An Bord Pleanála

Inspector's Report

An Bord Pleanala Reference	07. KA0027/07HA0041
Local Authority:	Galway County Council
Description of Development:	N59 Maam Cross to Oughterard Road Project Compulsory Purchase Order 07.KA0027 and EIS approval 07HA0041
Objectors to CPO:	Galway Diocesan Trustees Edward Lyons & Others Keith & Marett Geoghegan Joe & Mildred Joyce Diane Upson John Geoghegan John & Mary Geoghegan Maria Lennon Martin & Margaret Geoghegan Mary Conneely David Morton Jack
Objectors to EIS	Carra Mask Corrib Water Protection Group Ltd Galway Cycling Campaign Peter Sweetman on behalf of others
Inspector:	Breda Gannon
Date of Site Inspection:	January 24th, February 9th, & June 6th, 2013
Date of Oral Hearing	February 18th, 19th & 20th, 2013
Date of Re-convened Oral Hearing	August 20th & 21st, 2013.

Appendices:

(1) Site Plan & Photographs

(2) Extracts from Galway County Development Plan 2006-2012

(3) Natura 2000 Site Synopsis & Conservation Objectives

(4) Submissions to Oral Hearing by Galway Co. Co.

(5) Submission to Oral Hearing by Objectors

(6) Recording of Oral Hearing

(7) Submissions to re-convened Oral Hearing by Galway Co. Council

(8) Recording of re-convened Oral Hearing.

Appendices:

(A) Summary of EIS

(B) Errata identified by Inspector

INTRODUCTION

On the 5th of October 2012, Galway County Council made a Compulsory Purchase Order entitled Galway County Council Compulsory Purchase Order (No 1), 2012 (N59 Maam Cross to Oughterard Road Project). This Order was made pursuant to the powers conferred on the local authority by section 76 of the Housing Act, 1966, and the Third Schedule thereto, as extended by section 10 of the Local Government (No. 2) Act, 1960, (as substituted by section 86 of the Housing Act 1966), as amended by section 6 and the Second Schedule to the Roads Act, 1993, and as amended by the Planning and Development Act, 2000-2010. The Order was published on October 5th October, 2012.

The Order would, if confirmed, authorise the local authority to acquire compulsorily the land described in the First Schedule to the Order, for the purposes of construction of approximately 15 km of National Secondary Road and associated works from the townland of Lurgan or Shindilla west of Maam Cross to the townland of Claremount, west of Oughterard in Co Galway. The order will also authorise the local authority to extinguish the public rights of way described in the Second Schedule.

The full extent of the lands required for the scheme are described in the First Schedule and are shown outlined in red and coloured grey on the deposited maps (Drawings No's. GC094741-16-181901 to GC094741-16-18196-10). The Second Schedule provides details of 9 no. locations where it is proposed to extinguish public rights of way proposed as part of the scheme. The locations are indicated between the lines coloured green on the deposited maps.

The request for confirmation of the compulsory purchase order was received by the Board on the 15th October, 2012.

An application is also made for the approval by An Bord Pleanala of the proposed road development under Section 51 of the Roads Act 1993-2007 as amended by the Planning and Development Acts 2000-2011 (07.HA0041). The scale of the road development is below the threshold for preparation of an EIS. However, the Board having considered the matter exercised its powers under Section 50(1)(b) of the Roads Act 1993, as amended and directed Galway County Council to prepare an environmental impact statement is respect to the project (07HD.0023 refers).

A Natura Impact Statement was also submitted to facilitate the Appropriate Assessment of the road upgrade works on Natura 2000 sites in the vicinity of the site.

A number of objections were received to both the proposed CPO and the road development and an Oral Hearing in relation to the development took place in the Westwood Hotel, Dangan, Galway on February 18th, 19th, & 20th 2013. The hearing was re-opened on August 20th & 20th , 2013.

DETAILS OF THE COMPULSORY PURCHASE ORDER

The CPO relates to the acquisition of lands for the upgrade of the existing N59 National Secondary Road between Maam Cross and Oughterard to a Type 3 Single Carriageway and all ancillary works. The upgrade will comprise of predominantly online widening with some offline sections. Approximately 10.6 km (70%) of the upgrade will be online

with 4.4 km (30% offline). The main elements of the development include the following: -

- 15km of National Secondary Road upgrade
- 0.55km of local road improvements/realignments
- Improvement of 8 public road junction layouts
- 2.0 km of farm/accommodation/access roads and accesses
- 3 bridge structures comprising 2 no. new bridges over watercourses and upgrade/extension of I no. bridge over watercourse and 32 piped/ culverted watercourse crossings.
- 260m of retaining walls
- Earthworks and pavements
- 1.65 km of footway/cycle track
- Fencing and safety fencing works, drainage works, landscaping works, environmental mitigation measures, utility and services diversion works, accommodation works and all ancillary works.

The application to the Board is supported by the Project Engineer's report of 27th September 2012 recommending that the CPO be made. The Senior Executive Planner's report of 28th September 2012, confirms that the acquisition of lands is in conformity with the proper planning and sustainable development objectives for the area.

The total area of land included in the CPO is 65.1 Ha and includes 15.1 Ha classified as public road. The published CPO schedule included the proposed acquisition of 312 plots from a total of 56 landowner groups. The 9 no. rights of way that will be extinguished will be temporary and will be re-instated following the completion of the proposed development.

DESCRIPTION OF ROAD DEVELOPMENT

The alignment commences c 250m west of Maam Cross and travels in a generally easterly direction along the existing N59. It weaves off-line at 21 locations for distances ranging from 17m to 665m. The off-line locations are detailed in Table 4.1 of the EIS and are indicated on Drawing No GC094741-16-18115. The N59 intersects the regional road (R 336) at Maam Cross and the local road network in a number of locations. The proposed development allows for a minor alignment of the R336 to provide a staggered, at grade, ghost island, priority junction. There are a further 6 junctions with local roads, which will be subject to minor alignments onto the N59 by means of at-grade simple priority junctions. A shared footpath/cycle track will be provided on one side of the proposed road between Derryerglinna N.S and Glengowla West townland. The proposed alignment is either within or borders a cSAC along 4.5 km of its length.

There are four principle bridge structures along this section of the roadway and these will be replaced or widened. There are also a significant number of minor watercourse crossings, the majority of which will have to be upgraded/extended as part of the development. A new road drainage system is proposed, which will consist of linear grassed channels followed by linear wetlands at each outfall providing primary and secondary treatment prior to discharge to watercourses.

In addition to the material generated from the greenfield sections of the road, which will be re-used as topsoil, the development will also generate material which requires

disposal, mainly peat. It is proposed that the material will be placed in material deposition/peat restoration areas located within the land take boundary.

It is estimated that construction will be carried out in a number of consecutive stages and the road will remain open to traffic during the construction period. A number of construction compounds will be required which will be placed in the vicinity of the road development. The compounds are likely to include stores, offices, parking areas for staff etc. A Construction Management Plan (CMP) will be produced by the contractor and will include a detailed programme of works. It will include the Environmental Operating Plan (EOP) and waste management plan (WMP). The EOP will include a fully developed Construction Erosion and Sediment Control Plan.

A detailed description of the proposed road development is provided in Chapter 4 of the EIS.

DESCRIPTION OF LANDS

The section of the N59 affected by the development extends westwards from Claremount Td on the outskirts of Oughterard for a distance of 15 km towards Lurga or Shindilla Td to the west of Maam Cross.

The roadway travels through predominantly rural countryside and the main land use is agriculture in the form of low intensity animal grazing, with turf cutting/forestry activity in the wider area. The settlement pattern is largely dispersed with individual properties fronting onto the N59. There are some clusters of dwellings at Glengowla, Derryerglinna and west of Letterfore Bridge. The highest concentration of dwellings generally occurs towards the eastern section of the road closer to Oughterard. Other land uses in the area include a small school at Derryerglinna, a tourist attraction (Glengowla Mines) and Peackocks Hotel at Maam Cross.

Oughterard is the largest settlement and provides an important commercial, service and tourism function for the wider area. Maam Cross is an important cross roads at the intersection of the N59 and the R 336, providing links with Leenaun to the north and Rossaveel to the south.

The road travels through a very varied, rugged and picturesque landscape. Close to Maam Cross the landscape is dominated by the numerous lakes that adjoin the roadway including Ardderry and Bofin to the south and Lurgan and Loughaunierin to the north. Further east towards Oughterard the landscape on the north side of the road is characterised by more elevated ground dominated by the Knockletterfore hills. To the south the land slopes away towards the valley formed by the Owenriff River.

ENVIRONMENTAL IMPACT ASSESSMENT

The EIS was compiled by Roscommon National Roads Design Office on behalf of Galway County Council with specialist inputs from sub-consultants. The EIS is presented in 4 no. volumes:-

Volume 1 - Non Technical Summary

Volume 2 - Main Text

Volume 3 - Drawings

Volume 4 - Appendices

The Main Text is organised into 18 chapters. A Natura Impact Statement is presented as a separate document. A summary of the EIS is appended to the back of the report for the information of the Board (Appendix A).

OBJECTIONS TO CPO

There are a total of 10 No. objections to the scheme as originally submitted which are summarised below.

1. **Galway Diocesan Trustees**

   The grounds of objection area as follows:

1. The acquisition of the lands would result in the removal and elimination of the school car park, which would be unsafe and result in traffic hazard and would, therefore, be contrary to the proper planning and development of the area.
2. The acquisition of the subject lands would eliminate the 'set down and pick up' capability endangering school children, which would be contrary to the proper planning and development of the area.
3. The absence of proposed accommodation works providing DMRB compliant (development plan compliant) car parking and 'set down and pick up' accommodation represents a deficiency in the design and would, therefore, be contrary to the proper planning of the area.

2 **Edward Lyons, Rosin Lyons O'Mallley, Ann Lyons Wormsley, Fionnula Lyons Middleton, Marion Lyons Lynch, Patricia Lyons Waldron, Sheila Lyons, Gerry Lyons, Henry Lyons, Billy Lyons & Frank Lyons. The submission was made by Gaynor Corr & Associates who is stated to represent eleven of the thirteen owners of Plot 2190**

The grounds of objection are as follows: -

1. The land being acquired is surplus to requirements. The plan and shape of the plot is unsuitable and causes severe and unnecessary severance.
2. No details of the access to the retained plots of land have been provided.
3. There are no details/ specifications for the fence to be used and clarification on who maintains it.
4. Other matters as may arise when more detailed design drawings and responses are provided.

3. Keith & Marett Geoghegan (represented by Gaynor Corr & Associates)

The grounds of objection area as follows:-

1. The acquisition of land within their recessed entrance is surplus to requirements. They wish to be in control of their recessed entrance to prevent unauthorised parking and damage to their gates caused by vehicles turning at this location.

They are willing to allow the Council temporary use of lands to realign the entrance.

2. The design of the access to the bog road at chainage 269+100 should be amended to move the gate closer to the new road and in line with the mainline fence. They wish to retain the lands inside the gate and will supply temporary access to these lands for the construction of the entrance.
3. The Geoghegans' operate the Glengowla Mines which is a very unique tourist business. No detail has been provided on how and where the Council propose to relocate the existing signs for the business.
4. No detail has been provided regarding the design/plan of the realigned main entrance to their property.
5. Other matters may arise when more detailed design drawings and responses are provided.

4. Joe & Mildred Joyce

The grounds of objection are as follows:-

1. The realignment of the road will cut the road in half. A tractor and trailer will have to be available at all times to change the animals from one side of the road to the other. A loading pen will be required on both sides of the road.
2. Concerns that the construction work will pollute a spring well.
3. Impacts on the dwelling.
4. Poor communication and practically no consultations with Galway Co Co and the NRA.
5. Glengowla is one of the few unspoilt villages/townland along the N59. An alternative would be to the north of the village/townland.

5. Diane Upson (represented by W B Gavin & Co. Solicitors)

The grounds of objection area as follows:-

1. The land to be acquired comprises a significant portion of the front garden of the house. The acquisition will impact on the natural light currently enjoyed by the property. The dwelling house is set back 5m from the front wall of the property which abuts the public road. The house will not be sufficiently set back from the new road and it is understood that any new wall will be 10ft high and would be located within 3m of the house. This will result in a loss of aspect and visual amenity. It will also result in noise, vibration etc.
2. Concerns with respect to the impacts of the proposed road project on the environment around the property.
3. The Board should annul the CPO and any compensation awarded would not be sufficient remedy.
4. It is contended that an alternative minor change to the roadway directly in front of the property would be more cost effective, would have a lower environmental impact and would cause less disturbance, severance and injurious effect to the objector.

6. John Geoghegan

The grounds of objection are as follows: -

1. The objector lives in the property identified as No.170 and his father resides in his own property identified as No.169. Both houses are located within the same landholding, which is farmed on a part-time basis. The holding comprises lands to the north and south of the existing N59 and lands north of the proposed offline section of the realigned N59. The agricultural holding, which is already split in two by the existing N59 will be split in three if the new off-line section proceeds as proposed. The lands are currently stocked with horses, ponies and sheep and a significant section of land (27 hectares) further to the north has been planted. It is accessed through the holding and by a right of way through neighbouring property. The viability of the holding will be severely impacted by the proposal. There will be no direct access from one part of the farm to the other. Moving stock will now become a significant exercise and will introduce a significant and frequent safety risk at the two new junctions between the existing and new sections of the N59.
2. The residential amenity of the two houses will be impacted by the proposal. The proposed road location is effectively in the area used for recreation and amenity.
3. The safety of the two new junctions, particularly the one at the western end of the off-line section is questionable. It will now be necessary to turn right onto the new road and then immediately left onto the new accommodation road which is intended to provide access to the land to the north. The hazard caused by slow moving traffic performing these manoeuvres for fast moving traffic on the N59 has not been adequately considered. The same will apply for vehicles exiting the accommodation road and traveling west.
4. The proposal will physically split the community and isolate those properties on the planned disused sections of the existing N 59. There will be less passing traffic, less informal and unplanned contact with neighbours, which is particularly important for older residents.
5. A natural spring well, which is still used by a number of families, as the main source of drinking water by a number of families, will be obliterated by the proposal.
6. The current Galway/ Clifden bus service picks up passengers in Glengowla West along the route, which will now be moved to the offline location if the proposal goes ahead. It is unclear how the service will operate in the future.
7. It is unclear if other options were considered. The least disruptive option would be to the north of the current offline proposal. This would effectively by-pass most of Glengowla. It would have the effect of achieving the objectives of road improvement while preserving as much as possible the community and the individual residential and agricultural interests of the residents. It would also move the road further away from the Freshwater Mussel Owenriff Catchment Area and mitigate one of the main environmental risks of the scheme. Whilst it could be argued that it would cost more, it at least deserves the benefit of a comparative cost benefit study.
8. Adequacy of consultations with local residents.

7. John & Mary Geoghegan (Plot code: 2400b.201)

The grounds of objection are as follows:-

1. The alignment of the N 59 will break up and destroy the back garden to the house with immeasurable upset, disturbance and inconvenience to daily life as occupants are forced to cross the alignment for their daily walk.
2. It will result in the occupants living on practically a roundabout, which will remove the advantages of living in rural Ireland and impact on quality of life and

recreation. The area around Glengowla is one of the last unspoilt villages and rural landscapes in the country. The development will destroy the native flora and fauna.
3. There has been very poor communication and practically non-existent consultation by Galway County Council and the NRA with landowners and the village community.
4. Whilst the importance of road improvements are recognised, the proposed alignment is not considered the most effective way to achieve it.

The objection is accompanied by photographs and a site map.

8. Marie Lennon (represented by John Paul Lennon Consulting Engineer's)

The grounds of objection are as follows:-

1. Objects to the acquisition of any part of her land. The profile of her land is such that there is an extensive road frontage on the east-west axis, but a shallow depth between the public road and the lake on the north-south axis. The lands enjoy very valuable potential for the development of a number of fishing lodges. The lodges would not have any detrimental effect on the environment, no more than that of the bungalow on the east side of the lake.
2. There will be more than adequate sight distances from any vehicular access in both directions along the N59. The lands are fully serviced, apart from wastewater which can be readily provided by means of a proprietary treatment plant with discharge of treated water into the vast capacity of the lake.
3. Cross sections of the new road along the frontage of the lands have been sought and when these are received further submissions may be made.
4. A better alignment for the road would be 10-15m to the north which would be more cost effective.

9. Martin & Margaret Geoghegan

The grounds of objection are as follows: -

1. The road will divide the farm in two with devastating effects.
2. There is a spring well on the farm of John Gibbons, which is used for drinking water.

10. Mrs Mary Conneely (represented by Spencer Auctioneers)

The grounds of objection are as follows:-

1. The Council considered 3 No. Design Options to alleviate the problem of difficult bends at Glengowla. Option No 1 involved a general widening of the existing road and reducing the curvature on the existing bends. This option would appear not to significantly impact on the community of Glengowla. The second option, which would have involved a gentle alignment of the existing road at the most severe bend would have involved minor disruption to the community of Glengowla. The third option involves a substantial alignment. It divides the community in two and is socially divisive and will add significantly to the compensation costs that will have to be paid to acquire the lands.
2. The acquisition of the lands will destroy a significant part of the farm and divide the remainder of the lands (Maps 1 & 2 attached).

