general, typical species are comparable to those of active raised bogs (7110) but abundances are reduced. The structure of the habitat is also in contrast with active raised bogs, due to the loss of wetter hollows and taller hummocks (more of a 'flatter' character than 7110). Species, in less abundant numbers include <i>Eriophorum angustifolium</i>, <i>Narthecium ossifragum</i> and <i>Sphagnum</i> species.</p>	
Conservation status	
Range	Good
Area	Good
Structure and function	Poor
Future prospects	Poor
OVERALL	POOR

Table 5.15 Alkaline Fens (7230)

Ecological information	
<p>Fens are distributed widely throughout Ireland, particularly in the Midlands, west and north-west. Though fens differ from other peat-forming wetlands in their source of mineral nutrients, they are still vulnerable and comparable to raised bogs in terms of their decline in the country. Typical reasons for their deterioration include drainage, infilling and eutrophication from agricultural sources. Species associated with fens include <i>Juncus</i> species, <i>Molinia caerulea</i>, and <i>Succisa pratensis</i>.</p>	
Conservation status	
Range	Good
Area	Good
Structure and function	Bad
Future prospects	Bad
OVERALL	BAD

Table 5.16 Old Sessile Oak Woods (91A0)

Ecological information	
<p>Just distributed in two 10km grid cells within the Moy cSAC and described as quite fragmented nationally, these woodlands are more generally associated with Wicklow and Cork / Kerry. The habitat has declined a little due to clearance, but new private and State forests are being better managed and developed more recently. As well as <i>Quercus petraea</i>, other species associated the lower canopy of the woodland include <i>Hedera helix</i>, <i>Blechnum spicant</i>, <i>Pteridium aquilinum</i> and <i>Rubus fruticosus</i>.</p>	
Conservation status	
Range	Good
Area	Bad
Structure and function	Bad
Future prospects	Bad
OVERALL	BAD

Table 5.17 Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (91E0)

Ecological information	
<p>A semi-aquatic habitat associated with areas prone to flooding, alluvial forests are species-rich and occur widely throughout the country; though more extensive in the south-west. Problems resulting in the decline of this habitat include drainage, incorrect grazing habits and alien invasive species. From a rich species list, some include <i>Alnus glutinosa</i>, <i>Fraxinus excelsior</i>, <i>Salix spp.</i>, <i>Carex spp.</i> and <i>Mentha aquatica</i>.</p>	
Conservation status	
Range	Good
Area	Bad
Structure and function	Bad
Future prospects	Bad
OVERALL	BAD

5.12 Conservation status of qualifying species of the River Moy cSAC

Species for which the cSAC has been designated include the following;

- [1092] *Austropotamobius pallipes*
- [1095] *Petromyzon marinus*
- [1096] *Lampetra planeri*
- [1106] *Salmo salar*
- [1355] *Lutra lutra*

The conservation status of each aquatic taxon is described in the following five tables.

Table 5.18 Conservation status of the white-clawed freshwater crayfish; *Austropotamobius pallipes*

Ecological information summary	
Freshwater crayfish rely on large rivers, stream, drains and medium-sized lakes with sufficient lime as ideal habitats. Interestingly they do tolerate fluctuations in dissolved oxygen, temperature and lime, but are notably susceptible to changes in substrate and require stones to hide under and banks to burrow in. During the period from end-May to July the crayfish should not be disturbed as they engage in carrying their young which are particularly susceptible to changes in siltation and increases in silt-laden runoff. The conservation status of freshwater crayfish is currently poor, as a result of habitat degradation, eutrophication and disease.	
Species code: 1092	Legal status: Protected under Annex II and V*
Range	Poor
Population	Poor
Habitat	Poor
Future prospects	Poor
OVERALL	POOR

* Schedule V of the Wildlife Act, 1976

Table 5.19 Conservation status of sea lamprey; *Petromyzon marinus*

Ecological information summary	
Overall, the conservation status of sea lamprey is poor. This is likely as a result of physical barriers, channel maintenance and water quality deterioration. Sea lamprey are external parasites on other fish species; characterised by their suction cup-like mouth and are also anadromous fish. After migrating upstream to clean gravels, they spawn and die. Distribution of sea lamprey in Ireland is wide and typically near the coast, close to marine and estuarine waters.	
Species code: 1095	Legal status: Protected under Annex II
Range	Poor
Population	Poor
Habitat	Poor
Future prospects	Poor
OVERALL	POOR

Table 5.20 Conservation status of brook lamprey; *Lampetra planeri*

Ecological information summary	
Brook lamprey, unlike the larger parasitic sea lamprey spend all its life in freshwater and are not as negatively affected by physical barriers such as weirs. Very difficult to distinguish from their satellite species of river lamprey (<i>L. fluviatilis</i>) surveying work has demonstrated that their distribution is patchy within catchments, but dense in ideal habitat and flow conditions. They are, however susceptible to predation at larval stage (interestingly in one location by <i>Dysticus</i> spp.), parasites and disease, in addition to commercial fishing.	
Species code:	Legal status / protected under Annex II
Range	Good
Population	Good
Habitat	Good
Future prospects	Good
OVERALL	GOOD

Table 5.21 Conservation status of Atlantic salmon; *Salmo salar*

Ecological information summary	
<p>The River Moy and a number of its tributaries (excluding the Sonnagh River) is a designated salmonid water course under the First Schedule of the EU (Quality of Salmonid Waters) Regulations (S.I. No. 293/1998) and fundamentally the River Moy is one of the best commercial salmon fisheries in Europe. Despite this, Atlantic salmon are under increasing threat and numbers has declined significantly in recent years as a result of water quality deterioration, namely from eutrophication, point discharges, acidification, siltation and forestry-related discharges. In addition, climate change has been deemed another threat and marine survival in salmon is also reduced. Presently, it is concluded that less than 10% of wild smolts do not survive marine waters.</p>	
Species code:	Legal status / protected under Annex II and V*
Range	Good
Population	Bad
Habitat	Poor
Future prospects	Poor
OVERALL	BAD

* Schedule V of the Wildlife Act, 1976

Table 5.22 Conservation status of European otter; *Lutra lutra*

Ecological information summary	
<p>Although otters are widespread in Ireland, their populations have been declining quite notably in recent years. Threats to their numbers include reduced water quality, disturbance of habitat (riparian zone vegetation), direct human interference including road kills and net fishing incidents. Otters are extremely timid, hunting small fish and crustaceans at late evening / dusk and early morning.</p>	
Species code:	Legal status / protected under Annex II and IV**
Range	Good
Population	Poor
Habitat	Good
Future prospects	Good

OVERALL

POOR

** Annex IV of the Habitats Directive

According to NPWS data, only two of these species, *Austropotamobius pallipes* and *Lutra lutra* inhabit the Sonnagh River. *Salmo salar* and *Petromyzon marinus*, anadromous fish, migrate upstream from the marine environment to mate and spawn; there is a likelihood that the Sonnagh River is too far from the sea from which to migrate and that these fish are just recorded in the lower reaches of the Moy.

6 Mitigation measures prescription

6.1 Introduction

This draft local area plan is strategic in nature and as such, cannot contain precise details pertaining to each of the developments proposed within the plan area. The policies and objectives of the draft plan set the framework for the IWAK area, but the plan has too broad a scope to be focussed on details of each project within its vicinity. A number of policies and objectives within the draft plan can actually be described as mitigation measures. These include, in particular, those pertaining to heritage and environment including policies HP1 to HP5 and objectives HO1 to HO12. Notably, HP3, HO4 and HO5 are key, in that they deal with Article 6(3) and 6(4) of the Habitats Directive and the measure that every plan or project (development) within the plan area, should not impact on and be subjected to a screening for appropriate assessment under the Council Directive 92/42/EEC on the conservation of natural habitats and of wild flora and fauna (Habitats Directive).

Specific mitigation measures for the protection of Annex I and Annex II habitats and species from water pollution incidences may include the following during the construction phases of projects to reduce potential indirect impacts on off-site areas:

- confining works to within the site boundary and clearly delimiting the boundary
- use of fuel bunds, spill trays and emergency response kits
- dust preventative measures
- assignment of appropriate buffer zones circling the perimeter of the site

In terms of aerial fauna habitat, existing foliage / tree cover should be left intact insofar as possible; overhanging trees and other plants also serve as shelter and shade for aquatic macroinvertebrates. Bats, swallows and martins have copious bridges and abandoned buildings in which to establish homes – in the case of their current homes being disturbed. In the interest of retaining the indigenous flora and fauna, a measure should be in place that all plants in landscaped areas should be native and no non-indigenous species should be permitted.

From the viewpoint of increased nutrients to surface waters from the existing Wastewater Treatment Plant and from the extended plant, tertiary treatment including phosphorus removal by chemical precipitation or an alternative method would prove a worthwhile consideration. Wastes from the airport – in particular catering waste (classified as a category 1 animal by-product and managed in accordance with the Department of Agriculture and Food) – should be managed with diligence so as to prevent incidence of fugitive releases of pathogenic viruses and bacteria from food waste; with unknown consequences. Pesticide and herbicide use should be curtailed and Standard Operating Procedures (SOPs) with adequate Emergency Response Procedure (ERP) document should also be provided to deal with accidental or deliberate discharges of undesirable compounds into the local environment. SUDS should be considered when appropriate to conserve water and minimise stormwater runoff.

While all of these measures should be implemented within the plan area and beyond, as necessary, they can only be designated and assigned as individual projects and plans develop. To summarise, individual species and habitats may be impacted from different aspects of a plan or project and as such each proposed plan or project with the IWAK LAP should be examined individually with details of specific construction, operation and decommissioning phases (whenever appropriate).

Hence, because of the lack of great detail the key mitigation measure to counteract negative impacts from the plan is that projects giving rise to significant direct, indirect, secondary or cumulative impacts on Natura 2000 sites arising from their size or scale, land take, proximity, resource requirements, emissions (disposal to land, water or air), transportation requirements, duration of construction, operation, decommissioning or from any other effects shall not be permitted on the basis of his plan (either individually or in combination with other plans or projects); except with adequate mitigation measures or as provided for in Article 6(4) of the Habitats Directive – there must be:

- No alternative solution available;
- Imperative reasons of overriding public interest for the plan to proceed, and
- Adequate compensatory measures in place.

All subsequent plan-making and adoption of plans arising from this current plan will be screened for the need to undertake Appropriate Assessment (AA) under Article 6 of the Habitats Directive.

6.2 Mitigation measures for protection and conservation of Annex I habitats and Annex II species

Examining the conservation objectives of the species and habitats within the River Moy cSAC and ascribing associated impacts, it was evident that the IWAK LAP has potential to cause negative impacts, positive impacts and impacts which are likely to be neutral, that is, no notable impacts on the favourable conservation status of the species and habitats within the plan area and beyond. For the purpose of clarity and simplicity, those policies and objectives with potential to cause negative impacts (those highlighted and underlined in Table 5.3) are further listed in Table 6.1 and appropriate mitigation measure(s) prescribed.

Table 6.1 Policies and / or objectives with potential negative impacts identified in Table 5.4, impact summary and mitigation measure prescribed

Policy / objective reference	Impact Summary	Mitigation measure(s)
<i>Strategic development</i>		
<u>Objective SDO2</u>	Zoning of lands for the sustainable development of the IWAK LAP has the potential to impact on the integrity of the Moy cSAC, from the potential deterioration of quality in the Sonnagh water body	<p>In zoning land uses to facilitate the sustainable development of the IWAK LAP area as a strategic transportation and economic / enterprise hub for the Region, the land uses should not impinge on the rural and natural character of the landscape within the draft LAP area. In addition, so as not to impact on the conservation status of the qualifying interests of the River Moy cSAC, projects and plans (and amendments to plans) should always be subjected to Habitats Directive Assessments to ensure that they do not have adverse impacts on any Natura 2000 site in the wider area.</p> <p>Appropriate Assessment (and pre-AA Screening) in accordance with Article 6(3) of the EU Habitats Directive will be undertaken to assess the impacts, or lack thereof on Natura 2000 Network. As provided for in Article 6(4) of the Habitats Directive, a development should only proceed when there is no alternative solution available, due to imperative reasons of overriding public interest, and when adequate compensatory measures are in place. In addition, all objectives and measures prescribed under the Western River Basin District Management Plan should be considered at all times.</p>
<u>Objective SDO7</u>	Potential indirect impacts to the conservation objectives of the River Moy cSAC qualifying interests (Annex I habitats and Annex II species) during the development of projects and plans within the Strategic Development Zone	<p>In requesting the designation of the area of the IWAK LAP as a Strategic Development Zone following the adoption of this LAP, the development of the airport to its full potential, provision of a business park et al.; this change to a development zone and all of its associated projects and plans (and amendments to plans) should always be subjected to Habitats Directive Assessments to ensure that they do not have adverse impacts on any Natura 2000 site in the wider area. Appropriate Assessment (and pre-</p>

AA Screening) in accordance with Article 6(3) of the EU Habitats Directive will be undertaken to assess the impacts, or lack thereof on Natura 2000 Network. As provided for in Article 6(4) of the Habitats Directive, a development should only proceed when there is no alternative solution available, due to imperative reasons of overriding public interest, and when adequate compensatory measures are in place. In addition, all objectives and measures prescribed under the Western River Basin District Management Plan should be considered at all times.

Land Use

Objective LO2

Potential indirect impacts to the conservation objectives of the River Moy cSAC qualifying interests (Annex I habitats and Annex II species) during the proposed development

In ensuring that the proposed development does not impinge upon the character, integrity or uniformity of the landscape, all developments should be subjected to Habitats Directive Assessments to ensure that they do not have adverse impacts on any Natura 2000 site in the wider area. Appropriate Assessment (and pre-AA Screening) in accordance with Article 6(3) of the EU Habitats Directive will be undertaken to assess the impacts, or lack thereof on Natura 2000 Network. As provided for in Article 6(4) of the Habitats Directive, a development should only proceed when there is no alternative solution available, due to imperative reasons of overriding public interest, and when adequate compensatory measures are in place. In addition, all objectives and measures prescribed under the Western River Basin District Management Plan should be considered at all times.