3. The house is located 75m from the existing road (Map 3). It is proposed to acquire 65m of the driveway from the road to the edge of the lawn. According to the Council, it is necessary to acquire this section of the driveway to provide a safe gradient onto the new road. A safe driveway could be accommodated in 25m of land instead of the 65m that is proposed to be acquired.
4. Livestock can presently move from one part of Field A to another (Map 4). However, if the Council succeed in acquiring the land moving livestock from one part of the field to the other will involve travelling a distance of 857m along the old road from Point No1 to Point No 2 and then crossing the new road at the uneven junction between Points No 2 and Point No 3 en-route to the farm at Point No 4.
5. Parts of the lands to be acquired are to provide a suitable access for May Gibbons, the owner of parcels 2450a.201, 2450a.203 and 2450b.202. In so doing it would be possible to provide access to Mary Conneely's field, beside the access to May Gibbons land. The Council would only have to acquire a small strip of land at the point marked 6 on Map 5 to allow this to happen. The consequences of this extremely minor change means that moving livestock could involve a distance of 21m from the lower section of the field along the old section of the junction with the new road at No 5 and then onto the remainder of her land at No 6.
6. The Council have refused to state on what grounds they are not prepared to allow this alteration. It would be a cost effective solution for the Council in that it would significantly diminish the compensation to which Mary Conneely would be entitled. Furthermore, the Council would not have to construct the farm road from point No 7 on Map 4 to point No 4. Ms Conneely objects to the acquisition of that part of parcel 2445a.201 on the grounds that it is being acquired by the Council to grant access to a neighbour when the Council will not allow Ms Conneely to have access at that point.

SUBMISSION/OBSERVATIONS IN RELATION TO EIS APPROVAL

1. **Inland Fisheries Ireland**

The submission of 3rd December 2012 notes that Inland Fisheries Ireland (IFI) has been involved in detailed consultations with the project team regarding the project. IFI is generally satisfied that the issues in relation to fisheries have been adequately captured and that any outstanding concerns can be addressed by way of method statements and liaison as the project is being implemented. The agency has no objection to the development subject to on-going consultation and agreement on method statements in relation to works near waters.

2. **Galway Cycling Campaign**

The Connemara Greenway will cross the N59 at Grid Reference M023 452 in the Bunnakill townland. The crossing is located at the end of a series of bends and consideration should be given to providing a 'grade separated' treatment crossing the main road at a different level. The NRA is actively proposing similar revisions at crossings of the Western Greenway/ N59 between Westport to Mulranny (at Kiltarnagh and the new Rossdooaun River Bridge).

The decision to connect Derryglinna School and Glengowla West townland via a 1.65 km shared footway/cycle track in the verge on one side of the road is endorsed but

careful consideration must be given to how children will cross to the school and appropriate arrangements need to be made. Care also need to be taken that the design of the cycle track does not invite use as an informal 'drop off' point for parents bringing children to school. A formal drop-off location may also be needed.

It is understood that Galway County Council is seeking additional sections of cycle track along the route. The incorporation of recreational cycle facilities into high-speed corridors is contrary to best practice and is contrary to the 2007 Failte Ireland Cycling Tourism Strategy. The recent Bord Pleanala decision (08.HA0035) in relation to the N86 Camp Dingle road affirms the view that such locations are not the options of first choice for recreational cycle routes, which should be directed to the Greenway. If there is a particular demand for extra space to facilitate cyclists or pedestrians at other locations on the main road, this is better catered for by providing hard shoulders of adequate width (2.5-3.0m) on both sides of the road. The primary cyclists on the main road will be high speed sports cyclists on training runs and the Greenway would not be a suitable location for sports cyclists who can travel at 30/40 km/h.

3. Department of Arts, Heritage and Gaeltacht

The Development Application Unit's recommendation is that all of the mitigation measures are carried out in full in advance of the commencement of the construction works and includes the archaeological investigation of all offline sections. The archaeological component of the scheme should be overseen by the Project Archaeologist.

4 Carra Mask Corrib Water Protection Group

Expresses concerns regarding the risk posed by the proposed re-alignment on the integrity of the Owenriff River which is part of the Lough Corrib cSAC. The river hosts viable populations of pearl mussel and Atlantic salmon, both of which are Annex 1 species under the Habitats Directive and as such must receive maximum protection. The river is also a vital spawning site and nursery for hosts of Lough Corrib brown trout, which are the basis of a very valuable tourist angling industry that benefits the local economy of the region. There is also a brown trout hatchery downstream of the proposed re-alignment.

The proposed realignment would appear to involve the removal of very substantial volumes of soil and rock from the site. Such extensive activity along a gradient which inclines towards the adjacent river and which is drained by numerous springs and stream, is likely to unleash unacceptable amounts of minerals and sediment to waters, which would have an adverse effect on it's delicate biodiversity. Due to the proximity of the site to the river and the complexity of the aquifer draining from it, and taking into account the climate change of recent years, where throughout the seasons unpredictable volumes of intense rainfall occur, grave doubts must be cast on any known preventative measures which might seem to stem the release of the minerals and sediments from the site to the river.

It is the view that it would be more prudent to take a different line for the re-alignment, much further to the east than the proposed line and at a safer distance from the Owenriff River. It would result in a greater cost for the project but would eliminate the very real danger of Ireland being given heavy monetary penalties from the EU in the event of

damage being done to what could be regarded as one of Europe's most important biodiversity treasure troves.

POLICY CONTEXT

National Policy

The **National Development Plan 2007-2013** is a seven year investment programme for economic and social development in the State. Under the Roads Sub-programme it is stated that investment in national roads will be used to implement the objectives of the National Spatial Strategy and balanced regional development. Investment in road links between gateways will be a particular focus, including a major upgrade of the Atlantic Road Corridor, which links many of the Gateways outside Dublin. A number of key National Secondary Routes are targeted for improvement including the N59.

The **National Spatial Strategy 2002-2020** is a planning framework designed to achieve a better balance of social, economic, physical development and population growth between regions. It provides a national framework to guide policies, programmes and investment in the country. Transport is identified as a key component of the overall spatial policy and an important tool in balancing regional development. Part of this involves building on Ireland's radial system of main roads and rail lines connecting Dublin with other regions, and developing an improved network of roads and public transport services. Implementing the road investment programme under the National Development Plan is considered to be a key element in enhancing regional accessibility and underpinning better regional development. The N59 west of Galway city and including the stretch between Oughterard and Maam Cross is identified as a national transport corridor providing 'access to peripheral areas'.

Smarter Travel-A Sustainable Transport Future 2009-2020 set out a new transport policy for Ireland. The policy proposed is to retain investment in roads that will remove bottlenecks, ease congestion and pressure in towns and villages and provide the necessary links to support the NSS.

Transport 21, which was published in 2005 is a capital investment programme through which Irelands transport system will be developed over the period 2006-2015. One of the key objectives of the 'national programme' is to create a high quality, efficient national road and rail network that are consistent with the objectives of the NSS. The N59 (Mayo-Galway Coastal Route) is identified as a priority for renewal and upgrade.

Regional Policy

The **Regional Planning Guidelines for the West Region 2010-2122** provides a framework for the long term strategic development of the West Region over a twelve year period. The Guidelines emphasise that good transport infrastructure is vital to promote economic and social well being.

Section 5.2 refers to priority access infrastructure and to objectives and policies that support the provision of infrastructure.

Policy IP2 supports the NRA investment to remedy deficiencies generally in the road network minimising environmental impacts.

Policy IP3 relates to implementing transport policy objectives of the National Development Plan and Transport 21 by supporting the NRA programme of works in national routes, minimising environmental impact.

Objective I05 identifies works for priority completion in order to promote balanced regional development. There is reference to upgrading and improving all National Secondary Roads, in particular the N59 Galway to Ballina route serving the West region and minimising environmental impact.

Objective 106 supports the use of ecological assessment of strategic roads infrastructure including reservation of land and upgrading of routes to ensure route options have sufficient flexibility to avoid or mitigate significant environmental impacts. Mitigation measures for the protection of habitats or movement of species should be provided where feasible and appropriate.

Local Policy

The operative development plan is the **Galway County Development Plan 2009-2015.**

Section 6 is devoted to ***Infrastructure: Roads and Transportation***. It acknowledges that Galway, due to its peripheral location relies heavily on its public road network for transportation (6.1.3). Whilst several new strategic national roads have been constructed/ planned, existing National Routes including the N59 will continue to act as strategic economic corridors. It is recognised that a continued programme of improvement of infrastructure is required to improve the economic performance of the County, give effect to the settlement strategy, facilitate the implementation of the NSS, support the Principle of Sustainability, redress imbalances in service quality both in the national context and between different parts of the County and to protect the quality of the environment of the County.

The Plan states that the on-going road improvement programme will deliver necessary improvements to National and non-National Roads. This programme will provide better connection from all parts of the County to the trans-national network, relieve areas of congestion and improve safety levels on all public roads (6.2).

Relevant policies include: -

Policy RT1 Seeks to promote the development of a sustainable transport system that provides a range of transport options for the County, including a safe road network, a range of bus services and rail services, adequate facilities for walking and cycling and opportunities for air and water based travel. The Council will seek to ensure that improvements in transport infrastructure and services support the strategic and settlement strategy for the County and provide an appropriate level of accessibility to urban and rural facilities, services and opportunities…

Policy RT5 Support the National Roads Authority programme of works for National Routes throughout the County…..

Policy RT7 Facilitate the safe and efficient movement of people and goods in the interests of the economy.

Relevant Objective

Objective RT19 Continue with the strengthening and improvements of the N59, N63, N65, N66. N67, N83 and N 84.

Heritage, Landscape and Environmental Management is addressed in Section 9 of the Plan.

Section 9.3 refers to Natural Heritage. **Policy HL31** states *'that 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 any 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)'.*

There are three cSAC in the vicinity of the proposed development, Lough Corrib cSAC, Maumturk Mountains SAC and Connemara Bog Complex cSAC. Parts of Maumturk Mountains cSAC and Lough Corrib cSAC have been designated SPA.

Section 9.3.7 highlights the problems presented by non-native species and impacts on biodiversity. **Policy HL91** states that *'the local authority will have regard to best practice with regard to minimising the spread of invasive species in carrying out its own development in the county and shall encourage private developers to have regard to same'.* The Council supports measures for the prevention and eradication of invasive species (**Policy HL92**) and supports initiatives that reduce the risk of invasions, control and manage new and established invasive species, monitor impacts, raise public awareness (**Objective HL43**). A number of invasive species have been identified in the vicinity of the proposed development.

Landscape Conservation and Management is addressed in Section 9.4. A total of 25 character areas have been identified in the County (LCA1-25) The site travels within LCA10 –East Connemara Mountains (Moycullen Recess to Glinsk). The landscape is described in the Landscape Character Assessment as *'scenic although not remarkable.'* The majority of the road is located within a landscape with a 'high' value rating (Map HL3) with the most western section extending from Maam Cross to the east of Loughaunierin within the area designated 'outstanding'. There are no Focal Points/ Views along or adjacent to the existing route (Map HL2)

REPORT ON ORAL HEARING

An oral hearing was held in the Westwood Hotel Galway on February 18th, 19th & 20th, 2013.

The Board retained the services of Mr Pierce Regan, Artane Recording Studio to record the proceedings. This constitutes the official record of the proceedings (Appendix 6).

Prior to the hearing, five objectors withdrew their objections. Those remaining objectors were Joe & Mildred Joyce, John Geoghegan, John & Mary Geoghegan, Maria Lennon and Martin & Margaret Geoghegan.

I wish to inform the Board that 2 No. Errata documents containing technical amendments to the CPO and other matters were submitted during the oral hearing, the contents of which, where relevant will be addressed in the assessment.

Attendance at the Oral Hearing

On behalf of Galway County Council

Mr Esmonde Keane S.C.
Ms H Mulloy, Blake & Kenny Solicitors
Mr Mark Keaveny - Chartered Engineer Roscommon NRDO
Ms Valerie Loughnane-Moran - Senior Executive Planner
Mr Jerry O Sullivan - Archaeologist
Mr Paul Chadwick - Technical Director RPS
Mr Mervyn Keegan – Director Envest Environmental Ltd
Mr Bruce Dodd – GVA Donal O Buachalla
Mr John Kehoe – Associate/ Senior Planner Brady Shipman Martin
Mr Anthony Cawley - Hydrologist Hydro Environmental Ltd
Ms Paula Kearney - Ecologist RPS
Mr Christopher Walter - Landscape Architect – MosArt Ltd.

Objectors

Oisin O Nidh - Galway Cycling Campaign
Mr Con Mc Cole - Carra Mask Corrib Water Protection Group
Mr John Gibbons – Manager Owenriff Trout Hatchery
Cllr Seosamh O' Chuaidh – Independent Councillor Connemara
Mr Peter Sweetman acting on behalf of the Geoghegan & Joyce families.

Mr O Nidh, Mr Con Mc Cole and Mr John Gibbons read from written submissions which are appended to the back of the report (Appendix 5). The submissions are summarised below

Prescribed Bodies

Mr Pat Warner – Divisional Manager NPWS

Mr Warner read from a prepared text, which is appended to the back of the report. The submission is summarised below.

Oral Hearing Proceedings

Day 1 of the hearing began with Inspector's opening statement. The Inspector drew the attention of Galway County Council to a number of errata in the text of the EIS and the NIS (primarily relating to incorrect numbering of tables and other details) that required clarification. The document outlining the errata is presented in Appendix B.

Mr Sweetman stated that he fundamentally objected to the Board's adopted procedures of not making the record of the proceedings available to the public until after it had made its decision. He considered this practice was contrary to the Aarhaus Convention.

Mr Esmond Keane SC distributed a list of errata (folder entitled Errata dated February 18th, 2013) relating to the EIS, to which Mr Sweetman objected on the basis that this constituted further information, to which the public did not have access. Details of the errata are discussed further in the assessment.

Each of the witnesses for Galway County Council read from detailed written submissions. As the evidence replicates some of the detail contained in the application and supporting documentation, it will not be repeated below. The content will be referred to where relevant in the assessment. A copy of each brief of evidence is appended to the back of the report for the information of the Board (Appendix 4).

Day 2 of the hearing began with submissions to the hearing by objectors followed by Galway County Councils responses, which are detailed below. Copies of Amendments to the CPO were circulated. The errata identified by the Inspector at the beginning of the Oral Hearing were addressed (Document No 15 in Appendix 4 supported by folder entitled Errata dated February 19th, 2013). This was followed by cross questioning of witnesses.

Objector's Submissions to the Oral Hearing

1. ***Councillor S. O'Chuaidh***

Noted that Connemara has a bigger population than Leitrim or Longford and that it deserved the best road to serve the community. There are two roads that run from Galway to Connemara, the R336 along the coast and the N59. He had been informed by Galway County Council that it was practically impossible to do anything with the R336 due to the number of access roads radiating off it. Attempts were made to provide a new road between Barna and Screeb but this is curtailed by SAC restrictions. All hopes now lie with the N59. It was not widely known that it was a Type 3 carriageway that is proposed, which is an inferior type road and not the best fit for the local community. He has become aware that there are examples of Type 3 roads in other parts of the country and that interestingly these all occur along the west coast in Kerry, Donegal and Mayo. In response to queries why this type of road was proposed he was informed that this was a 'tourist type' road, and there was mention of iconic landscape and SAC's.

Councillor O Chuaidh stated that Connemara is crucified with restrictions. Over 80% of the area is designated SAC. Whilst he had no issues with preservation, he had concerns that the restrictions will destroy local communities.

In response Mr Keane SC stated that Mr O'Chuaidh had summarised very well why a Type 3 road is proposed. It had been designed taking into account its usage, the landscape, designated sites and the fact that it is a tourist route, which is crucial to the vitality of Connemara. He noted that in the case of the N86, the Board reverted back to the County Council on the basis that it was an overdesign. A balance had to be struck between the protection of the landscape and the environment, while at the same time providing the best road possible to serve the community. The public have been made aware at all times what type of road is proposed, as documented in various parts of the Non-Technical Summary.

2. ***Galway Cycling Campaign***

Mr Oisin O Nigh, Chair of the Galway Cycling Campaign, noted the response made by the NRDO to his earlier submission to An Bord Pleanala. The Connemara Greenway will cross the N59 at one point, which is located at the end of a series of bends. He sought clarification on whether any consideration was given by the NRDO and Galway County Council to providing a 'grade separated' treatment crossing the road at a different level. He noted that the NRA is actively promoting similar revisions to crossings at the Western Greenway/N59 between Westport and Mulranny.

He queried whether any consideration was given to providing a 'grade separated' crossing from the railway alignment at Bunnakill. He also queried if 'grade separated' treatment could have been provided if the Greenway were to cross the N59 at a more suitable location. In this context he enquired whether it would be possible to provide a grade separated crossing that could use an existing bog road that links the railway line to the N59. It is approximately 300m in length and runs directly south of Loughaunieren from Ch 260+100 to Ch 261+000.

He also queried whether the topography at Ch 260+100 would be more suitable for providing a grade separated bridge or tunnel compared with the on-grade crossing at Ch 261+000 to Ch 260+900. He requested that consideration be given to the feasibility of providing grade separated crossings for the three additional Connemara Greenway crossings when designing the N59 between Maam Cross and Clifden.

3. Carra Mask Corrib Water Protection Group

The submission was made by Mr Con Mc Cole an angler and former CEO of the water protection group. He noted that the group was founded in 2000 by members of the Federations of Angling Clubs in the Corrib catchment who were concerned by the visible and on-going decline in water quality.

Concerns had been raised within the group about the risks posed to the waters of the Owenriff River by the proposed realignment of the N59 Maam Cross to Oughterard Road. He referred to its location in the Lough Corrib cSAC, which hosts protected species such as freshwater pearl mussel, salmon, otters, eels etc. The river is one of the principal spawning and nursery rivers for Lough Corrib brown trout. The Lough Corrib Angling Federation own and voluntarily operate a brown trout hatchery on the river near Oughterard. The Lough Corrib trout and salmon are the key element in a very important tourist angling business which traditionally stimulates the local economy. The business is only sustainable through the well being and proliferation of the wild brown trout and salmon stocks in the entire Corrib catchment.

The entire ecosystem along the Owenriff is so interlinked and interdependent that the slightest risk to any of its elements would permanently shatter those links and dependency that sustain it. The pearl mussel are dependent for survival on trout and salmon as their larvae must attach to the gill of a juvenile salmon or trout and remain there for a period of 4-12 months, before detaching and beginning an independent life in the gravel of the river. The salmon and trout fry which hatch in the soft peaty waters of the river are dependent, post hatching, for survival on the minute plankton which inhabit the river. The stable diet of the otter has been the European eel, which is in a state of decline. In order to survive otter now eats other fish such as trout and salmon.

At Glengowla West, the development on the side of a steep slope with its gradient towards the Owenriff River would ensure an unacceptable high risk of ecological

damage occurring to the river. There is a risk of the release to the river of a cocktail of elements from the fractured rock during the construction period, which would be compounded by heavy rainfall that is a feature of this part of Connemara. The geology would appear to be volcanic in origin and mining activity has unearthed deposits of lead, copper, zinc, etc. Local knowledge indicates that a sulphuric smell can be detected from some of the water taken from wells in the locality. There is clear indication of iron oxide in a small stream, known locally as Sean's stream, which flows down gradient from where the proposed cut in the road through a large rock formation is to take place. There is radon gas in the local rock/ground which is soluble in water.

The EIS does not address the above risks to the waters of the Owenriff river. Neither does it address the real risk of the importation for the project of granular fill and material for earthworks, from an unknown source, which may contain deleterious matter. Whilst the EIS contains very elaborate mitigation measures to protect the waters of the river from contamination, the measures in an exceptionally difficult environment are subject to human error or mechanical or structural failure. It is impossible to pass judgement on the mitigation measures proposed without a full method statement being available. The EIS does not set out in any detail a monitoring regime for the ecosystem of the river, before, during and post construction of the roadway.

There are alternatives to the route of the proposed realignment, which would not offer the same risk to the river ecosystem. One such alternative would be to move the alignment much further away from the river, or, to raise the standard of the existing N59.

4. Mr John Gibbons

Mr Gibbons introduced himself as the hatchery manager for the past 28 years. He read from an historical record on the Oughterard Trout hatchery. The document is not dated, signed or sourced, but was stated by Mr Gibbons to have been researched by a Mr Tom Mc Dermott and given to him as a record of the history of the hatchery. It noted that the hatchery was the first of its kind in Ireland and commenced operations in 1852. It states that there is evidence to support the claim that salmon farming originated here.

Mr Gibbons noted that this is a very historic hatchery. It is the only trout hatchery on the entire Corrib system. The water quality of the river is the lifeline of the hatchery and no development should take place upstream that would jeopardise the production of fry for the hatchery. He noted that Galway County Council have a poor track record in protecting the Owenriff river system. Similarly, Coillte which engaged in clear felling near the headwaters of the river which resulted in the discharge of nutrients into the river system. Two photographs were submitted with the document stated to illustrate damage caused to the Owenriff River from these clear felling operations. The photographs were taken from the river at Glengowla West opposite the location where off-line section of the road is proposed.

Mr Gibbons requests that an undertaking be given by Galway County Council and the NRA that the development will not have any damaging impact on the river quality and that a monitoring regime be put in place to monitor their activities before during and after operations. The hatchery is vital to the whole of the Corrib. It exists for 165 years and he does not wish to see it destroyed by this development.

5. Submission by Mr Pat Warner NPWS

Mr Warner noted that there were a series of consultations between the developer's ecological consultants and NPWS going back to 2010. At the end of a long series of interactions, Mr Warner drafted the document and had intended that it would be issued as a letter to the Board. It was obviously a procedural error that this did not occur.

Mr Warner began by stating that it is important to note that the proposal is to upgrade an existing main road using almost entirely the same footprint and drainage channels. The development will not increase the volume of traffic, although traffic will presumably move faster with less pollution and disturbance. It will exchange the roadside drains, at least in part, with more modern ones designed with the knowledge of the needs of aquatic species such as salmon and freshwater pearl mussel.

The proposal has a land take of 0.007% of the SAC, clearly an insignificant proportion and it does not impinge on any habitats that are qualifying interests. It is noted that some consideration is given to the potential impact on habitat that is not qualifying interest and is not in an SAC. Whilst this does deserve some level of protection and concern, it must rank below the qualifying interests, which we have a clear and strict duty to conserve. It is therefore reasonable to conclude that once constructed the new road will be better for nature conservation that the present one.

There remains the issue of damage during construction and there is no probability of direct impacts on protected species or habitats. The one issue that does arise is the possibility of downstream, off site damage to freshwater pearl mussel populations in the Owenriff, arising from pollutants/sediment leaked by the engineering works.

Dr Moorkens study found no mussels in the streams that are crossed by the road. The threat therefore is to the populations in the Owenriff that are 2.4km, 3.2km, 1.8km, 4.8 km and 3km downstream of the bridges where works are planned. The pollution control plans are a fairly well known set of protective measures laid down in the relevant NRA Guidelines and a set of mitigation measures on issues such as fuel spills etc. These are well-established engineering precautions and there is no reason to question their efficacy.

Mr Warner stated that the detail contained in the documentation submitted in support of the application is impressive and professional and it is clear that the developer takes these issues seriously. There is, therefore, no reason to think that they will not implement the mitigation, or that the mitigation will fail.

Mr Warner concludes by stating that he does not think that there is a reasonable probability of significant damage.

Galway County Responses to Submissions

Mr Mark Keaveny provided a response to the various objections/submissions made with respect to the proposed development reading from a prepared text, a copy of which is appended to the back of the report (No 13 in Appendix 4). The responses are summarised below.

Response to submission by Carra Mask Corrib Protection Group

The findings of the EIS are that the proposed development will have a negligible residual impact on the water environment, including the Owenriff and associated species such as Freshwater Pearl Mussel and Atlantic Salmon. It is concluded in the NIS that the proposed road development will not adversely affect the integrity of any Natura 2000 site. Inland Fisheries Ireland raised no objection to the proposal.

The potential impacts of the proposed road development on the sensitive water environment have been identified and assessed in detail in the documentation submitted to An Bord Pleanala. The protection of the environment generally and the water environment in particular has been of paramount importance during the development stage of the project. Extensive surveys have been undertaken.

During the project development, a series of workshops involving all project team members, assisted in the early identification of potential impacts and the amendment of the proposal to avoid impacts wherever possible. In addition, numerous additional meetings involving specialists took place including hydrologists, ecologists and the road designers and early consultations and numerous meetings took place with NPWS and IFI. Dr Evelyn Moorkens, a leading Freshwater Pearl Mussel expert formed a key member of the project team and she is satisfied that there will be no residual impacts on the species as a result of the proposed development.

A detailed Preliminary Erosion and Sediment Control Plan outlines all of the principal control and mitigation measures and is included in Appendix 5A of the EIS and Appendix E of the NIS. The mitigation measures proposed during construction include well-established and effective engineering controls. Key design, control and mitigation measures have been incorporated in the proposed development in order to minimise the impacts and to protect the environment. The concerns raised by Carra Mask Corrib Water Protection Group have been fully addressed in the documentation submitted to An Bord Pleanala.

A number of alternative options were considered as detailed in the EIS to address the seriously deficient and substandard condition of the road at Glengowla. The proposed realignment at Glengowla represents the best overall solution. Options located further north as suggested by Carra Mask Corrib Protection Group were discounted as they would involve impacts on Annex 1 and Annex 1 Priority Habitat, be longer in length, have a greater footprint through greenfield land, be more intrusive in the landscape etc. Whilst the proposed re-alignment at Glengowla involves substantial earthworks including the excavation of 27,000 m3 of rock, this is acknowledged and assessed in the EIS. Furthermore, if an alignment further north were pursued, the quantum of earthworks would be several times greater.

Response to Submission by Galway Cycling Campaign

The proposed Connemara Greenway Project is a separate project from the N59 road alignment and the standards, method of construction, route choice, design features and structures are not matters for consideration under the proposed road development. This being said, there has been on-going consultation between the design teams involved in the two projects. In this regard the at-grade Greenway Crossing in Bunnakill has been planned for and accommodated in the proposed road development. The land acquisition allows for sufficient space for the at-grade crossing facilities to be provided, e.g. setbacks, signage etc. The realigned road will provide more than sufficient sightlines

and stopping sight distance (greater than 160m) for motorists approaching from either direction to see, interpret and stop their vehicles in advance of the crossing point. Likewise Greenway users will have sufficient distance along the road to see if it is safe or not to cross the road.

The provision of a grade separated crossing was considered at this location. Unlike the two crossing locations on the Western Greenway mentioned in the submission, existing constraints and in particular topography, water environment, designated sites, ground conditions and presence of houses mitigate against the provision of such facilities at Bunnakill. Ground investigation data show that the groundwater level is approx. 0.7 m below ground level. An underpass would become flooded and accordingly such an option is not possible. An overpass at this location would require the construction of a significant overbridge structure that would require a deck level of at least 6m above the existing road on either side (the top of the parapet would be at least 1.2 m above this). There would be a requirement for either very long ramp approaches or alternatively spiral type ramp structures in order to achieve a suitable gradient for all greenway users. This option, whichever ramp type is chosen would have significant impacts on the dwelling at Ch 260+910 (Pic 01). This would result in impacts on cultural heritage as the house was the former Gate Keepers Lodge associated with the Galway to Clifden railway. There would be a significant impact on the landscape (Pic 02) due to the intrusion of the structure in an otherwise open and expansive landscape. It would be out of character with this rural route, which does not have and never had, such a bridge between Galway and Clifden.

It is noted that the Galway Cycling Campaign accepts and endorses the proposed provision of a cycle track/footway connecting the national school with the local community and with the proposed Connemara Greenway. The cycle track/footpath crossing point at the national school has been given consideration during the design process. The design will be finalised in consultation with the school and local authority at the detailed design stage. The crossing point is located within an existing signposted school crossing zone. The existing signs/flashing amber warning lights will be upgraded to make them more noticeable and the improved road geometry will ensure that both the signs and the school crossing point itself will have significantly improved sightlines to current standards of 160m. The proposed road development will also significantly improve the sightlines at the school entrance and hence improve safety.

There will be a 2.5 m shaped verge between the road and the cycle track/footway and this will strongly discourage motorists from pulling off the road and onto the verge or cycle track/footway. It is also noted that the school has a ‘drop off’ policy where parents avail of a one-way system within the school grounds to drop off pupils and drive out again. Observations by the design team would suggest that this policy is largely complied with. The school has indicated that a drop-off point outside the school boundary is not desirable from the school’s perspective.

Galway Cycling Campaign’s general comments/views relating to the location of additional cycle tracks refers to other projects being developed by Galway County Council. They do not relate to any other part of the N 59 within the extent of this proposed road development between Maam Cross and Oughterard, along which there is no further length of cycle track.

Response to Submission by Mary Lennon (Plot 2190)

Any impacts on the development potential of Ms Lennon's lands will be dealt with during the landowner compensation negotiations should the proposed road development proceed to implementation stage. All of Ms Lennon's land front onto the N59. Under NRA and Local Authority policy there is a presumption against development onto National Routes. It would appear that any residential or commercial type development on this property would be contrary to Policies RT3 and RT4 of the development plan and may not be capable of complying with Development Management Standards DM 16 (Access to National and Other Restricted Road for Residential Development) and DM17 (Access to National and Other Restricted Road for Commercial and Other Developments).

There are a number of significant constraints to the development of feasible alternative route alignments in the vicinity of Ms Lennon's land. These include Lurgan Lough (Annex 1 habitat) located immediately north of the property, Arderry Lough (Annex 1 habitat) to the south and a dwelling house immediately to the east. In addition, the current alignment of the N59 is substandard horizontally adjacent to Ms Lennon's property and is seriously deficient in terms of stopping sight distance and junction visibility.

The proposed alteration to the design as suggested or indeed any other alteration that involves moving the route northwards would result in encroachment onto Lurgan Lough, an Annex 1 habitat under the Habitats Directive. This would result in direct loss of habitat, which is considered unacceptable. Ms Lennon's land is shown on the drawing attached to the response (GC094741-03-19737).

Response to Submission by Joseph & Mildred Joyce (Plot 2395)

Mr Joyce's land is held in five parts. One section includes his dwelling house and measures some 2.96 Ha. This part of his property will be bisected by the proposed road re-alignment. Approximately 1.12 ha of this land will remain north of the proposed road and 1.39 ha including his dwelling will remain south of the alignment. Mr Joyce also has a share in a large area of commonage. One of the plots lies west of the Glengowla alignment. It is a wooded plot and approximately 0.135 ha of this 0.366 ha plot will be acquired. The remainder of the commonage lies to the south of the existing road and access to these lands will become significantly easier due to the removal of traffic from the existing N59 in this location. A plot (1.12 Ha) to the east of Glengowla will remain undisturbed as will other plots at remote locations measuring 63.5 ha and 16 ha respectively.

Matters in relation to disturbance to the operation of the farm and the requirement for loading pens will be dealt with during the landowner compensation negotiations should the road proceed to implementation stage.

It is stated that the well adjacent to the Joyce dwelling (No 173) is bored to a depth of approximately 100m. Hydrological assessments indicate that the underlying bedrock is an unproductive aquifer, except in local zones. Wells in the area are likely to be fed by water at the top of the rock at the rock/soil interface. As a consequence, there is a risk that the water flowing to the well may be impacted. Given it's depth, it's source may be from lower down in the bedrock and may not be impacted. Galway County Council will carry out pre, during and post construction monitoring of the well yield and water quality subject to the consent of the well owner. In the event that it is shown to be

impacted an alternative water supply or appropriate monetary compensation will be provided. There is a mains supply serving the area.

In relation to the operational phase of the proposed development, and as stated in the NRA Guidelines, vibrations produced from road traffic are unlikely to cause perceptible structural vibration in properties located near well maintained and smooth road surfaces. Vibration from construction traffic will be limited to acceptable values. The adoption of good blasting practices (trial blasts, noise/vibration monitoring at sensitive properties, advance warning etc) will reduce the inherent and associated impulsive noise and vibration. In addition, prior to construction and subject to written agreement of relevant property owners, property condition surveys will be undertaken as appropriate in respect of buildings proximate to the land take boundary and in proximity to the works.

The presence of the ruins of a very populous pre-Famine clachan that will be traversed by the route is identified in the EIS. The loss of the ruins is recorded as a slight impact because the ruins are not well preserved. They are of 'local significance', and are no more that the last vestiges of what was once a more extensive settlement and the loss of the ruins will be offset or mitigated to some degree by whatever information can be won from investigating them.

Galway County Council carried out extensive consultation during the development of the proposed road development including the issuing of introductory letters to all land and property owners, visiting by Agriculture and Property Specialists, individual meetings with landowners including some Glengowla resident group meetings etc.

The existing road at Glengowla is seriously deficient and substandard. A number of significant constraints to the improvement of this section of the road have been identified including the extent/frequency of residential property, the presence of a thatched cottage of architectural and cultural significance, the Lough Corrib SAC encroaches onto the existing road over approx. 25% of its length and the Owenriff lies within 50m of the existing road at this location. Alternative options were considered and eliminated as documented above.

The proposed realignment eliminates one of the worst sections of the N59 and essentially provides a mini by-pass of this seriously deficient section of the road. The proposal represents the least intervention necessary to avoid constraints and meet the overall objectives of the project. The proposed realignment represents the best overall solution. The drawings attached to the response are based on the description of the Joyce's lands contained at the beginning of the submission.

Response to Submission by John & Mary Geoghegan

With regard to the objection to the compulsory acquisition of Plot 2400b.201, based on the information available to Galway County Council it would appear that none of the lands owned by John Geoghegan (Junior) are within the CPO. John Geoghegan Junior is the registered owner of the plot on which his dwelling house is located (No 170), which measures approx. 0.47Ha. It is not proposed to acquire any lands from Mr Geoghegan Junior as part of the development.

John Geoghegan Senior owns land in the general area and has a share in a substantial number of commonages. Of the lands owned by John Geoghegan Senior at Glengowla, one plot measuring 2.6 ha is located to the north of the existing alignment and the

remainder lies to the south. The proposed road development involves the acquisition of approx. 0.391 ha from the plot to the north and severs the plot in two. The remaining portions north and south of the proposed road measures 1.79 ha and approx. 0.44 ha respectively. In summary, 1.79 ha of land would be located north of the proposed N59 and approximately 5 ha of owned land and 51 ha of commonage would remain south of the alignment.