Transport

Policy TP1

A positive impact for the entire area, but new developments initiated to achieve this aim may have potential to cause contamination of water bodies, prevent the restoration of the Sonnagh water body status to good

The use of more sustainable modes of transport to, from and within the IWAK LAP area including public transport, walking and cycling and to ensure that new developments accord with this aim should not impact on measures prescribed in the Western River Basin District Management Plan and specific developments must have Habitats Directive Assessments carried out to ensure that they do not have adverse impacts on any Natura

by 2021 and indirectly impact on the River Moy cSAC qualifying interests

2000 site in the wider area. Appropriate Assessment (and pre-AA Screening) in accordance with Article 6(3) of the EU Habitats Directive will be undertaken to assess the impacts, or lack thereof on Natura 2000 Network. As provided for in Article 6(4) of the Habitats Directive, a development should only proceed when there is no alternative solution available, due to imperative reasons of overriding public interest, and when adequate compensatory measures are in place.

Policy TP2

A positive impact for the entire area, but new developments initiated to achieve this aim may have potential to cause contamination of water bodies, prevent the restoration of the Sonnagh water body status to good by 2021 and indirectly impact on the River My cSAC qualifying interests

The improvement of accessibility and vehicular movements to, from and within the IWAK LAP area as the need arises should not impact on measures prescribed in the Western River Basin District Management Plan and specific developments must have Habitats Directive Assessments carried out to ensure that they do not have adverse impacts on any Natura 2000 site in the wider area. Appropriate Assessment (and pre-AA Screening) in accordance with Article 6(3) of the EU Habitats Directive will be undertaken to assess the impacts, or lack thereof on Natura 2000 Network. As provided for in Article 6(4) of the Habitats Directive, a development should only proceed when there is no alternative solution available, due to imperative reasons of overriding public interest, and when adequate compensatory measures are in place.

Policy TP3

A road development of this scale will have the potential to impact directly and indirectly on Annex I habitats and Annex II species, by its scale, excavation requirements, direct disturbance and possible reduction of habitat area.

The implementation of the N17 Charlestown Bypass should not impact on measures prescribed in the Western River Basin District Management Plan and specific developments must have Habitats Directive Assessments carried out to ensure that they do not have adverse impacts on any Natura 2000 site in the wider area. Appropriate Assessment (and pre-AA Screening) in accordance with Article 6(3) of the EU Habitats Directive will be undertaken to assess the impacts, or lack thereof on Natura 2000 Network. As provided for in Article 6(4) of the Habitats Directive, a development should only proceed when there is no alternative solution available, due to imperative reasons of overriding public interest, and when adequate compensatory measures are in place.

Objective TO1

Like TP3, a road development of this scale will have the potential to impact

The protection of lands adjoining the route for the proposed N17 Charlestown Bypass, within IWAK, from unsuitable and inappropriate

directly and indirectly on Annex I habitats and Annex II species, by its scale, excavation requirements, direct disturbance and reduction of habitat area

development will potentially necessitate further designation and the zonation for the N17 Charlestown bypass should not impact on measures prescribed in the Western River Basin District Management Plan and specific developments must have Habitats Directive Assessments carried out to ensure that they do not have adverse impacts on any Natura 2000 site in the wider area. Appropriate Assessment (and pre-AA Screening) in accordance with Article 6(3) of the EU Habitats Directive will be undertaken to assess the impacts, or lack thereof on Natura 2000 Network. As provided for in Article 6(4) of the Habitats Directive, a development should only proceed when there is no alternative solution available, due to imperative reasons of overriding public interest, and when adequate compensatory measures are in place.

Objective TO3

New developments initiated to achieve this objective may have potential to cause contamination of water bodies and prevent the restoration of the Sonnagh water body status to good by 2021 and indirectly impact on the conservation status of Annex I habitats and Annex II species within the River Moy cSAC

In reviewing, as the need arises, the circulation of traffic within the Plan area and supporting the provision of any alterations in order to provide for the safe and efficient movement of vehicular and/or pedestrian traffic and to implement appropriate traffic management measures as required, any subsequent projects should be subjected to a Habitats Directive Assessments to ensure that it will not have adverse impacts on any Natura 2000 site in the wider area. Appropriate Assessment (and pre-AA Screening) in accordance with Article 6(3) of the EU Habitats Directive will be undertaken to assess the impacts, or lack thereof on Natura 2000 Network. As provided for in Article 6(4) of the Habitats Directive, this development should only proceed when there is no alternative solution available, due to imperative reasons of overriding public interest, and when adequate compensatory measures are in place.

Objective TO6

New developments initiated to achieve this objective may have potential to cause contamination of water bodies and prevent the restoration of the Sonnagh water body status to good by 2021, in addition to indirectly impacting on

In encouraging the provision of a high standard of public transport services to the IWAK LAP area subsequent related projects should be subjected to a Habitats Directive Assessments to ensure that it will not have adverse impacts on any Natura 2000 site in the wider area. Appropriate Assessment (and pre-AA Screening) in accordance with Article 6(3) of the EU Habitats Directive will be undertaken to assess the impacts, or lack thereof on Natura 2000 Network. As provided for in Article 6(4) of the Habitats

Objective TO7

the conservation status of Annex I habitats and Annex II species within the River Moy cSAC

The achievement of this objective has the potential to impact on surface waters with increased siltation and introduction of peat-bound nutrients. Also, a development of this scale will have the potential to impact directly and indirectly on Annex I habitats and Annex II species, by its scale and excavation requirements and direct disturbance and reduction of habitat area.

Objective TO8

Within a car park development and with associated built ground, fugitive discharges may result and impact on the Sonnagh and consequently on the conservation objectives of the River Moy cSAC and its qualifying interests.

Objective TO9

The objective, pertaining to transport infrastructural projects may again impact on surface waters; the Sonnagh River and indirectly on the River Moy cSAC qualifying interests

Directive, this development should only proceed when there is no alternative solution available, due to imperative reasons of overriding public interest, and when adequate compensatory measures are in place.

In supporting the reinstatement of the Western Rail Corridor and in supporting the provision of a rail link from the Western Rail Corridor to the IWAK LAP area, any associated developments should not impact on measures prescribed in the Western River Basin District Management Plan, in particular to restore the Sonnagh water body status by 2021. Specific developments should have Habitats Directive Assessments carried out to ensure that they do not have adverse impacts on any Natura 2000 site in the wider area. Appropriate Assessment (and pre-AA Screening) in accordance with Article 6(3) of the EU Habitats Directive will be undertaken to assess the impacts, or lack thereof on Natura 2000 Network. As provided for in Article 6(4) of the Habitats Directive, a development should only proceed when there is no alternative solution available, due to imperative reasons of overriding public interest, and when adequate compensatory measures are in place.

In providing car parking facilities, as the need arises, for the IWAK LAP area, any / all associated projects should be subjected to a Habitats Directive Assessments to ensure that they will not have adverse impacts on any Natura 2000 site in the wider area. Appropriate Assessment (and pre-AA Screening) in accordance with Article 6(3) of the EU Habitats Directive will be undertaken to assess the impacts, or lack thereof on Natura 2000 Network. As provided for in Article 6(4) of the Habitats Directive, developments should only proceed when there is no alternative solution available, due to imperative reasons of overriding public interest, and when adequate compensatory measures are in place.

In identifying, supporting and securing a footpath and cycle path network for the IWAK LAP area, again the project should be subjected to a Habitats Directive Assessments to ensure that it will not have adverse impacts on any Natura 2000 site in the wider area. Appropriate Assessment (and pre-AA Screening) in accordance with Article 6(3) of the EU Habitats

Directive will be undertaken to assess the impacts, or lack thereof on Natura 2000 Network. As provided for in Article 6(4) of the Habitats Directive, this development should only proceed when there is no alternative solution available, due to imperative reasons of overriding public interest, and when adequate compensatory measures are in place.

Infrastructure provision

Policy IP1

Water pollution and indirect impacts to the River Moy cSAC qualifying interests

In providing infrastructure, including water, waste, energy and communications, necessary to support the existing and future sustainable development at IWAK all developments should have Habitats Directive Assessments carried out to ensure that they do not have adverse impacts on any Natura 2000 site in the wider area. Appropriate Assessment (and pre-AA Screening) in accordance with Article 6(3) of the EU Habitats Directive will be undertaken to assess the impacts, or lack thereof on Natura 2000 Network. As provided for in Article 6(4) of the Habitats Directive, a development should only proceed when there is no alternative solution available, due to imperative reasons of overriding public interest, and when adequate compensatory measures are in place.

Objective IO1

Water pollution and indirect impacts to the River Moy cSAC qualifying interests

In cooperating and coordinating with the relevant Water Services Authority to ensure that an adequate supply of water is available to meet the current and future needs of the IWAK LAP area which is currently served by Harrington's Well (presently a safe yield of between 350 – 400 m³/day and capable of providing for the short-term needs of the airport and any proposed business park) but future needs may be met extension of the Lough Mask Regional Water Supply Scheme from Knock Village or from the proposed North East Mayo Regional Scheme with its source at Lough Conn. Infrastructural projects and / or plans for this purpose should have Habitats Directive Assessments carried out to ensure that they do not have adverse impacts on any Natura 2000 site in the wider area. Appropriate Assessment (and pre-AA Screening) in accordance with Article 6(3) of the EU Habitats Directive will be undertaken to assess the impacts, or lack

Objective IO4

Water pollution and indirect impacts to the River Moy cSAC qualifying interests during construction and operation

thereof on Natura 2000 Network. As provided for in Article 6(4) of the Habitats Directive, a development should only proceed when there is no alternative solution available, due to imperative reasons of overriding public interest, and when adequate compensatory measures are in place.

Under Part II, Article 6 (5) of the Waste Water Discharge (Authorisation) Regulations, 2007 (S.I. No. 684 of 2007) in addition to Article 6(3) and 6 (4) of the EU Habitats Directive, where it appears to the EPA that the discharge from a Wastewater Treatment Plant or agglomeration is likely to have a significant impact on a Natura 2000 site, either alone or in combination with other operations or activities, the EPA shall cause an assessment to be made of the implications for the site in view of the conservation objectives of that site, and in considering the application the EPA shall have regard to the conclusions of the assessment. Hence, under two pieces of legislation, any project or plan associated with upgrades of the existing Wastewater Treatment Plant within the IWAK LAP area should have Habitats Directive Assessments carried out to ensure that they do not have adverse impacts on any Natura 2000 site in the wider area. Appropriate Assessment (and pre-AA Screening) in accordance with Article 6(3) of the EU Habitats Directive will be undertaken to assess the impacts, or lack thereof on Natura 2000 Network. As provided for in Article 6(4) of the Habitats Directive, a development should only proceed when there is no alternative solution available, due to imperative reasons of overriding public interest, and when adequate compensatory measures are in place. As

Objective IO1, Water Treatment Plants should be subjected to similar assessments, if deemed necessary. In addition, conditions set in licence or certificate issued by the EPA in accordance with local, district, regional, national and European legislation should be strictly adhered to

Objective IO8

Changes to water quality and quantity

In supporting any expansion and upgrading of the Electricity Network to meet the needs of the IWAK LAP area, associated projects and plans should not impact on measures prescribed in the Western River Basin District Management Plan, in particular to restore the Sonnagh water body

<u>Objective IO9</u>	Surface and ground water pollution	<p>status by 2021. In addition, specific developments should have Habitats Directive Assessments carried out to ensure that they do not have adverse impacts on any Natura 2000 site in the wider area. Appropriate Assessment (and pre-AA Screening) in accordance with Article 6(3) of the EU Habitats Directive will be undertaken to assess the impacts, or lack thereof on Natura 2000 Network. As provided for in Article 6(4) of the Habitats Directive, a development should only proceed when there is no alternative solution available, due to imperative reasons of overriding public interest, and when adequate compensatory measures are in place.</p>
<u>Objective IO10</u>	Potential deterioration of water quality	<p>In facilitating any expansion of the Metropolitan Area Networks to meet the needs of the Plan Area associated developments / excavation work must have Habitats Directive Assessments carried out to ensure that they do not have adverse impacts on any Natura 2000 site in the wider area. Appropriate Assessment (and pre-AA Screening) in accordance with Article 6(3) of the EU Habitats Directive will be undertaken to assess the impacts, or lack thereof on Natura 2000 Network. As provided for in Article 6(4) of the Habitats Directive, a development should only proceed when there is no alternative solution available, due to imperative reasons of overriding public interest, and when adequate compensatory measures are in place.</p> <p>In supporting the introduction of any new information and communication technologies to meet the needs of the IWAK LAP area, all associated projects and plans for development should not impact on measures prescribed in the Western River Basin District Management Plan, in particular to restore the Sonnagh water body status by 2021. To ensure this protection, specific developments should have Habitats Directive Assessments carried out to ensure that they do not have adverse impacts on any Natura 2000 site in the wider area. Appropriate Assessment (and pre-AA Screening) in accordance with Article 6(3) of the EU Habitats Directive will be undertaken to assess the impacts, or lack thereof on Natura 2000 Network. As provided for in Article 6(4) of the Habitats Directive, a development should only proceed when there is no alternative solution available, due to imperative reasons of overriding public interest, and when</p>

Objective IO12

Potential for deterioration of water quality

adequate compensatory measures are in place.

In supporting any extension of the gas network to meet the needs of the IWAK LAP Area, infrastructural and developmental projects and plans should be subject to Habitats Directive Assessments to ensure that they do not have adverse impacts on any Natura 2000 site in the wider area. Appropriate Assessment (and pre-AA Screening) in accordance with Article 6(3) of the EU Habitats Directive will be undertaken to assess the impacts, or lack thereof on Natura 2000 Network. As provided for in Article 6(4) of the Habitats Directive, a development should only proceed when there is no alternative solution available, due to imperative reasons of overriding public interest, and when adequate compensatory measures are in place. In addition, the objectives and measures prescribed in the Western River Basin District Plan should also be provided for.

Airport infrastructure and operations

Policy AP1

Potential for deterioration of water quality and surrounding environment

In supporting the current and future operational, safety, technical and development requirements of the Airport, all proposed projects and plans (and their amendments) should be subjected to a Habitats Directive Assessments to ensure that it will not have adverse impacts on any Natura 2000 site in the wider area. Appropriate Assessment (and pre-AA Screening) in accordance with Article 6(3) of the EU Habitats Directive will be undertaken to assess the impacts, or lack thereof on Natura 2000 Network. As provided for in Article 6(4) of the Habitats Directive, this development should only proceed when there is no alternative solution available, due to imperative reasons of overriding public interest, and when adequate compensatory measures are in place.