With regard to the issues raised about the danger to the family with young children, the proposed acquisition fence line is located approximately 63 m from the nearest part of John & Mary Geoghegan's house and 43 m from the nearest part of their site. The proposed fence type is timber post and wire with sheep mesh. The fencing will be maintained by Galway County Council. The proposed development will sever the land at the rear of Mr & Mrs Geoghegan's house (in the ownership of John Geoghegan Sr). This is an unavoidable impact of the proposed development. The house will not be located 'on a roundabout' following the proposed development. The proposed development will be c 63 away to the rear of the dwelling. The road will be located in a cutting of at least 3m and increasing to approximately 5m. Traffic volumes at the front of the dwelling will be dramatically reduced.

The road alignment will result in the destruction of the ruins, which has been discussed already in relation to the response to the submissions by Joe & Mildred Joyce above.

The result of the ecological assessment describes habitats in this location as mainly *Improved Grassland* with some small areas of *Scrub and Mixed Broadleaved Woodland.* No protected flora or fauna was found and none was recorded at this location.

Response to Submission by John Geoghegan Senior

Some of the issues raised in the submission are similar to those raised in the submission by John & Mary Geoghegan. The response by Galway County Council is similar and is therefore not repeated.

Mr Geoghegan owns land at Glengowla. One plot measuring 2.6 ha is located on the north side of the existing N59. The proposed development involves the acquisition of approximately 0.39 ha from this plot. The remaining portions to the north and south of the road will be 1.79 ha and approximately 0.44 ha respectively. It is acknowledged that the proposal will result in greater distances involved in moving stock and travelling between the 1.79 ha of land that will be severed by, and north, of the proposed development (approx. 380m) and the remainder of the landholding at Glengowla. However, the journey will be largely along a local access road with less than 200 vehicles per day and a farm accommodation road. In addition, the crossing of the N59 will be at a safe location where there is full sight distance in terms of junction sightlines and forward visibility for vehicles travelling along the road. This is in contrast to the existing N59 where junction and access sightlines are substandard and where forward visibility is very limited.

Other matters affecting the operation of the farm will be dealt with during the landowner compensation negotiations should the road proceed to implementation stage. Access between lands on either side of the proposed road development will be re-established by the provision of the accommodation road connecting the lands north of the re-aligned route with lands south of it.

The proposed road development includes simple at-grade priority junctions connecting the proposed N59 realignment to the existing N59 at both ends. Both junctions comply with road design standards in all aspects including geometry layout and visibility. The most western junction forms a 'right-left stager' cross roads with the proposed farm access road serving the lands to the north of the proposed road development. This is entirely consistent with best road practice and is fully in accordance with the design standards as laid down in the NRA DMRB.

National and local policy as well as road design principles seek to minimise the number and intensity of accesses onto national roads. The proposed development is primarily an online upgrade of the existing N59 that seeks to achieve a proportionate design response to the need to upgrade the N59 while minimising impacts on the environment. In an effort to achieve the best possible balance between competing benefits and interests, the proposed realignment removes the worst bends in an area with numerous residential accesses and consolidates the agricultural accesses along the existing N59, which will now use the junction locations to access lands to the north. There is an overall safety benefit that will be achieved by the proposed development.

With regard to impacts on the wider community, access to and from the eight properties to the north and south of the existing N59 will be much easier and safer following the implementation of the proposal. All national traffic will transfer onto the realigned road and the existing N59 will essentially cater for local traffic only. The benefit of the proposed road development is that the crossing of the proposed N59 and access along it will be much safer due to significantly improved sightlines, alignment and cross section. The impact of the proposed road development is considered by the socio-economic consultants to be more in keeping with community consolidation rather than community splitting.

Bus Eireann has indicated that its bus route would follow the proposed N59 route at this location. This results in negative impacts on users of the service and in particular the older members of the community. Those wishing to use the service would have to travel to the new road along the old N59 for a distance of approximately 310m. It is noted however that there is no official bus stop in Glengowla.

The existing well will be lost as a result of the development. Water quality testing has shown this well to be bacteriologically contaminated by E-Coli and presently not fit for human consumption. However, the house is connected to the mains water supply, which is fit for human consumption.

Communications with landowners has informed the development of this project and in particular consultations with the land and property owners in the vicinity of Glengowla. As with many road projects there are conflicting concerns expressed by different landowners. All options considered involve a balance between the benefits and the impacts on different environmental receptors including human beings and between conflicting interests. The proposed development represents the optimal balance between all factors and represents a minimalist intervention and a proportionate design response to the identified need to upgrade the N59, whilst minimising the impact on the environment.

The response is supported by maps showing plots of land referred to. Map 1 shows land in the ownership of John Geoghegan Senior at Glengowla (shaded green) and

commonage lands (shaded blue). Map 2 shows other lands in his ownership/part ownership to the north of Glengowla.

Response to Submission by Martin & Margaret Geoghegan

Martin & Margaret Geoghegan own approximately 2.63 ha of land on the north side of the existing N59 at Glengowla West and approximately 0.47ha on the south side. They also have a one-third share in commonage to the south of the road. Margaret Geoghegan also owns the thatched house at Ch 266+770 and Martin Geoghegan owns approximately 16 ha of land and has a half share of commonage at Glengowla East.

At Glengowla West, the proposed road development involves the acquisition of 0.409ha from the 2.63 ha plot and severs this plot in two. The remaining portions north of the proposed road measuring approximately 1.36 ha and 0.86 ha respectively. The existing sheds are not affected and will remain intact on the southern portion. In summary, 1.36 ha of land would be located north of the proposed N59, approximately 1.33ha of owned land and 36.8ha of commonage would remain south of the proposed N59 at Glengowla West. The remainder of Martin Geoghegan's land at Glengowla East is unaffected by the proposed road development.

An existing well will be lost. Water quality testing has indicated that the well is bacteriologically contaminated by E-Coli and presently not fit for human consumption. Their property is also connected to the mains supply, providing water that is fit for human consumption.

Cross Questioning of Witnesses

Cross questioning of Cross Galway Cycling Club

Mr Keane SC put it to Mr O Nidh that the Connemara Greenway incorporating the precise location of the crossing point on the N59 formed part of the oral hearing and was currently before the Board for decision.

In relation to an alternative crossing point in the location shown coloured orange on the map included in Mr O Nidh's submission, it was put to Mr O'Nidh that no track existed in the location. Mr O Nidh accepted that the construction of a new track in this location would involve encroachment onto protected habitats. In relation to grade separated treatment, Mr O Nidh accepted that there would be visual impacts associated with an provision of an overbridge and suggested that a tunnel might be a more suitable approach. With regard to the potential for flooding of an underground structure and the need for dewatering, raised by Mr Keane, Mr O Nidh accepted that this was a matter to be determined by the Council's engineers.

With regard to the development along the Western Greenway, it was noted by Mr Keane that conditions were not the same. The bridge was an entirely new structure to carry the road over the river and included a separated track. At Kiltimagh, the road is in-cutting and the crossing is from the top of one cutting to another.

Cross Questioning of Mr Warner NPWS

Under cross questioning by Mr Keane SC, Mr Warner confirmed that he was happy beyond reasonable scientific doubt that the development in question would not have any

adverse effects on the integrity of the European sites either directly or indirectly, provided the mitigation measures as documented are implemented.

In response to questioning by Mr Sweetman, it was confirmed by Mr Warner he had read the mitigation measures. Mr Sweetman sought clarification if he had read the Environmental Operating Plan/ Environmental Management plan on which mitigation measures are based. Mr Warner confirmed that he had read the NIS and the Appropriate Assessment Screening report and the documents contained therein. Under cross questioning by the Inspector, Mr Warner confirmed that he read sections of the EIS some time ago and the entire NIS in preparation for the hearing. Mr Sweetman noted the importance of the Precautionary Principle.

In response to questioning by Mr Mc Cole, he stated that he was satisfied with the EIS. When queried about the lack of a contractor's method statement, Mr Warner stated that he operated at a strategic level in relation to this project and was perfectly happy with the work the developer has put in. It was reasonable to assume that the developer will appoint a competent sub-contractor. He accepted that the potential pollution and sedimentation is a significant issue arising from the works. It is essential that monitoring will be required throughout the activities. Mr Warner confirmed that he would stand over the conclusions reached in his report and accepted the importance of monitoring.

Cross Questioning of Galway County Council by Objectors

Mr Keaveney in response to questioning by Mr Sweetman noted that the initial constraints in relation to the proposed road development were identified in 2009 and continued throughout the process. Responding to Mr Sweetman's contention that Galway County Council was involved in 'project slicing', Mr Keane argued that the current road scheme is self-contained. It is intended that the improvement of the N59 will continue towards Clifden and if and when it does proceed it will be by way of a separate application which will have its own environmental assessment. Mr Sweetman concluded that the proposal to move on from Maam Cross towards Clifden is very relevant in terms of the EIA Directive

Ms Loughnane responded to questions in relation to development plan objectives and policies. Specific mention was made of Policy HL 38 in relation to boundary walls and the replacement of like with like. In terms of Policy HL 31 and the implementation of Article 6(3) of the Habitat's Directive, Mr Sweetman questioned if Ms Loughnane was familiar with the Waddenzee Judgement and the necessity for no reasonable scientific doubt to exist in terms of effects on Natura 200 sites, where approval of a project is involved.

Mr O' Sullivan responded to questions on archaeology, architecture and cultural heritage. He stated that there were 36 buildings in the clachan at Glengowla West, some were buildings and some were byres. Local residents present took exception to the conclusions reached by Mr O' Sullivan that the demolition of the ruined building would improve history. He elaborated on this by stating that investigating the ruins is positive and equates to preservation by record. The loss of fabric provides an opportunity to translate this to a gain in knowledge. He acknowledged that there were dozens of similar villages in Connemara overlooking the N59 between Moycullen and Clifden.

Whilst he was sensitive to the family associations with these ruined buildings, he was obliged to set that aside and look at these in the national context. He is obliged to apply a disinterested measuring stick in order to assess them in relation to road projects such as this. The State does provide examples of buildings of similar type/vintage which it considers to be of national importance such as the rural houses on the Blasket Islands or Patrick Pearse's cottage in Connemara, which are national monuments. These differ from the ruined cottages at Glengowla in that they have a strong characteristic associated with them or are associated with figures of national importance.

Mr Sweetman stated that it was an objective of the development plan to protect these buildings rather than destroy them. Whilst Mr O Sullivan agreed with the general trust of Mr Sweetman's comment that the plan does have as a matter of policy the aim of preserving the archaeological heritage of the county in all its variety, the mute point is whether the policy is directed towards the last surviving ruins of what once a larger settlement or whether the policy is directed towards good surviving or representative examples.

Mr O Sullivan stated that it is important to acknowledge that there have been successes in the project in terms of avoiding impacts such as avoiding the 19th century bridge at Letterfore, the adjoining cottage and the retention of the chapel at Lurga. Mr Sweetman stated that if a proper constraint study had been prepared these would not have been included in the first place.

Mr Cawley was cross questioned with respect to the water sampling results appended to the back of his report. Mr Sweetman raised issues regarding sampling which did not appear to have been subject to the incubation required for bacteriological sampling. Mr Cawley stated that the testing was carried out by a local laboratory, which is EPA approved and reflects the date of sampling and the report was dated 12/2/13 i.e. four days later.

Mr Sweetman queried whether an actual design existed for the temporary construction ponds, which he argued was critical in terms of protecting freshwater pearl mussel populations in close proximity to the Owenriff River. He also noted that there was a recent flooding incident in a stream in this location. In response Mr Cawley clarified that the flooding occurred due to a small poorly maintained culvert, which will be upgraded as part of the scheme. The stream is not a major stream and drains a small catchment. He stressed that the ponds were not designed to take stream run-off. They were designed to take road run-off, were adequately sized to cater for the area in question and to cater for a 1 in 100 year event of 24 hour duration. It was noted that this would equate to 140 mm of rain in a 24 hour period which is excessive.

It was further clarified by Mr Cawley that the operational phase would include settlement ponds but that additional ponds would be incorporated to mitigate sediment etc arising during the construction phase. In effect a double pond system would operate prior to discharge of water to outfall.

Mr Sweetman argued that as an actual design did not exist for the construction settlement ponds, the design was conceptual and in the absence of a Construction Management Plan did not provide the Inspector with the required information to allow her to conclude beyond reasonable scientific doubt that the proposed development would not impact on the integrity of any European site.

Galway County Council stated that the requirements for the settlement ponds is set in the Preliminary Sediment and Erosion Control Plan. The criteria are set out quite clearly in Section 1.7 paragraph 8. The contractor will be required to incorporate these requirements into the Construction Management Plan and Environmental Operating Plan.

In response to Mr Sweetman's questioning, it was confirmed that a design for the Peat Restoration Area was incorporated in the Preliminary Sediment and Erosion Control Plan. It was clarified that the drawing had been amended to continue the bunds down to competent material as an additional mitigation measure. It was confirmed that the areas were selected following consultation with NPWS and IFI and were chosen in area of cut over bog outside the catchment area for freshwater pearl mussel, designated sites/ habitats etc.

In response to questioning by Mr Mc Cole with respect to hill run-off at the cut section in Glengowla, Mr Cawley clarified that interceptor drains would be provided at the top of the cut, which would ensure that water would not fall down onto the construction site. A typical effective rainfall (allowing for evaporation) of 1350mm per annum has been used, but critically the design has looked at major events. Mr Cawley stated that he was confident that the water arising would be effectively captured and not cause problems at the construction site. In relation to the potential for springs, he stated that what occurs is a degree of shallow interflow close to the surface, which is not exceptional in this country. The bedrock is virtually impervious and the potential for springs does not exist.

Mr Cawley stated that the high requirement for the control of surface water was recognised and that the design team had gone to elaborate lengths and incorporated robust measures to protect the quality of sensitive water.

In response to questioning by the Inspector Mr Cawley confirmed that he was involved in the detailed monitoring of the water table to establish impacts on peat (Appendix 9 (B)). It was found in all cases where monitoring took place that between 1-2 m there was no effect on the water table level, due to the high rainfall and the contributing catchment upstream The alignment was taken into account to ensure that the road would not act as a drain. It was confirmed that the existing road is not having any effect on the features of the hydrology in the area.

Mr Kehoe in response to questions made by Mr Sweetman clarified that the first contact he made with the Geoghegans was on 17/1/13. Mr Sweetman stated that this was some 11 months after he was aware that there was an off-line section at Glenhowla, which reflected the poor level of consultation carried out by Galway County Council. Mr Kehoe stated that prior to that time there would have been consultations between Galway County Council's liaison officer (Brendan Gallagher) and residents. Information relating to the issues concerning the community was communicated by Mr Gallagher to Mr Kehoe. He confirmed that his evidence was based on the socio-economic aspects of the development taking into consideration existing businesses, location of communities, clusters of houses, amenity/tourism interests etc. It was not an assessment of material assets, which were being dealt separately by Mr Dodd.

It was confirmed that a distance of c 300m was involved to avail of bus transport to Galway or Oughterard, which Mr Sweetman considered was the biggest social issue affected the residents of Glengowla and which hadn't been properly assessed. Mr Kehoe

clarified that a number of mitigation measures were in place to minimise impacts on residents including measures to control noise, impacts on air, water, landscape etc. It was Mr Sweetman contention that the interaction of impacts on human beings had not been assessed.

Mr Mc Cole queried if Mr Kehoe in arriving at his conclusion that the road development would have a long term moderate positive impact on the tourist economy, considered the potential destruction of the salmonid habitat and the cost to tourist and angling interests. Mr Kehoe stated that potential impacts on ecology were factored in to his assessment and he was satisfied on the basis of the information provided by Ms Kearney (Ecologist).

Mr Chadwick confirmed that consideration had been given to CO_2 emissions from the removal of peat. A broad estimate was that carbon losses from the peat removed and not rehabilitated during construction would be in the region of 17,143 tonnes of $CO_{2eq.}$ Mr Sweetman argued that this figure did not stand up as the calculations were based on a Scottish document and a different type of peat. He said that the peat in the vicinity of the road is lowland, disturbed and compacted and cannot be compared with upland, undisturbed peat, which has a different density and carbon trap. Mr Chadwick disagreed and stated that they have been directed by the Department to adopt this approach in other projects to establish carbon losses from peatland disturbance. It is the method that has been used on road projects and other linear developments in recent years.

Issues were raised by Mr Sweetman regarding the impacts arising from construction, particularly at Glengowla where the largest cut section would be. It was confirmed that in the absence of any mitigation dust impacts could be experienced up to 100m away. The Geoghegan's property is 64.52 m from the land take line. There are a range of controls specified in the EIS in terms of dust control that must be met in relation to all aspects of the programme. In addition, a monitoring programme must be in place. The impact during the temporary phase of construction for that property would be slight.

In response to questions from Mr Sweetman concerning a Dust Minimisation Plan it was confirmed by Mr Chadwick that the mitigation measures included in the EIS were the minimum requirements which would be incorporated into the Plan. It will be a live document throughout the construction stage and will facilitate on-going improvements and modifications to ensure that dust nuisance does not arise. In response to questions regarding how residents will be made aware of the Plan, it was confirmed by Mr Keane SC that it will form part of the Environment Operating Plan (EOP) which will be available on the Council's website. The results of a testing/monitoring would be publicly available. Mr Sweetman concluded that the EOP would not be available for public consultation, which was contrary to the EIA Directive.