Objective AO1

This development has the potential to impact on the integrity of the Moy cSAC, from the potential deterioration of quality in the Sonnagh water body

In facilitating any extension to the existing runways and in safeguarding the potential for future runway development any associated projects should be subjected to a Habitats Directive Assessments to ensure that it will not have adverse impacts on any Natura 2000 site in the wider area. Appropriate Assessment (and pre-AA Screening) in accordance with Article

		<p>6(3) of the EU Habitats Directive will be undertaken to assess the impacts, or lack thereof on Natura 2000 Network. As provided for in Article 6(4) of the Habitats Directive, this development should only proceed when there is no alternative solution available, due to imperative reasons of overriding public interest, and when adequate compensatory measures are in place. A flood Risk Assessment should also be undertaken to investigate potential increases in runoff rates</p>
<p><u>Objective AO2</u></p>	<p>This development has the potential to impact on the integrity of the Moy cSAC, from the potential deterioration of quality in the Sonnagh water body</p>	<p>In facilitating the development of new taxi-ways where necessary the project should be subjected to a Habitats Directive Assessments to ensure that it will not have adverse impacts on any Natura 2000 site in the wider area. Appropriate Assessment (and pre-AA Screening) in accordance with Article 6(3) of the EU Habitats Directive will be undertaken to assess the impacts, or lack thereof on Natura 2000 Network. As provided for in Article 6(4) of the Habitats Directive, this development should only proceed when there is no alternative solution available, due to imperative reasons of overriding public interest, and when adequate compensatory measures are in place.</p>
<p><u>Objective AO3</u></p>	<p>This development has the potential to impact on the integrity of the Moy cSAC, from the potential deterioration of quality in the Sonnagh water body</p>	<p>In facilitating the orderly expansion of aircraft apron areas, to provide for improved aircraft facilities, the project should be subjected to a Habitats Directive Assessments to ensure that it will not have adverse impacts on any Natura 2000 site in the wider area. Appropriate Assessment (and pre-AA Screening) in accordance with Article 6(3) of the EU Habitats Directive will be undertaken to assess the impacts, or lack thereof on Natura 2000 Network. As provided for in Article 6(4) of the Habitats Directive, this development should only proceed when there is no alternative solution available, due to imperative reasons of overriding public interest, and when adequate compensatory measures are in place.</p>
<p><u>Objective AO6</u></p>	<p>This development has the potential to impact on the integrity of the Moy cSAC, from the potential deterioration of quality in the</p>	<p>In encouraging the on-going development of terminal facilities at IWAK, any associated projects should be subjected to a Habitats Directive Assessments to ensure that it will not have adverse impacts on any Natura 2000 site in the wider area. Appropriate Assessment (and pre-AA</p>

Sonnagh water body

Screening) in accordance with Article 6(3) of the EU Habitats Directive will be undertaken to assess the impacts, or lack thereof on Natura 2000 Network. As provided for in Article 6(4) of the Habitats Directive, this development should only proceed when there is no alternative solution available, due to imperative reasons of overriding public interest, and when adequate compensatory measures are in place.

6.3 Conclusion

The draft Local Area Plan presently includes the following:

- Zoning of lands for particular purposes for the plan period but with a longer vision for the continuing development of the airport and adjoining lands;
- Provision of infrastructure; transport; protection of heritage and environment; airport infrastructure; operations and economic activities;
- Development of the airport to its full potential;
- Identification of Public Safety Zones (PSZ) for the Airport and possible noise considerations;
- Development of a business park;
- Provision for guidance on the layout and design of development;
- Other works not currently identified but as may be necessary as the plan evolves.

The exact nature and precise location of the development under the IWAK LAP is, as yet, undefined but from the preceding sections, it is evident that it will be the subject of a number of individual projects and plans. These will be subjected, during the early planning and application stages, to assessments to investigate their impacts, either alone or in combination with other plans or projects on Natura 2000 sites, *in-situ* or *ex-situ*.

A number of the core policies and objectives described in Section 5 pertaining to the IWAK LAP are considered as valuable mitigation measures and, when implemented, will prevent significant adverse effects on Natura 2000 sites.

Additional and specific mitigation measures will be prescribed for individual projects and plans as they evolve and are brought through the planning process.

The approach and focus of this Habitat Directive Assessment has been to influence the presentation and the preparation of the draft plan and its adoption and ensure that the Ireland West Airport Knock Local Area Plan content and objectives adequately protect the Natura 2000 network.

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Appendix I WAC for Sonnagh River (regarding IWAK WwTP)

Dilution Rate:

Number of dilutions = Flow in receiving water ($\text{m}^3\text{day}^{-1}$) / WwTP discharge volume ($\text{m}^3\text{day}^{-1}$) = $2851 / 58 = 49$ (or $2851 / 157 = 18$) (**dilution rates for WwTP**)

WAC Calculation:

$$\text{WAC (kgday}^{-1}\text{)} = (C_{\text{max}} - C_{\text{back}}) * F95 (\text{m}^3\text{s}^{-1}) * 86.4$$

where C_{max} = maximum permissible concentration in receiving water (based on achieving 'good status' under the EC Environmental Objectives (Surface Waters) Regulations 2009 or alternative appropriate legislation).

C_{back} = background (upstream) concentration (mg day^{-1})

F95 = 95 % flow in receiving river (m^3s^{-1}) $0.033 \text{ m}^3\text{s}^{-1}$

86.4 is a constant

$$\text{WAC for BOD} = (2.6-1) \times 0.033 \times 86.4 = \mathbf{4.6 \text{ kgday}^{-1} \text{ O}_2 \text{ BOD}}$$

(Using BOD limits for 'good status' from above legislation for C_{max} and SW1u sample from IWAK WwTP for C_{back})

$$\text{WAC for Suspended Solids} = (25-3) \times 0.033 \times 86.4 = \mathbf{62.7 \text{ kgday}^{-1} \text{ SS}}$$

(Using SS limit from Salmonid Regulations [S.I. No. 293/1988]) for C_{max} and SW1u sample from IWAK WwTP for C_{back})

$$\text{WAC for orthophosphate} = (0.075-0.01) \times 0.033 \times 86.4 = \mathbf{0.2 \text{ kgday}^{-1} \text{ P (as orthophosphate)}}$$

(Using ortho-P limits for 'Good Status' from above legislation (95 %ile flow) for C_{max} , and SW1u sample from IWAK WwTP for C_{back} with 95%ile flow in receiving water)

$$\text{WAC for Ammonia} = (0.14-0.005) * 0.033 * 86.4 = \mathbf{0.38 \text{ kgday}^{-1} \text{ N (as NH}_3\text{)}}$$

(Using ammonia limits for 'Good Status' from above legislation (95 %ile flow) for C_{max} and SW1u sample from IWAK WwTP for C_{back})

Loadings from WWTP:

Utilising mean Table D.1 (i)(b) Emissions to Surface Water Data from Licence Application for IWAK (June 2009)