Mr Keegan stated in response to questions by Mr Sweetman that existing noise levels at noise sensitive locations were established through a baseline survey. The noise levels at John & Margaret Geoghegans house is 60 dBLden and these levels are influenced by traffic on the existing road. The noise level was taken at the front of the house facing the existing N 59. Predicted noise levels for every property within 300m of the alighnment were given in section 6 of Volume 4. Mr Sweetman queried whether the 'quarrying' activity at the rear of the property had been taken into account. In response Mr Keegan stated that limits are set out in Table 10.4 and the responsibility rests with the contractor to manage activities to ensure compliance with noise limits.

In response to questions from Mr Mc Cole it was confirmed that an assessment of the impacts of noise on aquatic species was not carried out. This being said the contractor would be looking at sensitive receptors that are closer to the area of excavation than the Owenriff River. With regard to shock or other effects on aquatic species arising from a blast, he confirmed that the blasting programme will commence with a trial blast to ensure that limits of vibration are achieved and to assess the level of impact at particularly sensitive receptors. In most areas this will be residential property. It was noted by Mr Keegan that vibration intensity from activities like blasting will decrease four fold with a doubling of distance. Given the distance to the river he concluded that vibration levels at the river would be effectively zero. He stated when the blasting plan is being devised, it would be possible to take a seismograph reading in proximity to the river and assess it as a sensitive receptor.

Mr Dodd confirmed further to questioning by Mr Sweetman that he carried out questionnaires and interviewed landowners in 2010 and the outcome is summarised in the EIS. Mr Sweetman argued that the report was too generalised and did not indicate how residents would benefit or be disadvantaged as a result if the scheme. Copies of the farm reports in respect to Mr Sweetman's clients at Glengowla were made available at the hearing. Mr Sweetman raised issues regarding the timing of the questionnaires before the design of the road was finalised. Mr Dodd stated that the purpose of the interviews was to collect information on farming activity on each landholding to facilitate an assessment of the proposal when the design was finalised. Mr Sweetman took issue with this approach on the grounds that an assessment was carried out on the basis of a design that did not exist.

Ms Paula Kearney confirmed in response to questioning by Mr Sweetman that she had consulted with Mr Keegan with regard to the impacts of vibration on aquatic species. Mr Keegan had stated in his evidence that a blasting limit can be set to ensure a minimum blast radius that would not reach the river. She pointed out that the existing N59 runs very close to the river at this location and to date no issues have been raised by IFI that fisheries had suffered in any way.

In response to questions regarding the impact of the proposal on the Connemara Bog Complex, Ms Kearney confirmed that whilst the settlement pond at Glengowla would be located within the SAC, none of the qualifying interests were identified in the area. She confirmed that the habitat is classified as GS1which is Dry Calcareous and Neutral Grassland. In response to Mr Sweetman suggestion that the assessment was too generalised, Ms Kearney stated that the area was walked, assessed and classified in accordance with national habitats guidance documents. She was satisfied that the area was assessed thoroughly and that the development will not affect the conservation interests of the designated site. Ms Kearney stated that habitat types cannot be determined without having species information available and this was collected by qualified ecologists. It was Mr Sweetman's conclusion that in the absence of transect sampling for the area in the vicinity of the settlement pond, it cannot be stated beyond reasonable scientific doubt that there will be no effects.

In response to questions regarding flooding, Ms Kearney stated that the vegetation present on the site does not indicate that there is significant inundation throughout the year. If the water table was high for a period of time it would be represented by wet grassland and rushy ground. Whilst information from the landowners suggests that inundation takes place, but it is not a recognised OPW area of flooding.

It was clarified by Ms Kearney that the peat restoration areas were not located within any of the SAC in the vicinity, or in the catchment area of the freshwater pearl mussel. They were located in areas of cut-over bog. In response to questions by Mr Sweetman, she stated that they were located in the Screeb catchment, which is part of an SAC but that the receiving waters were not in the SAC. In response to Mr Sweetman's comment that the indirect (downstream) effects on the SAC have not been considered, she stated that a robust assessment has been carried out and the mitigation measures, which must be in place prior to any works ensure that effects do not occur. The bunds were redesigned to ensure a greater level of protection. The bunds for the material deposition areas would be to the same specification. She stated that had experience on peat restoration areas and mentioned the N5 Charlestown By–Pass where peat had been excavated and side cast adjacent to the road. The area had successfully re-vegetated with peatland vegetation and could be observed close to the road.

Responding to Mr Sweetman's assertions that the mitigation measures set out in the Preliminary Erosion and Sediment Control Plan were parameters, not a plan and that the mitigation measures were not fully developed, Ms Kearney stated she was satisfied that adequate mitigation measures were set out in the Preliminary Erosion and Sediment Control Plan which would inform the Environmental Operating Plan. Additional measures may be added but all of the adopted measures would be included in the final plan.

Mr Walter responded to questions from Mr Sweetman on landscape and visual impact. He stated that there were no protected views/prospects directly on the existing alignment. The protected views/prospects in the vicinity were identified in the assessment, which concluded that none would be significantly affected through the nature of the largely on-line upgrade of the road. Whilst the landscape has a high sensitivity the impact has been minimised as much as possible.

It was clarified that four properties were identified that would have significant adverse pre-mitigation impacts. Three of the properties (No's 177, 178 & 179) are located at Glengowla West close to the tie in with the off-line section. The other property (No 159) is located opposite Lough Adrehid. It was clarified that the impacts on these properties was assessed as 'significant adverse' due to intrusion on views of the lake, encroachment into front gardens, mountain views etc. Mitigation measures would include replacement of existing boundaries and vegetation and provision of new planting. The reduction in traffic at Glengowla was considered by Mr Walter to be positive in terms of visual impacts on these properties due to the smaller level of traffic passing through the view.

Responding to questions on whether the view to the front of the properties at Glengowla was the only one that mattered, Mr Walter stated that views uphill to the north are curtailed by screening and the new alignment to the rear will be in-cut.

Closing statement by Objectors

John & Mary Geoghegan's biggest concern is the safety of their children in proximity to the road. The road poses a bigger safety risk for local community associated with manoeuvres from the existing road out onto the new alignment to access land. The community will be living on a roundabout. The new road is not wide enough and provides no pull in space for buses, tractors etc. Whilst the cycle lane is a good idea, it

does not extend as far as their dwelling. There is no need for the road, particularly when there are alternatives available to the north.

The road will result in severance of their back garden where they walk every day, it will destroy the famine village at the rear, which were their ancestor's homes and is of heritage value. It will result in the loss of the best agricultural land in the area. It will impact on the visual amenity of their dwelling due to the development of the road in an otherwise undeveloped landscape.

They raised concerns regarding the inadequacy of the consultation process. They were of the opinion that the road was going to be in the existing position and only became aware of the off-line section when CPO documents were issued. They are of the opinion that they were excluded from the process until the design was finalised.

Mildred and Kevin Joyce (on behalf of his father Joseph) voiced their concerns with regard to the hardship, severance and inconvenience caused by splitting the farm in two. They have concerns regarding their spring well, blasting, removal of clachan and damage to the environment. It was never made clear that there would be an offline section to the rear of their properties. The road should remain as it is.

Martin Joyce the statement was made on his behalf by his son, who stated that no one consulted them regarding dust, the quarry and other controls. They are the ones living in the village and Galway County Council have no regard for them. Fundamentally objects to the road.

Closing Statement by Mr Sweetman

Quoted from CJ 127/02 where it is stated that the competent authority can only authorise an activity if they have made certain that it will not adversely affect the integrity of that site and where no reasonable scientific doubt remains as to the absence of such effects. Taking into account the precautionary principle, it is impossible for the Board to find that the road development is in compliance with the proper planning and sustainable development of the area.

Closing Statement by Mr Con Mc Cole

Mr Mc Cole stated that he is worried on behalf of the anglers in the Corrib catchment, where water quality over the years has declined. He has listened to the proponents of the project and wonders how Galway County Council will be able to tame the environment in Connemara to suit its own needs and to develop a road that nobody wants. The environment will not acquiesce just because silt curtains etc are installed. The road has to be placed elsewhere in order to protect the environment.

Closing Statement by Mr Pat Warner on behalf of NPWS

Mr Warner stated that his initial submission concluded that NPWS found no reasonable probability of significant damage from the development. Since then he has listened to all the submissions at the hearing and has heard nothing that would make him modify his original position. He attended a conference by a group of freshwater pearl mussel scientists, which was attended by Dr Moorkens, where it was acknowledged that the species is in decline in most countries and suspended silt is the primary cause of the problem.

Closing Statement by Galway County Council

Mr Keane SC stated that the requirement for an upgrade of this part of the N59 between Maam Cross and Oughterard had been clearly stated. The deficiency in the existing road infrastructure is clear. The proposed scheme forms part of the significant upgrade of the transport network in the west of Ireland. The road is an essential part of this infrastructure and is required for road safety and imperative reasons of public health and safety.

The EIS has been prepared in accordance with the provisions of the Roads Acts 1993-2007 as later amended. The scheme has been properly assessed in relation to the likely significant impacts and the EIS has been prepared in accordance with the direction of the Board under section 51(b) of the Roads Act 1993. It is the view of Galway County Council that all relevant legal requirements have been fully complied with. The public have been given the opportunity to express their opinion on environmental and other matters and has been furnished with the relevant information to allow it to participate in the process. Where any additional information has become available since the publication of the EIS, which has in any way advanced the information contained in the EIS or where errors have been identified, this has been made available at the oral hearing.

The level of design and the level of detail are more than adequate to allow for a fully informed assessment of all significant likely impacts and for the exclusion beyond any reasonable scientific doubt, in the scientific certainty referred to in the Waddenzee case. The Council is entitled to leave matters of fine detail to be determined between the Council and the construction company engaged to carry out the development. It is not necessary that every detail of the road and associated structures and drainage design be determined at this stage, provided the design elements of the scheme likely to have any significant effects on the environment are set out and assessed. The mitigation measures required have been established and it has been made abundantly clear that these will be a necessary pre-condition to any contract entered into, which may be added to but not removed.

A balance has to be struck between road design and the safety to be provided to road users on the one hand and the environmental constraints on the other hand. The proposal is considered to provide the best balance and Galway County Council has sought to make the best effort to establish beyond reasonable scientific doubt that designated sites, habitats and species will not be adversely affected.

Mr Keane went on to consider matters relating to the CPO process, which were documented in my previous memo to the Board dated 27th February 2013 and accordingly will not be repeated.

OBJECTIONS SUBMITTED FOLLOWING AMENDMENT OF SCHEDULE

Following procedural issues in relation to the CPO process identified at the oral hearing Galway County Council was directed by the Board to issue new notices in respect to a number of plots of land. An amended schedule was received by the Board on 15th April 2103. Two objections were received.

1. **John Geoghegan**

John Geoghegan submitted 11 No. photographs to show the Board some of the land that Galway County Council wish to acquired compulsorily for the N59 road project. It was noted that an alternative route exists to the north, well removed from the Owenriff River and which would not result in the village and farm land being divided.

1. **Peter Sweetman acting on behalf of the Morton Jack family**

Mr Sweetman quoted from the ECJ decision on C 258/11 *Sweetman v An Bord Pleanala* and in particular point 44 relating to lacunae in assessments under the Habitats Directive. It is submitted by Mr Sweetman that a Construction Management Plan and Environmental Management Plan are 'lacunas' and based on the information which has been submitted to the Board, it is not possible to legally grant a consent for this project. Whether or not the submission of inaccurate revised CPO's is a legal act is for the Board to establish prior to a refusal.

He queried the letter submitted to the hearing from Mr Spencer re the Morton Jack family and why Dr Moorkens the world expert on the Fresh Water Pearl Mussel, was not called to give evidence.

The submission was accompanied by a letter dated 7/5/13 from Mr David Morton Jack appointing Mr Sweetman as his agent. It notes that three CPO's have been served on him. The first was directed to his son Edward Morton Jack and related to plot no's 2740a. 201, 2740a, 202, 2740g.201 and 2740c.201. His son owns no land at Glengowla West. All these lands belong to him. The second CPO dated 8/4/13 was served on him and included the additional plot no's 2385d. 201 and 2385e.201. The third CPO notice also dated 8/4/13 was served on Edward Morton Jack and referred to Plot 2370g.201 at Derryerglinna. This is the only land in his son's ownership.

Mr Morton Jack stated that he was therefore never served with any notice regarding Plots 2740a. 201, 2740a, 202, 2740g.201 and 2740c.201. The letter submitted by Mr Spencer dated 20/2/13 concerns Edward's land only. Not only had no consent been given but the confirmation is meaningless and the CPO cannot be identified.

REPORT ON RE-CONVENED ORAL HEARING

The oral hearing was re-opened and took place in the Westwood Hotel Galway on August 20th & 21st , 2013. The Board retained the services on Mr Pierce Regan, Artane Recording Studio to record the proceedings (Appendix 8).

Attendance at Oral Hearing

On behalf of Galway County Council

Mr Esmonde Keane SC
Ms H Mulloy, Blake & Kenny Solicitors
Mr Mark Keaveny - Chartered Engineer Roscommon NRDO
Mr Anthony Cawley – Hydrologist Hydro Environmental Ltd
Ms Paula Kearney - Ecologist RPS

Dr Evelyn Moorkens - Consultant

Objectors

Mr Peter Sweetman - representing John & Mary Geoghegan, Joyce & Gibbons families and David Morton Jack
Mr John Mc Cole - Carra Mask Corrib Water Protection Group

Oral Hearing Proceedings

Objectors' Submissions to the Oral Hearing

Mr Peter Sweetman when invited to make submissions, stated that he did not wish to add to his original submission.

In terms of ECJ 258/11 and in particularly Paragraph 44 referring to 'lacunae', Mr Sweetman stated that the Board must make decisions on all the facts and not just the facts placed before it. The Board has made numerous recent decisions under the Habitat's Directive referring to 'information made available', which is in itself a 'lacuna'. The precautionary principle has not been applied and all of these decisions are therefore flawed in law. He stated that this was the first test of ECJ 258/11 that had come forward at a hearing and that "he intended to take it all the way".

Mr John Geoghegan declined at the time to make any further comment on his original submission.

Galway County Councils Submissions to the Oral Hearing

1. ***Dr Evelyn Moorkens***

Dr Moorkens read from a prepared text, which is appended to the back of the report (Appendix 7). Ms Moorkens stated that she had conducted a freshwater pearl mussel survey within the study area of the N59 Maam Cross to Oughterard proposed road development. The survey established existing baseline ecological conditions for the species in the study area. The survey report provided comments on the waterbodies within the study area and their level of sensitivity for the freshwater pearl mussel. The report was provided to RPS to inform the design of the proposed N59 Maam Cross to Oughterard proposed road scheme.

Of the 32 watercourses surveyed, 6 were found to have pearl mussels present and 11 were found to have pearl mussels downstream. The N59 is close to the Owenriff River during its final 6 km to Oughterard. The river has for many years been considered to be the most important and best functioning population of freshwater pearl mussel in Ireland, and is of world importance for the species.

The key issue with the assessment of potential risks to the streams and rivers that support the species or have them downstream from any road improvement is the management of silt and pollutants. Each time siltation of gravels occur, all juvenile mussels below five years of age are killed and therefore a very low level of silt entering the river is essential on an on-going basis.

A Preliminary Erosion and Sediment Control Plan has been prepared to inform the Construction Stage Erosion and Sediment Control Plan, which in turn will form an integral part of the Environmental Operating Plan for the proposed road development. It was prepared having regard to consultations with a wide range of specialists and environmental organisations, including NPWS and Inland Fisheries Ireland. The plan includes measures for the protection of water bodies during construction, including earthworks, watercourse crossings, working near lakes etc., monitoring and audit procedures and emergency procedures. A key mitigation measure is to remove extracted peat and other soil from works areas from within freshwater pearl mussel catchments. The peat deposition areas will not be located within the freshwater pearl mussel catchments.

There will be no perceptible operational impact as the proposed development is a predominantly online upgrade with no forecast change in traffic. The proposed drainage system, which includes grassed channels followed by linear wetlands prior to discharge, is seen to be a positive. In addition, the linear wetland will have a cut-off mechanism to prevent any spillage from entering the watercourse.

Prior to construction, the Construction Stage Erosion and Sediment Control Plan and all method statements will be finalised by the construction stage contractor and subject to the approval of Galway County Council and the agreement of NPWS and IFI. In order to mitigate the risk of damage to the freshwater pearl mussel and it's habitat, the mitigation measures must be sufficient in their efficacy to be able to remove risk. The ability to remove risk is only effective if all the mitigation measures are implemented effectively, monitored carefully and maintained throughout the construction process and for the period of time required after construction. It is noted that an Environmental Assurance Officer will be employed and be based on-site for the duration of the works.

Ms Moorkens concluded that provided the mitigation measures are implemented, she was satisfied that any adverse impact on the species can be ruled out beyond reasonable scientific doubt and that there would be no short or long term impact on the integrity of the Lough Corrib cSAC.

2. ***Mr Keaveny***

Mr Keaveny stated that subsequent to the Board's direction, Galway County Council served new notices on the following persons:-

- Mr Edward Morton Jack in respect of Plot 2370g.201.
- Mr David Morton Jack, Mr John Thomas Gibbons and Ms Philippa Gibbons in respect of Plots 2385d.201 and 2385e.201
- Mr Martin Geoghegan, Ms Margaret Geoghegan, Mr John Geoghegan (Jackie), Mr John Geoghegan (Jnr) and Ms Mary Geoghegan in respect of Plots 2395a.201, 2395a.202 and 2395f.201.
- Mr Martin Geoghegan in respect of Plot 2410a.201 and
- Ms Mary Conneely, the Legal Reps of Patrick Conneely (c/o of Ms Mary Conneely), the Legal Reps of Barbara Gibbons (c/o Mr Anthony Gibbons, Mr Noel Gibbons, Mr Michael Gibbons, Mr Paul Gibbons, Mr John Gibbons, Mr Paddy Gibbons, Ms May Gibbons) in respect of Plots 2455c.201, 2455c.2o2 and 2455d.201.

Two submissions were received before the specified closing date. The submission on behalf of Mr David Morton Jack noted that the Plots 2740a.201, 2740a.202, 2740b.201 and 2740c.201 were in his ownership and not in his ownership of his son Edward on whom CPO notices were served in October 2012. Subsequent to this submission, Galway County Council served new notices on Mr David Morton Jack on 25th June 2013 in respect of Plots 2740a.201, 2740a.202, 2740B.201 and 2740c.201. No further submission were received.

In addition to the issue of new CPO notices (copies attached), notices were also erected on site. A copy of the site notices together with a map showing the location where the CPO notices were erected and a photographic record were submitted to the hearing (Appendix 7).

Mr Keaveny stated that for the avoidance of any doubt, there are no additonal land plots or any increase in the area of land proposed to be acquired to that described in the CPO Deposit Maps and Schedules published for the proposed road development in October 2012.

Responding to the issues raised in the submission by Mr John Geoghegan, he stated that the findings of the EIS conclude that the proposed road development will have a negligible residual impact on the water environment, including the Owenriff river ecosystem and associated protected species including Freshwater Pearl Mussel and Atlantic Salmon. The findings of the NIS concludes that the proposed road development will not adversely affect the integrity of any European site. Inland Fisheries Ireland, the state agency responsible for the protection, management and conservation of Ireland's inland fisheries has raised no objection to the development.

The potential impacts of the proposed road development on the sensitive water environment have been identified and assessed and described in detail in the submissions to the Board. The protection of the environment generally and the water environment in particular has been of paramount importance during the development stage of the project. Extensive consultation has taken place with NPWS and IFI. Dr Evelyn Moorkens formed a key member of the project team and her advice and recommendations have been incorporated into the proposed road development. The proposed mitigation measures include well established, proven and effective engineering controls.

With regard to alternatives, it is fully acknowledged that the current proposal impacts significantly on a number of local residents and that legitimate concerns have been raised. The proposed development includes a substantial list of mitigations that reduce the severity of the impact on the local population both during the construction and operational stages. At Glengowla the proposed development departs from the existing road for approx. 600m and eliminates one of the worst sections of the N59. The proposal provides an appropriate and proportionate solution to this seriously deficient section of the national road. It represents the least intervention necessary to avoid constraints whilst meeting the overall objectives of the project.

A number of residents have suggested moving the alignment further away from the Owenriff or the improvement of the existing road as alternatives to the current proposal. They suggest that such options would limit the risks to the river ecosystem, reduce the isolation of the community at Glengowla and preserve the cultural and heritage sites of

the area. The strategy adopted by the project team throughout the overall project development was to maximise the use of the existing road reservation wherever possible specifically to avoid environmental impacts. Options located further north of the proposed alignment at Glengowla were considered and would entail a considerably larger off-line length, typically three times longer (2 km) as distinct from the 0.6 km. Any such option would be more intrusive in the landscape and would directly impact on Annex 1 and Annex 1 Priority Habitat. The selection of a more northern option is not considered to be preferred in terms of potential impacts to the Owenriff river ecosystem as such an option would involve significantly more extensive works and in particular more earthworks within the river catchment.

The provision of an on-line improvement in this location would result in profound impacts on the local population arising from the extremely deficient nature of the existing road geometry coupled with the high frequency of dwellings directly adjacent to the N59. Specifically this option (Option 01) would result in the demolition of thatched cottage which is considered to be of architectural and cultural heritage significance and would encroach significantly on a further two dwellings. Such impacts are considered unacceptable.

It is considered that the proposed road development is the best overall solution. It represents the optimum balance between a number of conflicting factors and is a proportionate response to the need to improve the N59 while minimising the impact on the environment. Various measures are included as part of the development in order to mitigate impacts including screening, provision of a new farm access road to provide access to severed lands on the north side of the N59, the provision of a new footpath/cycleway connecting the village to the school etc.

In response to the submission by David Morton Jack, the procedural issues raised in respect of the serving of CPO notices is addressed above. The view that the Construction Management Plan and an Environmental Management Plan are 'lacunas' and that the Board cannot legally grant a consent for this project is rejected. The assessment carried out contains complete, precise and definitive findings and conclusions. This is recorded in the project documentation as submitted to the Board and forms the basis of the conclusion of the NIS where it is considered certain that the N59 Maam Cross to Oughterard Road Project will not adversely affect the integrity of any European site and that no reasonable doubt remains as to the absence of such effects.

The design team had four meetings with IFI and nine meetings with the NPWS during the project development stage. The input of highly professional people such as Dr Noel Kirby and Dr Julie Fossit assisted greatly in scoping the assessment to be carried out and in developing the appropriate mitigation measures. Expert advice given by Dr Aine O Connor NPWS, in relation to mitigation measures for the protection of the FWPM and the Owenriff FWPM catchment was fully accepted and has been incorporated into the proposal (Appendix E of NIS). The design team also included Dr Evelyn Moorkens, an internationally renowned expert on FWPM. Dr Moorkens contributed extensively during the process and in particular during the preparation of the Preliminary Erosion and Sediment Control Plan.

The Construction Management Plan (CMP) which incorporates the Environmental Operating Plan (EOP) deals with the contractor's overall management and administration of the project, it is a project management tool. The CMP and the EOP

will ensure that the requirements of the project in relation to the environment are fully considered, documented, checked and audited and implemented.

A number of key design, control and mitigation measures have been incorporated into the proposed development in order to minimise the impacts and to protect the environment. The footprint of the proposed road development has been minimised through a range of measures. These include using the existing N59 road reservation as far as possible and using a Type 3 road cross section which is the minimum cross section type for a single carriageway road. The footprint of the road has been optimised by the use of the verges as surface water conveyance channels and by reducing the working width to the absolute minimum typically to 3m (5m is the norm on a national road). Furthermore the integration with the approved Connemara Greenway project facilitates a strategic approach to the provision of walking/cycling infrastructure in the area. Unacceptable material arising from the proposed development will be dealt with as part of the development and all potential impacts have been assessed in the EIS and mitigation measures included.

None of the proposed material deposition sites are located in the Owenriff (Corrib) Freshwater Pearl Mussel catchment or within any designated site. The Peat Restoration Areas are considered to be of net benefit to the environment following re-vegetation and development as a peat habitat. Key construction stage control and mitigation measures have been incorporated in the proposed development to minimise the impact and to protect the environment and these are documented in the EIS. An Environmental Assurance Officer will be employed with specific responsibility for monitoring of the water environment and inspection/auditing of the contractor's mitigation measures and monitoring regime throughout the construction period.

It is concluded that the proposed development is in the interests of the common good. It is appropriate in extent and scale in order to address the objectives set and is an appropriate design response to the identified need. It has been developed in a manner that minimises the impact on the environment and provides a road that is fit for purpose. The proposal represents the optimal solution in terms of minimisation of environmental impact and the provision of sustainably enhanced and beneficial road infrastructure.

A document entitled Revised Schedule of Additional Mitigation Measures & Environmental Commitments was submitted to the hearing (Document 6 Appendix 7), the content of which will be referred to as necessary in the assessment.

Cross-Questioning of Witnesses

Cross-questioning of Mr Keaveny and other Galway Co. Co witnesses

The 11 no. individual photographs submitted in support of Mr Geoghegan's objection were arranged in sequence, photocopied and distributed to each party during the hearing for the purposes of clarity (Document 7 Appendix 7) . Mr Keaveny was cross questioned on each and on the suitability of the areas for the accommodation of settlement ponds. Whilst an accurate date for the photographs was not avaialble it was confirmed that they were taken between April 8th and May 21st, 2013.

Photograph No 1 was taken in the location of AC-047 at Glengowla. Mr Keaveny identified this as the location outfall (OF 44). The settlement pond will be located on the south side of the road. It will be located within Lough Corrib SAC and within the catchment of the freshwater pear mussel. The flood level at this location was given as 32 mOD. It was confirmed by Mr Keavney that the ground level in the location of the pond was in the region of 31.8mOD. Mr Sweetman disputed that flood levels in the field were limited to around 8 inches, which was what the data suggested. It was his opinion that the flood levels were incorrect. Mr Geoghegan stated that flood level rose up to the level of the gate which suggested flood levels in excess of 2-3ft. It was confirmed by Mr Keaveny the ponds would be provided with bunds of at least 1m above the maximum flood event. The site is below the road level and the height of the bunds could be increased if necessary. It was confirmed that the Erosion and Sediment Control Plan incorrectly referred to the height of the bunds of 300mm.

Photograph No's 2.1 to 2.4 were taken in the location of AC-041adjacent to Lough Agraffard. The site is located with an SAC and within the catchment for freshwater pearl mussel. It was confirmed by Mr Keaveny that this was an area subject to ponding. The area will accommodate a settlement pond at outfall (OF-42). The pond will be constructed with 1m bunds above the 100 year flood level (39.6mOD). Mr Sweetman referred to Section 2.2.8 of the Aquatic Survey and the fact that a tributary to the north of Lough Agraffard had not been surveyed. Mr Keaveny confirmed this was watercourse WC20.4, which was re-assessed in 2012 and details are included in Table 12.19 of the EIS. It confirmed that it had limited potential for fisheries or to support the freshwater pearl mussel.

Mr Keaveny confirmed under cross-questioning that there would be some widening of the road in the location of Photo No's 3.1 to 3.6 at Glengowla. It was a marshy area, but not flooded all the time. No outfall was required in this location and road construction would be undertaken in the dry.

Mr Sweetman sought clarification from Mr Keaveny on whether a final Erosion and Sediment Control plan existed. In response Mr Keaveny stated that all the environmental controls are contained within the preliminary plan and there is no provision for a reduction in control or mitigation measures. Mr Sweetman was of the opinion that this constituted a 'lacuna' and that the precautionary principle as set out in ECJ 258/11 would apply. He stated that the lack of information on the design of the settlement pond, and, the proposal that it be designed by the contractor and approved by Galway County Council was contrary to the Lough Rynn Judgement (ECJ C183/05) and to article 6 of the Habitat's Directive. Mr Keaveny informed the hearing that there would be different sized ponds in each area and that they will be designed based on the parameters contained in the Preliminary Erosion and Sediment Control plan included in the EIS.

Mr Sweetman sought clarification on storage areas for unacceptable material and in which catchment they were located. It was confirmed by Mr Keaveny that some were within the Screeb catchment. It was confirmed that this was part of Connemara Bog Complec cSAC. Mr Sweetman suggested that if the storage area burst, material could find its way into the Screeb River and the SAC. Mr Keaveny's response was that the lands were assessed and approved by all the specialists. The locations for the storage areas were picked to fit in with contours and engineered bunds would be provided around each area, excavated down to competent material. The drainage will include

settlement ponds to treat run-off and the assessment is that they will not result in any adverse impacts on the environment.

Mr Sweetman states that it is unfortunate for Galway Co Council that a misinterpretation in the Habitat's Directive came to light on 11/4/13. The original wording *'to have a significant impact on an SAC'* was mistranslated and the correct wording as confirmed by the EC is if development is '*capable*' of having an effect it requires a full NIS. He stated that as the mitigation measures are considered necessary, the development is 'capable' of having an effect on the Connemara Complex SAC. This aspect of the proposal was never assessed under Article 6(3) relevant to the Connemara Bog Complex) and an NIS is a requirement under law. Mr Keaveny's response was all the lands were assessed and included in the NIS and EIS.

Mr Mc Cole acting on behalf of Carra, Mask, Corrib, Water Protection Group queried what type of material would be used in the bund construction, as it would form the last line of defence, if anything should go wrong. It was confirmed by Mr Keaveny that Class 1 or Class 4 material would be used i.e. stoney clay/clay which would be covered with erosion matting and silt fencing would be put in place. The works would be carried out in the dry. This is not a new technology and one that is standard for the OPW and the IFI for protection works.

Mr Geoghegan queried what would happen if the pond overflowed which would cause large volumes to be discharged and result in erosion and sediment being washed into the river. Mr Cawley (Hydrologist) confirmed that this is a high run-off area and the road activity and road footprint is not going to change that effect. Galway County Council have identified that attenuation is not required, but attenuation is being provided in any case. A point discharge will not occur as the run-off discharged to the settlement pond will be released under controlled conditions using a flow control device. The water will then attenuate over a grassed area prior to discharge into the watercourse. There is no risk that erosion will be caused downstream. The watercourse is already catering for large volumes from the catchment and the discharge from the settlement pond will not have a perceptible effect.

Mr Mc Cole, queried if an alternative route to the north had been costed. Mr Keaveny response was it was ruled out on the basis that it would encroach onto Annex 1 and Annex 1 Priority Habitat. It was confirmed that the additional cost would be in the order of 30%. Mr Sweetman sought clarification on the type of Annex 1 habitat present and it was confirmed by Ms Paula Kearney (Ecologist) that the alternative route to the north at its eastern end would go through an area of Active Atlantic Bog, which was Priority Habitat. There were also areas of Wet Heath (Annex 1). Responding to Mr Sweetman's argument that as the bog was cut-over, it was not a Priority Habitat and that it could have been avoided, Ms Kearney accepted that while there are areas which are cut-over there are significant areas that are intact. She stated that it was not just direct impacts and keeping the habitat that were considered, there is a zone of influence when blanket bog is cut through and severing the habitat causes greater impacts than the road cutting itself.

Mr Sweetman stated that it had been agreed with the Commission that the Freshwater Pearl Mussel is going to be a Priority Species and is now basically considered to be a 'de facto' Priority Species. He stated that Galway County Council is trying to save a little bit of blanket bog while we destroy the only Priority Species we have. It was his contention that Galway County Council had failed to prove beyond reasonable scientific doubt that there will be no impacts on the Freshwater Pearl Mussel.

Cross-questioning of Dr Evelyn Moorkens

Mr Sweetman sought to establish when Dr Moorkens was informed that there was an off-line section to the proposed road development. Her report referred on a number of occassions to an on-line upgrade. In response Dr Moorkens stated that she was not involved in design changes and was concerned only with the practicalities of sediment control.

In response to questions regarding the importance of the river for juveniles, Dr Moorkens stated that the Owenriff had a great range from 1990-2001. There was a pollution incident in 2004, which resulted in serious impacts. The river is now back to the way it was after 10 years and it is imperative that it is kept this way.

Responding to questions regarding streams in the Glengowla area draining from higher ground in steep slope conditions and issues regarding sedimentation, Dr Moorkens noted there are a range of measures proposed which included piping and silt fencing the streams. Mr Sweetman noted that no design existed for the settlement ponds and queried whether she was prepared to state on the basis of the parameters included in the Preliminary Erosion and Sediment Control that all sediment will be trapped.

Dr Moorkens re-iterated that all sediment has to be trapped. She clarified that what was being sought here was not the usual settlement pond that will release when it is full and achieve sediment levels under 25mg/l, which is the salmonic level. The Preliminary Erosion and Sediment Control Plan is based on achieving a higher standard than that and it sets out the minimum that has to be achieved. She stated that the parameters are protective of the mussel and the design must be within those parameters.

Mr Sweetman reverted to the absence of a detailed design for the settlement pond and that this would rest with the contractor. Dr Moorkens in reply stated that she would be concerned if the system was over designed too soon and that the contractor would have to stick with in, even if a better solution came along. She considered that the contractor has to be involved in the context of what could and could not be done on the ground. The parameters set are the minimum that have to be achieved and any additional measures would have to improve on this and be approved by NPWS, IFI and Galway County Council. What has been set down are the principles of how watercourses will be protected. It shows that all sediment will be taken straight off the catchment and that the settlement ponds are to cater for the 100 year flood plus 1 meter.

In terms of successful protection, Dr Moorkens mentioned the Bundooragha River near Delphi in Co. Mayo, which she said '*was managed to within an inch of its life'*. Meteorological conditions were used to trigger the undertaking of scheduled activities, with operations divided into high, medium and low risk. This is the way protection should be achieved in all cases. A similar procedure will be adopted in this case as documented in the document entitled Revised Schedule of Additional Mitigation Measures & Environmental Commitments submitted at the hearing (Document No 6 Appendix 7).

In response to questions regarding the employment of an Environmental Assurance Officer and relevant qualifications, Dr Moorkens stated that the person should be an ecologist with experience in construction.