(a) WwTP BOD loading = $(3*58)/1000 = 0.17 \text{ kgday}^{-1} \text{ BOD}$ (***within assimilative capacity; 4.6 kgday⁻¹ BOD***)

(b) WwTP BOD loading = $(3*157)/1000 = 0.5 \text{ kgday}^{-1} \text{ BOD}$ (***within assimilative capacity; 4.6 kgday⁻¹ BOD***)

(a) WwTP Suspended Solids loading = $(2*58)/1000 = 0.12 \text{ kgday}^{-1} \text{ SS}$ (***within assimilative capacity; 62.7 kgday⁻¹ SS***)

(b) WwTP Suspended Solids loading = $(2*157)/1000 = 0.31 \text{ kgday}^{-1} \text{ SS}$ (***within assimilative capacity; 62.7 kgday⁻¹ SS***)

(a) WwTP orthophosphate loading = $(2.38*58)/1000 = 0.14 \text{ kgday}^{-1} \text{ ortho-P}$ (***within assimilative capacity; 0.2 kgday⁻¹ P***)

(b) WwTP orthophosphate loading = $(2.38*157)/1000 = 0.37 \text{ kgday}^{-1} \text{ ortho-P}$ (***not within assimilative capacity; 0.2 kgday⁻¹ P***)

(a) WwTP ammonia loading = $(0.005*58)/1000 = 0.0003 \text{ kgday}^{-1} \text{ ammonia}$ (***within assimilative capacity; 0.38 kgday⁻¹ N***)

(b) WwTP ammonia loading = $(0.005*157)/1000 = 0.001 \text{ kgday}^{-1} \text{ ammonia}$ (***within assimilative capacity; 0.38 kgday⁻¹ N***)

where (a) is normal daily outflow and (b) is maximum outflow volume from WwTP

Table II.1 County Development Plan Air Transport policies and objectives

P/TI-A 1	It is the policy of the Council to support the development of Ireland West Airport Knock in accordance with the principles of proper planning and sustainable development
O/TI-A 1	It is an objective of the Council to request the Minister of the Environment, Heritage and Local Government to designate the area around IWAK as a Strategic Development Zone (SDZ)
O/TI-A 2	It is an objective of the Council to prepare a Public Safety Zone map for IWAK
O/TI-A 3	It is an objective of the Council to create and enforce an exclusionary zone of a 13 km radius of IWAK. The 13 km exclusionary zone shall define a volume of airspace, by means of Obstacle Limitation Surfaces, above which no new objects shall be permitted. The 13 km exclusionary zone shall define an area within which no new conventional or residual landfills will be constructed.

Table II. 2 County Development Plan Industry and Enterprise objectives

O/ED-IE 4	It is an objective of the Council to identify and zone sufficient and suitably-located lands for different types of industry and enterprise, in accordance with the hierarchical approach to location as set out in the Regional Planning Guidelines. As part of this objective, the Council will endeavour to ensure that an adequate level of start-up / incubation units is provided within industrial / enterprise parks.
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Table II.3 County Development Plan Environment, Heritage and Conservation policies and objectives

<i>Water quality</i>	
P/EH-WQ 1	It is the policy of the Council to participate fully in the Western River Basin District Project as part of the implementation of the EU Water Framework Directive to ensure the improvement, protection and sustainable use of all waters in the County, including rivers, lakes, ground water, coastal and estuarine waters, and to restrict development likely to lead to a deterioration in water quality
P/EH-WQ 2	It is the policy of the Council to work in cooperation and partnership with all major stakeholders to ensure a coordinated approach to the protection and enhancement of the County's water resources
<i>Air quality and noise pollution</i>	
P/EH-AN 2	It is the policy of the Council to support the Climate Change Strategy on an ongoing basis through implementation of supporting policies of the Plan, particularly those supporting the use of alternative and renewable energy sources, sustainable transport and promotion of the retention of, and planting of trees, hedgerows and afforestation

P/EH-AN 3 It is the policy of the Council to ensure that noise levels from new and existing developments do not exceed normally accepted standards, as set in the *DoH/LG Noise Regulations 2006*, and that the requirements of S.I. No. 140 of 2006 (*Environmental Noise Regulations, 2006*) are complied with, with regard to existing and future development in proximity to National roads

Flooding and soil erosion

P/EH-F 1 It is the policy of the Council to restrict inappropriate development in areas at risk of flooding (inland or coastal), erosion and other natural hazards

P/EH-F 2 It is the policy of the Council to keep areas free of development that would be subject to an inappropriate risk of flooding or would cause or exacerbate such a risk at other locations. As part of this, the Planning Authority shall require a flood risk assessment and proposal for the storage and attenuation of run off / discharges (including foul drains) to ensure development does not increase the flood risk in relevant catchment. This must accompany applications for planning permission for developments of areas exceeding 2 hectares

P/EH-F 3 It is the policy of the Planning Authority to require all large scale developments in the settlements identified in the County Settlement Strategy to incorporate ‘Sustainable Urban Drainage Systems’ (SUDS) as part of the development proposals. Surface Water Management Systems should be designed in accordance with Dublin Corporation Stormwater Management Policy for Developers

Heritage

P/H-G 1 It is the policy of the Council to conserve, protect and enhance the special character of the County, as defined by its natural heritage and biodiversity, its built environment, landscape and culture, in cooperation with the Department of the Environment, Heritage and Local Government, The Heritage Council and all relevant agencies, bodies etc

P/H-G 2 It is the policy of the Council to protect and, where appropriate, restore and enhance access to the County’s heritage assets whilst having regard to the need to protect the inherent conservation and amenity value of these assets

P/H-G 3 It is the policy of the Council to support the implementation of the *National Biodiversity Plan*

P/H-G 4 It is the policy of the Council to work with other relevant agencies in promoting awareness and pride in the County’s natural and built heritage and promote codes of best practise in relation to conservation of this heritage

O/H-G 1 It is an objective of the Council to facilitate and participate in the implementation of the County Mayo Heritage Plan, in partnership with the Heritage Council, County Mayo Heritage Forum, relevant stakeholders and community groups etc

O/H-G 2 It is an objective of the Council to prepare a Local Biodiversity Action Plan for the County and to support its implementation

O/H-G 3 It is an objective of the Council to develop a hedgerow conservation management document, which specifically covers the following topics; Planning, Roadside Hedgerows, Maintaining and Enhancing Biodiversity, Landscapes, Agriculture, Heritage Hedgerows, Education and Training