Mr Mc Cole asked Dr Moorkens if she ever considered that it would be dangerous to collect all water from the side of the hills together in settlement ponds. He queried if there is a danger that the silt fences would be compromised and settlement ponds overwhelmed by the tempestuous nature of the water. In her reply Dr Moorkens stated that it was her understanding that the streams will be piped and that as such no extra water would be added from the catchment. The overland flow would be directed away from the cutting and clean water diverted away from the works. The ponds will be designed 1m above the 100 year flood event. They will fill and slowly dissipate with an appropriate settlement time. The outfall will be fitted with a penstock valve to allow slow release. Works would be carried out in short section, typically 100m to mitigate impacts.

Mr Mc Cole queried whether contaminants could be present in the rock that when excavated could find their way into watercourses. Dr Moorkens stated that she was assured that what was present was inert granite and marble. There was no limestone present which would increase the risk of contaminants. Dr Moorkens did not envisage that radon gas would be a major issue for freshwater pearl mussel but stated that she was not an expert on this issue.

In response to questions by the Inspector, Dr Moorkens confirmed that there was no room for any silt whatsoever to discharge to this watercourse, it has such an important population of freshwater pearl mussel. The only way the system can be managed is if the mitigation measures are adequate to prevent all forms of silt entering the watercourse.

Closing Statement by Mr & Mrs Geoghegan

It would be preferable if Dr Moorkens as an expert witness were independent and not employed by Galway Co. Council or the NRA.

Local knowledge should be relied on and is worth far more than science and figures. Reliance cannot be placed on weather forecast in this part of the country and the 100 year storm event has gone out the window. The NPWS and IFI should be in attendance as independent bodies.

The proposed alignment is going to destroy species and a famine village, which the Council have a responsibility to protect. It is ironic during National Heritage Week that one State body is trying to protect heritage and another is trying to destroy it.

The planning system does not give everyone a voice, contrary to the Aarhus Convention. The value of public participation is not realised.

Closing Statement of Mr Mc Cole

Galway Co Council have a poor track record in terms of protecting water bodies from pollution. It will be an onerous task to ensure that the jigsaw of mitigation measures are implemented in such a harsh and unpredictable environment. Moving the road to the north would ensure that the sensitive catchment is protected.

Closing Statement by Mr Sweetman

Under EU law consent for the development cannot be given under Article 6(3). There is a lacuna and if permission was to be granted it would have to be under Article 6(4). The Board has to decide and be satisfied on the basis of an outline planning application that there will be zero silt from this development.

Closing Statement by Mr Keane SC

One of the reasons the Board re-opened the hearing was to allow service of CPO notices in respect of certain landowners whose interests has been omitted in error at the previous hearing. This has been done and no apparent issues arise in this respect.

The hearing has centred upon the 600 m off-line development in the vicinity of Glengowla, which is close proximity to the Owenriff River, a habitat for the Freshwater Pearl Mussel. It is not a Priority species and Galway Co Council is very cognisant of, and has spent considerable time, in consultation with specialists and statutory bodies, to ascertain the measures required to ensure that there will not be any significant impacts on the species, and, 'a fortiori' that there will be no adverse impacts on any of the European sites in the vicinity and beyond.

Due to these concerns, the Erosion & Sediment Control Plan (ESCP), which is referred to as Preliminary, but is in fact a concrete document, sets out in significant detail those measures required to ensure proper protection and management of silt which is so important to be avoided in terms of the species. In order to demonstrate the adequacy and efficiency of same, the developer has gone further and produced the design of the settlement ponds and construction staging/timing in significant detail. These are measures that go beyond the normal measures required to ensure that the Board has demonstrated to it beyond reasonable scientific doubt, that there will not be an impact on the integrity of the European site.

A free board of 1.5m in addition to the 1m referred to in the ESCP is proposed for the settlement pond at Glengowla. This is over and above that which is required, but which is being provided in any case to ensure that there can be no question that any scientific doubt remains.

All the necessary studies have been carried out to demonstrate all possible negative effects on any designated species. This arises by virtue of European case law including the Lough Rynn case. The EIS and the evidence produced to the hearing, all of which is included in the assessment carried out under Article 6(3) contains complete, precise and definite findings/conclusions which remove all reasonable scientific doubt. This is fully in accordance with the decision on the European Court in the case of C-258/11.

It has been confirmed to the hearing by the witnesses including Dr Moorkens that subject to those measures proposed, an adequate level of protection to ensure the removal of any scientific doubt is achieved. It is assumed that if Board grants permission for the development, it will be subject to the undertakings and mitigation measures as proposed by the Council and that once the measures are put in place the level of scientific certainty is achieved. The assessment is accordingly entirely valid and supports a decision to grant a consent for the proposed development. The Board carries out it's assessment on the basis of the evidence produced and it has been clearly established at the hearing, that the road has been designed to such a level, to ensure that

here is no reasonable scientific doubt to suggest that there will be any adverse impact on the European site concerned.

There are no lacuna. There is no suggestion that there is an absence of reports or investigation. It cannot be compared to the Lough Rynn case where a proper assessment of bats had not been carried out. Here the existence of the relevant species is well documented and has been properly assessed as set out in the EIS and the NIS, as required by Article 6(3) of the Directive. All of the species and qualifying interests have been properly assessed over a significant period of time. The design has taken into account the existence and presence of all of those qualifying interests. It has been extended to such a level so as to include the level of protection as required under the Precautionary Principle established under the Waddenzee decision.

There has been no scientific evidence to suggest that all of the steps are not present. No evidence has been produced by the objectors suggesting that their remains any reasonable scientific doubt with regard to the efficacy and level of protection provided. In addition, Galway Co Council has committed to further engage with relevant bodies such as NPWS and IFI and to keep them fully informed. It will engage in an iterative process so that if additional measures are identified which would benefit the scheme, above the extreme high level of protection proposed, these can be incorporated into the development. This is not to say, in any sense, that the mitigation measures proposed are not inadequate. It merely allows additional measures over and above those proposed if considered beneficial. This does not amount to a lacuna nor does it amount to the Board being asked to avoid its responsibility it terms of carrying out it's appropriate assessment.

Mr Sweetman's suggestion that this case would have to be referred to the EC is incorrect given the fact that the possibility of adverse effects on the integrity of the European site have been ruled out beyond reasonable scientific doubt and on the basis of all the submissions made by all the relevant bodies such as IFI and NPWS. The road as it now stands does not have any of the level of protection, in terms of run-off and drainage, necessary for the continuation at favourable status of the species in question. The proposal provides a far greater level of protection, which will provide long term benefits for the species and provide the public with a far greater level of service.

ASSESSMENT

Under the proposed scheme consent is being sought for the road development as well as for the compulsory purchase of the lands required for its construction. The first section of the assessment deals with the CPO and is followed by consideration of the proposed development, EIS and NIS.

1 Compulsory Purchase Order

The statutory powers of the local authority to acquire land are contained in section 213 (2)(a) of the Planning and Development Act 2000- 2010. Under its provisions the planning authority *may acquire land compulsorily for the purpose of performing any of its functions including giving effect to or facilitating the implementation of its development plan….*

It is accepted that there are four criteria that should be applied where it is proposed to use powers of compulsory purchase to acquire land or property (as documented in the

book entitled "Compulsory Purchase and Compensation in Ireland: Law and Practice" Mc Dermott and Woulfe 1992):-

- There is a community need, which is met by the acquisition of the property, in question
- The particular property is suitable to meet the community need
- The works to be carried out accord with the Development Plan
- Any alternative method of meeting the community need have been considered but are not available

These criteria will be applied to the compulsory acquisition of land currently before the Board and consideration will be given to the procedural issues that arose during the oral hearing.

Need for the scheme

The stated purpose of the CPO is to facilitate the construction of approximately 15 km of national secondary road and associated works (known as the N59 Maam Cross to Oughterard Road Project). The need for the scheme is set out in the EIS and other documentation and in the evidence to the oral hearing presented by Mr Mark Keaveny.

The N59 is the longest national secondary road in the State. It is a significant strategic transport route linking Galway city through Connemara northwards to Westport, Ballina and culminating in Ballysadare in Co Sligo. Whilst not the preferred route between the Gateway cities of Sligo and Galway and the Hub of Ballina, which are served by more direct routes, such as the N26, N17 and N84, it forms part of the Atlantic Sea-Road Corridor and provides important linkages to coastal areas and to areas that have high amenity and tourism value. As noted in Mr Keaveny's evidence to the oral hearing, the N59 is the only national route west of Galway city and provides the main transport artery linking an extensive and remote region with the national transport network. It provides connectivity to areas, which suffer from higher levels of exclusion due to their peripherality. Access to these areas, whether by public or private transport is by road only. There is no rail alternative. It is acknowledged by Galway County Council that the existing route is seriously substandard and is below the minimum standard for a national secondary road.

It is recognised in the *National Secondary Roads Needs Study. Network Options Report –West Region (NRA, March 2011)* that over the past decade road infrastructure investment has focussed primarily on the National Primary routes. There has been little capital expenditure devoted to upgrading or renewing the National Secondary Road (NSR) network and the condition and safety of the network is likely to deteriorate unless improvement works are implemented. The NRA is now proposing to focus its attention on addressing deficiencies in the NSR network. It is recognised that the national secondary road system is a critical component of the overall road infrastructure, which is particularly important in serving and connecting smaller towns to one another and to the bigger centres served by the national primary routes.

The National Secondary Roads Need Study (NSRNS) was commissioned by the NRA to identify national secondary routes, or sections of a route suitable for investment to a higher standard. The report examines the existing condition of the N59 (Pg 31 & 142). Lane width and visibility throughout the section running between Oughterard and Maam Cross is identified as poor with accidents occurring along its length. It is also

noted that there is considerable variability in the forward sight visibility achieved. This section of the N59 is included in the first (Priority 1) list of schemes in the West Region (Table 8.3).

The importance of the N59 as a transport corridor providing access to peripheral areas in Galway, Mayo and Sligo is recognised at national, regional and local policy level. It is regarded as a strategic economic corridor, the improvement and upgrade of which will play a role in the development of an improved network of roads, which will be a key component in maximising economic growth, achieving regional accessibility and addressing regional imbalances. It is also recognised as a highly significant touring, scenic recreational route providing access to the coastline and major tourist attractions in the area including Connemara National Park, Kylemore Abbey etc.

The minimum acceptable standard for the national secondary road network is a Type 3 Single Carriageway with a design speed of 85 km/h. The existing road fails to achieve this standard and is seriously deficient in a number of key elements, which influence its safety and capacity. It has been demonstrated in the EIS and in Mr Keaveny's evidence to the oral hearing, that the road is deficient in width, alignment and pavement condition and passing sight distance and stopping sight distances are below requirements. Sight visibility at the vast majority of the public road junctions and private accesses along the route are seriously deficient which poses significant risks to all road users. I accept based on the content of the EIS, the submissions made at the oral hearing and from my site inspection, that the roadway is substandard and will benefit from intervention to remedy deficiencies, improve safety and facilitate better access.

The photographs appended to the back of the report were taken along stretches of the N59, which is the subject of the CPO. The road was not walked due to safety considerations arising from tights bends, the absence of a hard shoulder and traffic travelling at considerable speed. The substandard nature of the existing roadway, which displays considerable variations in cross-section and alignment along its length can be appreciated from the photographs. I also point out to the Board that this section of the N59 has been the scene of a number of accidents, which have resulted in serious (7 no.) and minor injuries (26 no.) between 1996 and 2011. According to the evidence presented at the oral hearing the accidents tend to be clustered at the Maam Cross junction and at Derryerglinna/Glengowla where the road is particularly deficient.

Whilst I accept that the improvements to the alignment of this substandard section of carriageway will contribute towards improved access in line with the national, regional and local planning policy framework, will marginally improve journey times and will provide a positive economic return on investment, safety is the main criterion under which the need for the scheme is established. I note that the improvement of this section of the road will tie in with the overall proposal to upgrade the entire section of roadway between Oughterard and Clifden (The N59 Clifden to Oughterard Road Project), which will result in a roadway that satisfies the standards and safety requirements for national secondary roads established by the NRA. The improved standard of the carriageway will benefit all road users and the CPO can therefore be justified by the exigencies of the common good. I conclude that the community need for the scheme has been established.

Suitability of lands to meet the community need

The proposed realignment/widening will deliver a Type 3 Standard Single Carriageway consisting of 2 x 3m carriageway, with 0.5m hard shoulders and 2.5m verges on each side, shaped to provide dual use as a linear drainage channel. The works are primarily on-line (70%) with only short sections of off-line works required (30%). Along much of the route, the offline sections lie close to the existing road pavement. However, there are two locations where the off-line works are significant resulting in the centreline of the proposed road being in excess of 50m from the centreline of the existing road. These are located at Letterfore and Glengowla West townlands respectively. In both situations the off-line section moves north of the existing N59.

The off line upgrades at Letterfore and Glengowla West have the advantage of increasing the separation to Connemara Bog cSAC and Lough Corrib cSAC respectively, both of which are located on the south side of the existing road The re-alignment will improve the width and horizontal alignment deficiencies evident on the existing route. The existing road at Glengowla is aligned with properties on both sides of the road, many of which have substandard access with poor visibility onto the adjoining national secondary route. The off -line alignment will result in the road passing to the rear of their properties.

The majority of the lands to be acquired are in residential/agricultural use. The works will primarily result in loss of frontage/curtilage and in a minority of cases will involve loss of farm buildings/structures, alteration to entrances and severance of holdings. Larger areas of land will be acquired to accommodate the peat deposition and peat restoration areas and these are located on areas of cut-over bog. It is not proposed to demolish any dwelling house along the route and there are no buildings in the area included in the Record Of Protected Structures. The original proposal to demolish the former school house/chapel at Lurga was abandoned due to its associations with past community life in the area. There are no archaeological monuments that will be affected by the scheme. Features of archaeological interest in the area such as lime kilns are not uncommon in the area and the clusters of pre-famine cottages at Glengowla, which will be impacted by the scheme was not considered to be unique, with many examples in the wider area.

Some of the lands scheduled for acquisition lie within Natura 2000 sites and the development is located within a landscape designated with a High/Special sensitivity rating. However, much of the route follows the line of the existing footprint and already passes through these areas, which limits to a degree its potential for negative impacts. However, the sensitivity of the area from a nature and landscape sensitivity perspective warrants more in-depth consideration and will be assessed in greater detail in the proceeding sections of the report.

I accept that the main benefits that will accrue from the scheme will be the provision of a consistent standard of carriageway along this section of the N59. This will improve safety and reduce the potential for accidents. I accept that there will be no significant improvement in journey times arising from the upgrade/widening of the road, but that it will advance the aspirations documented at a national level to secure the improvement of this substandard section of the national secondary route and improve access to more peripheral regions. I am satisfied that the proposed CPO lands are suitable in principle for the proposed scheme. I accept that the retention as far as possible of the existing line of the carriageway minimises off-line construction and the acquisition of third party

property. Whilst the largest areas of acquisition in a particular area will be associated with the material deposition and peat restoration areas, the provision of these facilities has beneficial benefits which will be discussed later in the assessment.

Compliance with the development plan

It is acknowledged in the development plan that Galway, due to its peripheral location relies heavily on the public road network for transportation. It seeks the provision of a sustainable transport system and a safe road network. It recognises that National routes, including the N59 act as strategic economic corridors and that the on-going roads improvement programme will provide better connectivity both within the County and with the national network and will also improve safety levels. The N59 is specifically targeted for strengthening and improvement under Objective RT 19.

The development plan acknowledges the critical links between transportation and the settlement strategy adopted for the County. It incorporates various policies/objectives which seek to ensure that improvements in transportation infrastructure support the strategic development and settlement strategy for the County and provide an appropriate level of accessibility to urban and rural facilities, services and opportunities. The N59 is identified as an Infrastructure/Transport Corridor, which by linking Galway city with more peripheral areas plays a crucial role in providing support to rural communities.

The route forms part of the Atlantic Sea-Road Corridor connecting the Gateways of Sligo and Galway along the coast through Ballysadare, Ballina, Bangor, Westport, Clifden, Oughterard and Moycullen. In addition to its importance as a strategic transport/economic corridor, it also functions as a significant touring route between these centres facilitating access to major tourist attractions and to the coastline.

It has been identified both in the application documentation, the submissions made to the oral hearing and from the site inspection that the existing route suffers from significant deficiencies. This impacts, not only on its function as an access and communications route, but also on the level of safety it offers. The road is specifically earmarked for strengthening and improvement in the development plan, and accordingly I am satisfied that the proposed development satisfies the overall policies and objectives of the plan which seeks to supports a continued programme of improvement of road infrastructure, the provision of safe road network and the continued role of the N59 as a strategic transport/economic and touring corridor

Alternative methods of meeting the community needs

It was concluded in the EIS having considered alternatives that the only feasible option was an on-line upgrade of the existing N 59. The other options considered were to ‘Do Nothing’ or to provide an ‘Offline Upgrade’. The former was rejected on the basis that it would not address the deficiencies in the existing road. Other than standard maintenance, no other works would be carried out. The road would remain substandard and existing deficiencies in width, alignment, sightlines at junctions and accesses etc., would not be addressed. The discounting of this option is considered reasonable.
The latter was discounted based on the significant constraints identified in the area. These included Natura 2000 sites on both sides of the N59, a scenic and sensitive landscape which is a significant tourist attraction, significant variations in topography between the north and south side of the existing route, which influences surface water movement and ground conditions that varies from rock to deep peat.