Natural heritage

- P/EH-NH 1 It is the policy of the Council to protect, enhance and conserve:
- a) Candidate Special Areas of Conservation, Special Protection Areas, Natural Heritage Areas and proposed Natural Heritage Areas, Statutory Nature Reserves, Ramsar Sites and Biogenetic Reserves, including those listed in Appendix VI, any modifications of any additional areas that may be so designated during the lifetime of the plan
 - b) Natural habitats and plants and animal species identified under the Habitats Directive, the Birds Directive, Wildlife Act and the Flora Protection Order, or any other relevant legislation including that which may be implemented during the lifetime of the plan, including bogs, fens and turloughs listed in Appendix VI
 - c) Features of natural interest and amenity, which provide a unique habitat for wildlife including ecological networks (including ecological corridors and stepping stones), riparian zones, hedgerows, stone walls, shelterbelts, woodlands, individual or groups of trees and forest amenity areas
 - d) Features of geological interest; fens, bogs and turloughs as listed in Appendix VI
 - e) The conservation value of disused railway lines, waterways, walkways etc, notwithstanding that some of these items may be sustainably developed at some future date as part of the Council's infrastructure
 - f) Surface waters, aquatic and wetland habitats and freshwater species through the implementation of the *EU Water Framework Directive*
 - g) Trees or groups of trees protected under Tree Preservation Orders as listed in Appendix VII, as well as trees and woodlands of particular amenity and conservation value, or which make a valuable contribution to the character of the landscape, a settlement or its setting
 - h) Sites of local conservation importance including those identified in the Local Biodiversity Action Plan
- P/EH-NH 3 It is the policy of the Council to require that any planning application that proposes development within an area designated as a cSAC, SPA, NHA or pNHA listed in Appendix VI to be accompanied by an Ecological Impact Assessment, assessing the impact of the proposal on these areas with conservation designations. The EIA will be forwarded to the NPSW Section of the DoEHLG for their comments prior to the making of a decision by the Planning Authority
- P/EH-NH 4 It is the policy of the Council to implement Article 6 (3) of the *EU Habitats Directive*, and to subject any plan or project likely to impact Natura 2000 or European Sites, whether directly (in-situ), indirectly (ex-situ) or in combination with other plans or projects, to an appropriate assessment in order to inform decision making. A plan or project may only be authorised after the competent authority has made certain, based on scientific knowledge, that it will not adversely affect the integrity of the site; in the case of derogations, authorisation must be pursued under Article 6(4)
- P/EH-NH 5 It is the policy of the Council to fully integrate wildlife and biodiversity considerations into all areas of the Council's roles and responsibilities and
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P/EH-NH 6	into all its works and operations It is the policy of the Council to increase awareness of the importance of the natural heritage of the County and to promote education, knowledge and pride in our natural heritage
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Appendix III eSAC Site Synopsis

SITE NAME: RIVER MOY (Site Code: 002298)

This site comprises almost the entire freshwater element of the Moy and its tributaries including both Loughs Conn and Cullin. The system drains a catchment area of 805 km². Most of the site is in Co. Mayo though parts are in west Sligo and north Roscommon. Apart from the Moy itself, other rivers included within the site are the Deel, Bar Deela, Castlehill, Addergoole, Clydagh and Manulla on the west side and the Glenree, Yellow, Strade, Gweestion, Trimogue, Sonnagh, Mullaghanoe, Owengarve, Eighnagh and Owenaher on the east side. The underlying geology is Carboniferous Limestone for the most part though Carboniferous Sandstone is present at the extreme west of the site with Dalradian Quartzites and schists at the south west. Some of the tributaries at the east, the south of Lough Conn and all Lough Cullin are underlain by granite. There are many towns adjacent to but not within the site. These include Ballina, Crossmolina, Foxford, Swinford, Kiltimagh and Charlestown.

The site is a candidate SAC selected for old oak woodlands, raised bog, degraded raised bog and Rhynchosporion, all habitats listed on Annex I of the E.U. Habitats Directive. The site is also selected for the following species listed on Annex II of the same directive – Atlantic Salmon, Otter, Sea Lamprey and White-clawed Crayfish.

On the slopes and rising ground around the southern shores of Loughs Conn and Cullin, Oak woodlands are seen. Sessile Oak (*Quercus petraea*) is the dominant tree with an understorey of Holly (*Ilex aquifolium*), Hazel (*Corylus avellana*) and Birch (*Betula pubescens*) with some Ash (*Fraxinus excelsior*). Additional species are associated with the lakeshore such as the whitebeam (*Sorbus rupicola*), Aspen (*Populus tremula*), Silver Birch (*B. pendula*) and the shrubs Guelder Rose (*Viburnum opulus*), Buckthorn (*Rhamnus catharticus*) and Spindle Tree (*Euonymus europaeus*). The ground flora is usually composed of Bilberry (*Vaccinium myrtillus*), Wood Rush (*Luzula sylvatica*), Wood Sorrel (*Oxalis acetosella*), Buckler Ferns (*Dryopteris aemula* and *D. dilatata*), Hard Fern (*Blechnum spicant*), Cow-wheat (*Melampyrum spp.*) and Bracken (*Pteridium aquilinum*). The rare Narrow-leaved Helleborine (*Cephalanthera longifolia*), protected under the Flora Protection Order, 1999, occurs in association with the woodlands. Also found in these woodlands is the snail (*Acanthinula lamellata*), associated with old natural woodlands.

On higher ground adjacent to the woodlands is blanket bog with scattered shrubs and trees on the drier areas. The rocky knolls often bear Juniper (*Juniperus communis*) or Gorse (*Ulex europaeus*), with some unusual rare herb species such as Intermediate Wintergreen (*Pyrola media*) and Lesser Twayblade (*Listera cordata*).

Within the site are a number of raised bogs including those at Kilgarriff, Gowlaun, Derrynabrock, Tawnaghbeg and Cloongoonagh. These are examples of raised bogs at the north-western edge of the spectrum and possess many of the species typical of such in Ireland, including an abundance of Bog Asphodel (*Narthecium ossifragum*), Carnation Sedge (*Carex panicea*) and the moss *Campylopus atrovirens*. Some of the bogs include significant areas of active raised bog habitat. Well-developed pool and hummock systems with quaking mats of bog mosses (*Sphagnum* spp.), Bog Asphodel (*Narthecium ossifragum*) and White Beaked-sedge (*Rhynchospora alba*) are present. Many of the pools contain a diversity of plant species, including Bogbean (*Menyanthes trifoliata*), the bog moss *Sphagnum cuspidatum*, *Campylopus atrovirens*, Common Cottongrass (*Eriophorum angustifolium*), Great Sundew (*Drosera anglica*) and occasional Lesser Bladderwort (*Utricularia minor*). Several of the hummock-forming mosses (*Sphagnum fuscum* and *S. imbricatum*) which occur here are quite rare in this region and add to the scientific interest of the bogs within the overall site.

Depressions on the bogs, pool edges and erosion channels, where the vegetation is dominated by White Beaked-sedge (*Rhynchospora alba*) comprise the habitat Rhynchosporion. Associated species in this habitat at the site include Bog Asphodel, Sundews, Deergrass (*Scirpus cespitosus*) and Carnation Sedge.

Degraded raised bog is present where the hydrology of the uncut bogs, has been affected by peat cutting and other land use activities in the surrounding area such as a forestation and associated drainage and also by the Moy arterial drainage. Species typical of the active raised bog habitat are still present but the relative abundance of them is different. A typical example of the degraded habitat, where drying has occurred at the edge of the high bog, contains an abundance and more uniform cover of Ling Heather (*Calluna vulgaris*), Carnation Sedge, Deergrass and sometimes Bog-myrtle (*Myrica gale*). Occurring in association with the uncut high bog are areas of wet regenerating cutover bog with species such as Common Cottongrass, bog mosses and Sundew, while on the drier areas, the vegetation is mostly

dominated by Purple Moor-grass (*Molinia caerulea*). Natural regeneration with peat-forming capability will be possible over time with some restorative measures.

The open water of Loughs Conn and Cullin is moderately hard with relatively low colour and good transparency. The phytoplankton of the lake is dominated by diatoms and blue-green algae and there is evidence that the latter group is more common now than in former years. This indicates that nutrient inflow is occurring. Arctic Charr (*Salvelinus alpinus*) appear to have disappeared from the lake over the same period of time. The changes in Lough Conn appear to represent an early phase in the eutrophication process. Stoneworts still present include *Chara aspera*, *C. delicatula* and *Nitella cf. opaca*. Other plants found in the shallower portions are *Potamogeton* spp. (pondweeds). Where there is a peat influence Intermediate Bladderwort (*Utricularia intermedia*) is characteristic while Water Lobelia (*Lobelia dortmanna*) often grows in sand. Narrow reedbeds and patches of Yellow Water-lily (*Nuphar lutea*) occur in some of the bays.

Drainage of the Moy in the 1960s lowered the level of the lakes, exposing wide areas of stony shoreline and wet grassland, which are liable to flooding in winter. This increased the habitat diversity of the shoreline and created a number of marginal wetlands, including fens and marshes. Plant species of note in the lake-margin include Heath Cudweed (*Omalotheca sylvatica*), Great Burnet (*Sanguisorba officinalis*) and Irish Lady's-tresses (*Spiranthes romanoffiana*). These three species are listed on the Irish Red Data list and are protected under the Flora Protection Order 1999.

Other habitats present within the site include wet grassland dominated by Rushes (*Juncus* spp.) grading into species-rich marsh in which sedges are common. Among the other species found in this habitat are Yellow Iris (*Iris pseudacorus*), Water Mint (*Mentha aquatica*), Purple Loosestrife (*Lythrum salicaria*) and Soft Rush (*Juncus effusus*).

Grey Willow (*Salix cinerea*) scrub and pockets of wet woodland dominated by Alder (*Alnus glutinosa*) have become established in places throughout the site. Ash (*Fraxinus excelsior*) and Birch (*Betula pubescens*) are common in the latter and the ground flora is typical of wet woodland with Meadowsweet (*Filipendula ulmaria*), Angelica (*Angelica sylvestris*), Yellow Iris, Horsetail (*Equisetum* spp.) and occasional tussocks of Greater Tussock-sedge (*Carex paniculata*).

Small pockets of conifer plantation, close to the lakes and along the strip both sides of the rivers, are included in the site.

The Moy system is one of Ireland's premier salmon waters and it also encompasses two of Ireland's best lake trout fisheries in Loughs Conn and Cullin. Although the Atlantic Salmon (*Salmo salar*) is still fished commercially in Ireland, it is considered to be endangered or locally threatened elsewhere in Europe and is listed on Annex II of the Habitats Directive. The Moy is a most productive catchment in salmon terms and this can be attributed to its being a fingered system with a multiplicity of 1st to 5th order tributaries which are large enough to support salmonids < 2 years of age while at the same time being too small to support significant adult trout numbers and are therefore highly productive in salmonid nursery terms.

Salmon run the Moy every month of the year. Both multi-sea-winter fish and grilse are present. The salmon fishing season is 1st February to 30th September. The peak of the spring fishing is in April and the grilse begin running in early May. The average weight of the spring fish is 9 lb and the grilse range from about 3-7 lb. In general spring fish are found more frequently in the rivers at the western extent of the Moy system.

The Arctic Charr (*Salvelinus alpinus*), a glacial relict, which is listed as threatened in the *Irish Red Data Book* has been recorded from Lough Conn and in only a few other lakes in Ireland (Igoe, 2000). The latest reports suggest that it may now have disappeared from the site.

The site is also important for the presence of three other species listed on Annex II of the E.U. Habitats Directive; namely Sea Lamprey (*Petromyzon marinus*), Otter (*Lutra lutra*) and White-clawed Crayfish (*Austropotamobius pallipes*). The Sea Lamprey is regularly encountered in the lower stretches of the river around Ballina, while the otter and crayfish are widespread throughout the system. In addition, the site also supports many more of the mammal species occurring in Ireland. Those which are listed in the *Irish Red Data Book* include Pine Marten, Badger, Irish Hare and Daubenton's Bat. The common Frog, another Red Data Book species, also occurs within the site.

Loughs Conn and Cullin support important concentrations of wintering waterfowl and both are designated Special Protection Areas (SPA). A nationally important population of the Annex I species Greenland White-fronted Geese (average 113 over 6 winters 1994/95 to

1999/00) is centred on Lough Conn. Whooper Swans also occur (numbers range between 25 to 50), along with nationally important populations of Tufted Duck 635, Goldeneye 189 and Coot 464. A range of other species occur on the lakes in regionally important concentrations, notably Wigeon 303, Teal 154, Mallard 225, Pochard 182, Lapwing (> 1000) and Curlew 464. Golden Plover also frequent the lakes, with numbers ranging between 700 and 1000.

Loughs Conn and Cullin are one of the few breeding sites for Common Scoter in Ireland. Breeding has occurred on Lough Conn since about the 1940s when about 20–30 pairs were known. A census in 1983 recorded 29 pairs. Breeding was first proved on Lough Cullin in 1983 when 24 pairs were recorded. In 1995, 24–26 pairs were recorded at Lough Conn and 5 pairs at Lough Cullin. The latest survey in 1999 gives a total of 30 birds for both lakes, comprising only five pairs, 18 unpaired males and two unpaired females. The reason for the decline is not known but may be due to predation by mink, possible changes in food supply and/or redistribution to other sites. The Common Scoter is a Red listed species.

Agriculture, with particular emphasis on grazing, is the main land use along the Moy. Much of the grassland is unimproved but improved grassland and silage are also present. The spreading of slurry and fertiliser poses a threat to the water quality of this Salmonid river and to the large lakes. Fishing is a main tourist attraction on the Moy and there are a large number of Angler Associations, some with a number of beats. Fishing stands and styles have been erected in places. The North Western Regional Fisheries Board has erected fencing along selected stretches of the river as part of their Salmonid enhancement programme. Other aspects of tourism are concentrated around Loughs Conn and Cullin.

Afforestation has occurred in the past around the shores of Loughs Conn and Cullin. The coniferous trees are due for harvesting shortly. It is proposed to replant with native tree species in this area. Forestry is also present along many of the tributaries and in particular along the headwaters of the Deel. Forestry poses a threat in that sedimentation and acidification occurs. Sedimentation can cover the gravel beds resulting in a loss of suitable spawning grounds. The Moy has been arterially dredged in the 1960s. Water levels have been reduced since that time. This is particularly evident along the shores of Loughs Conn and Cullin and in the canal-like appearance of some river stretches. Ongoing maintenance

dredging is carried out along stretches of the river system where the gradient is low. This is extremely destructive to Salmonid habitat in the area.

The site supports populations of several species listed on Annex II of the EU Habitats Directive, and habitats listed on Annex I of this directive, as well as examples of other important habitats. The presence of a fine example of broad-leaved woodland in this part of the country increases the overall habitat diversity and adds to the ecological value of the site as does the presence of the range of nationally rare and Red Data Book plant and animal species.

16 May 2005