The argument made against an off-line alignment to the south of the existing route is that it would encroach to a greater extent on the designated sites in the area. As noted in the EIS, the existing road forms the northern boundary of the Connemara Bog cSAC between Maam Cross and Oughterard and part of the northern boundary of Lough Corrib cSAC closer to Oughterard. A route to the south would result in fragmentation and loss of habitat in the areas between the new road and the old route. Ground levels also vary to the south of the existing N59 and fall away significantly towards the valley formed by the Owenriff River to the east. The new route would be lower than the existing route in such locations and avoidance of the lake systems would involve a winding circuitous route. I also note that embankments would be a necessary feature of the construction in order to raise the road above existing flood levels. I accept that discounting of this option was reasonable on the basis of the significant encroachment and fragmentation of Natura 2000 sites, which coupled with design requirements and encroachment into a more open, natural and lake studded landscape would impact significantly on the visual amenities of this sensitive area.

The argument made against an off-line alignment to the north of the existing route is that it would encroach into the Maumturk Mountains cSAC to the west of Maam Cross and into small sections of Lough Corrib cSAC close to Glengowla and Connemara Bog cSAC close to Letterfore Bridge. It would involve large cuts through rock and removal of large quantities of peat habitat including Annex 1 and Priority habitat. The removal of large quantities of peat would increase the potential for the release of significant quantities of sediment/silt/peat into adjacent watercourses, which due to their flashy nature and the direction of surface water flow would have the potential to result in the rapid transfer of contaminants to lake and river systems, many of which support Annex 11 species. Any new route to the north would generally be on higher ground and traverse undulating landscape necessitating significant cut and fill operations, with impacts on the scenic amenity and tourism potential of the area. Having regard to the significant ecological and visual impacts likely to arise from this option, its rejection would not appear unreasonable.

I accept the conclusion reached in the EIS that the preferred option involving an 'online upgrade' of the existing route offers the best measure of protection in terms of the environmental and scenic sensitivities of the area. Being along the line of the existing route, encroachment on the designated sites is limited and no fragmentation of habitats will occur. The on-line upgrade will make the fullest use of the existing route and continue to provide access to the significant number of residential/agricultural properties along the road. In this way it will continue to serve existing communities in a manner that would not be achieved to a comparable extent by an off-line option. It will ensure that existing substandard junctions and individual accesses into the existing N59 are improved, contributing to the overall safety of the road network in the area. I accept that the improved design will provide a safer and more effective traffic route, which will benefit the community generally.

During the oral hearing the objectors concern focused exclusively on the off-line section at Glengowla, which is the largest off-line section. It was their contention that moving the alignment to the north in this location is feasible and would remove the negative impacts associated with the current proposal, including impacts on designated habitats/species, severance of the lands, and the removal of a pre-famine settlement. Galway County Council emphatically rejected this suggestion and re-iterated their position that this option was ruled out on the basis that it would involve direct and

indirect impacts on Annex 1 and Annex 1 Priority Habitat, namely Active Blanket Bog and Wet Heath resulting in severing of the habitat and hydrological impacts on the bog.

I accept that there are particular deficiencies associated with the stretch of road at Glengowla. It is identified as the worst stretch along the N59 and the deficiencies in terms of substandard width, alignment and cross-section are compounded by the high density of residential properties with direct access onto the carriageway, many of which have substandard sightlines. All of these factors combine to impact significantly on traffic safety. The EIS paid particular attention to this section of the road and considered a number of alternative alignments (Section 3.6.2 and shown on Drawing No GC094741-16-18111 in Appendix 3).

I accept that Option No 1, which involves widening only would not remove the deficiencies associated with the existing route and defeats the overall purpose of improving the road to national road standards. It would involve the demolition of a thatched cottage and according to the evidence presented by Mr Keaveny at the oral hearing would encroach significantly onto two other properties. Option No 2 involves an off-line section adjacent to the existing road. Whilst it would provide a better alignment, it would result in profound impacts on residential property and was discounted on that basis. It was noted at the oral hearing that this option would bring the road very close to residential properties and the thatched cottage, Geoghegan's and Joyce's property would have to be included in the CPO.

Option No 3, selected as the preferred option, is an off-line section to the north of Glengowla. It departs from the existing road for approximately 600m. It will not involve the demolition of any residential property and will remove the impacts on occupied dwellings associated with the other options. I accept that it will involve severance of agricultural land and other impacts raised at the oral hearing including the removal of a pre-famine village, visual impacts on properties etc. that will be discussed under separate headings below. However, at this stage of the assessment, the chosen option appears to be the most reasonable solution in terms of providing an appropriate design response to the need to improve this section of the N59 while at the same time minimising the impacts on the ecological, visual and residential sensitivities of the area.

Procedural Issues

During the course of the original oral hearing a document entitled 'Amendments to CPO Schedule' was presented by Galway Co. Council to the Inspector and circulated to other parties. The amendments included change in ownership details in relation to a number of plots of land. This gave rise to concerns that correct procedures had not been followed in relation to the notification of the identified landowners. The Board having considered the matter was of the opinion that the deficiencies could be rectified and directed Galway Co Council to serve new notices in relation to the plots concerned and allow landowners to make submissions/observations.

An amended schedule was received by the Board on April 15th, 2013. All the identified landowners have been notified and facilitated to engage in the process. There are, therefore, no outstanding issues in this regard. I would point out to the Board that Mr Sweetman raised issues regarding the legality of the Board's action and the submission of revised CPO's. He stated that the Board had a duty to take the legal position into consideration and the failure to issue a decision on the it was dereliction of duty under CPO legislation.

2. Development Consent – Environmental Impact Assessment

In addition to seeking approval of the CPO, Galway County Council is also seeking EIS approval for the proposed road development. Whilst the road falls below the threshold where a mandatory EIS is required, the Board directed Galway County Council under section 50(1) (b) of the Roads Act, 1993, as amended, to prepare an EIS for the development. A NIS was also submitted to facilitate the Appropriate Assessment of the road upgrade works on Natura 2000 sites in the vicinity of the development. This section of the report provides an assessment of various environmental topics, correlating with the various sections set out in EIS. There is an element of overlap with the NIS, which is reflected in the report. The environmental topics include the following;

- Traffic
- Material Assets
- Socio-Economic impacts
- Air Quality & Climate
- Noise & Vibration
- Landscape & Visual Impact
- Geology & Soils
- Surface Water/Groundwater
- Archaeology, Architecture & Cultural Heritage
- Ecology & Appropriate Assessment

I would point out to the Board that other topics including the examination of alternatives, the need for the development and planning context and has been discussed in preceding sections of the report.

I consider that the EIS complies with the requirements of section 50 (2) and (3) of the Roads Act 1993 (as amended) and contains sufficient information to identify and assess the likely significant direct and indirect effects of the road development on the environment.

Traffic

The traffic assessment indicates that existing volumes are low along the route and no significant variations in traffic volumes or the number of heavy goods vehicles will arise as a result of the development. The proposed development involves a predominantly on-line up-grade of the existing road and with the exception of the off-line sections, does not provide an alternative route for traffic. Whilst the saving in journey time will be marginal i.e. in the region of 3 minutes, the main benefit is the delivery of an upgraded road, which will address existing deficiencies in terms of alignment, cross section, pavement condition, substandard junctions/accesses etc. The aim is to provide a road that is fit for purpose and satisfy the minimum standard for national secondary roads, which is considered reasonable. According to the EIS it will provide a positive economic return on investment based on the MCA scoring system set out in the National Secondary Roads Needs Study.

The most significant impacts on traffic are likely to arise during the construction phase arising from transport of materials to/from the site. It is estimated that the earthworks

programme will involve the movement of 520,000 m3 for the entire development. This would, in a worst-case scenario result in a temporary increase in traffic levels of 4% per day. Whilst the increase in traffic will result in inconvenience and delays, I accept that this has to be considered in light of the temporary nature of the works and the overall benefits to communities and road users following completion.

Issues were raised at the oral hearing regarding the movements that will be required to access plots of land severed by the proposed road scheme and junction safety from the existing N59 onto the new alignment at Glengowla. Whilst I accept that dividing plots of land will inconvenience the landowners concerned, this has to be balanced against the positivities that will result from the improvements to traffic safety for all road users that will arise from the new off-line section. The proposed off-line section will eliminate one of the worst sections of the route and transfer most of the traffic onto a safer alignment. This will benefit the residents of Glengowla, many of whom access the existing N59 via substandard accesses with seriously deficient sightlines. The removal of traffic from this section of the road will help to improve road safety and make access to land on either side of the existing road safer and less cumbersome. In terms of access to the offline section, the existing N59 will be connected at both ends by at-grade priority junctions, which coupled with the improved width, alignment and cross section of the new section will significantly improve sightlines, which will contribute to safer manoeuvres.

Issues were also raised at the oral hearing regarding the safety of the at-grade Greenway crossing at Bunnakill. I accept that the alternatives suggested by Galway Cycling Campaign are not feasible due to the flooding issues associated with a tunnel and the impacts on the character and visual amenities of the area that would result from an overpass. I note that the re-alignment at this point will significantly improve sightlines and that stopping distances of in excess of 160m for motorists will be achieved, all of which will contribute to traffic and pedestrian safety. I also accept that the improved geometry of the road in proximity to the school coupled with improved warning signs will improve safety for children accessing the school from the proposed cycle/pedestrian track to be provided as part of the scheme.

I consider that traffic implications of the proposed development have been adequately assessed in the EIS. The upgrade of the road as proposed is in line with national, regional and local policy frameworks and will result in a road that is fit for purpose and satisfies the minimum requirements set down by the NRA for national secondary roads.

Material Assets (Non- Agricultural Property & Agriculture/Agricultural Property)

Non-agricultural property in the vicinity of the road includes residential, commercial and community property. Many of these properties front onto and/or access onto the existing N59. The impacts arising from construction include reduction in overall site area, loss of boundaries and amenity items such as hedgerows, trees etc., realignment and replacement of existing accesses.

With the exception of 7 no properties which front onto the existing N59 at Glengowla, the vast majority of the remaining properties will be affected by the acquisition of part of their curtilage. Commercial/community properties that will be impacted by land take include the former filling station at Maam Cross, Peacock's Hotel, Derryerglinna National School and the entrance to Glengowla Mines. Whilst the loss of ground will be permanent, the impact will be offset to a degree by monetary compensation. The impacts on affected properties will be ameliorated by the replacement of boundaries and

vegetation on a 'like for like' basis which will help to reduce impacts on the residential and visual amenity of the affected properties. Residual impacts are assessed as ranging from 'not significant' (11 no.), minor (24 No.) and moderate (11 no). No severe or major impacts are anticipated.

There are 34 No identified farms that will be directly affected by the construction and operation of the road. The main enterprises in the locality are sheep, suckler cows, drystock and mixed livestock. Some farms keep horses/ponies. It was confirmed at the oral hearing that 48.1 Ha will be lost to agricultural production. The impacts on individual farms are assessed on the basis of significance criteria (Table 8.1 of EIS). In the majority of cases only a small portion of land will be removed, farm buildings will remain in place and severance will not occur/or will be insignificant. I accept that in these cases that the impacts are correctly assessed as 'Not Significant' or 'Minor' following mitigation, depending on the level of inconvenience suffered. Mitigation in these cases generally involves boundary replacement, maintenance of access, provision of handling facilities etc.

Five farms will experience severance as a result of the development. The affected farms are concentrated in the Glengowla area where the most significant off-line section of the route is proposed. Elongated strips of land will be split in two and one farm will lose farm buildings. No issues arose at the oral hearing to suggest that the division of the affected farms would compromise their continued operation. The severance of these properties will undoubtedly result in increased inconvenience and operational difficulties associated with the movement of stock from one section of the farm to another etc. None of the farms are involved in dairying, where impacts would be more significant arising from the necessity to move livestock on a daily basis. I concur that the impact will be 'Moderate' following mitigation which includes replacement of boundaries, provision of access to severed portion of lands, provision of handling facilities etc. There are no farms on which the impact would be considered to be 'Severe' i.e. where farm enterprise cannot be continued, holdings made unworkable etc.

Severance of land is an unavoidable consequence of the off-line development and alterations to individual properties will occur. Whilst not wishing to undermine or underestimate the concerns expressed by the residents of Glengowla at the oral hearing regarding the inconvenience and disruption that will be generated, I consider that the improvements will benefit the community. The road will be brought up to an acceptable standard without the loss (acquisition) of any residential, commercial or community buildings and access to individual properties will be improved. The predominantly on-line upgrade ensures that the extent of severance is minimised and the alternatives have been duly considered and rejected on reasonable grounds. I accept that the off-line section at Glengowla will result in more significant impacts for a small number of farmers, whose holdings will be traversed by the new route to the north, but that this will be mitigated by the improved access afforded by the new route and the provision of a dedicated farm access road. Furthermore, the removal of extraneous traffic from the existing route will facilitate greater ease of access to land parcels to the south.

Whilst I accept that all of the impacts cannot be completely eliminated, this has to be balanced against the identified need to improve the existing road up to an acceptable standard and provided the land take is reasonable and proportional these impacts are considered acceptable. I conclude that the impacts on both agricultural and non-agricultural property have been adequately assessed.

Socio-economic impacts

The road runs through a rural area and the dominant land use is agriculture. There are limited commercial, community facilities in the locality, these being concentrated in Oughterard and to a lesser extent in Maam Cross.

Whilst there will be inconvenience associated with the construction period of the road, such as traffic disruption, delays in travel times etc. there will also be temporary positive impacts associated with increased employment with knock on effects on local businesses. Following construction, I accept that the socio-economic impacts of the development will generally be positive arising from the improvement of the road, which will increase safety and ease of access. Improved access has the potential to stimulate increased economic activity including tourism and will benefit local communities in terms of connectivity.

The incorporation of a pedestrian/cycle track along a section of the route between Chainage 264+900 and 266+500 is an additional benefit to the local community. Whilst I accept that it is limited in extent, it will facilitate connectivity between the national school and local communities at Derryerglinna and Glengowla West, which contain the largest clusters of dwellings along the route. It will also facilitate connection to the proposed Greenway, which will have positive impacts on amenity and tourism.

The limited extent of the pedestrian/cycle track was criticised by the residents of Glengowla at the re-convened oral hearing, who stated that they would have to drive their children to the route, which limits its effectiveness. According to the details provided in the EIS, the track will run along the southern side of the re-aligned carriageway. It will extend from the national school at Derryerglinna and terminate close to the western extent of the off-line section at Glengowla. Children from Glengowla would then link into the old section of the N59, which would be by-passed by the majority of traffic, improving its overall safety. Whilst I accept the points raised by the Glengowla residents, I consider the overall effect to be positive in terms of facilitating alternative modes of transport for children in the area between the national school and Glengowla.

I accept that there may be inconveniences associated with access to bus transport, particularly for older members of the community, who would have to make their way to the new section of the road. This being said, it was confirmed at the oral hearing that there is no scheduled bus stop at Glengowla. Whilst the residents in Glengowla consider that the scheme will increase isolation and severance, I consider that the removal of traffic from the road fronting their properties is likely to encourage increased pedestrian movement along the existing road improving connectivity and interaction within the community.

I consider that adequate information has been provided in the EIS to facilitate an adequate assessment of the socio-economic impacts of the development.

Air Quality & Climate

The impacts of the construction and operational phases of the development on air/climate were assessed in Chapter 9 of the EIS. Sensitive receptors in the existing environment include numerous residential properties in close proximity to the road, in addition to sensitive ecosystems associated with Natura 2000 designated sites.

In terms of the characterisation of the existing environment, the baseline assessment concludes that the area in the vicinity of the road experiences good air quality. This is consistent with its rural location where the predominant land use is agriculture and where there is an absence of industry or any significant pollutant generating activity. Baseline conditions for nitrogen dioxide (NO_2) and fine particulate matter (PM_{10} & $PM_{2.5}$), were established in accordance with NRA guidance. These are the principal pollutants identified by the NRA that need to be considered at a local level for road schemes. NO_X is identified as of concern in relation to sensitive ecosystems. The results of the baseline air quality monitoring indicates that each of the pollutants was well below annual limits for protection of human health and for protection of vegetation (NO_X).

The main impacts associated with the construction period relate to dust and vehicle emissions. There are numerous activities that have the potential to generate dust and these include normal road building operations, movement of material, rock breaking, blasting and the deposition of unsuitable material in the deposition/restoration areas, activities at construction compounds etc., all of which have the potential to impact on the sensitive human receptors and sensitive ecosystems.

The placing of unsuitable material in the deposition/peat restoration areas has the potential to generate significant levels of dust. However, these areas will not be within 100m of any dwelling, which reduces the potential for impacts on receptors from this source. The location of the construction compounds have not been established but it is likely that there will be a number located along or in the vicinity of the route. Notwithstanding the proposal to exclude such facilities from Natura 2000 sites, these and other activities close to the existing road line have the potential to impacts on human receptors and sensitive ecosystems.

In line with common practice and NRA guidance, a dust risk assessment will be prepared to assess the potential for dust emissions based on various construction activities, proximity to receptors etc. A dust minimisation plan will be drawn up and implemented during construction. The plan will include normal good practice measures to control dust associated with construction activities, (such as provision of wheel wash facilities, watering of roads, careful stockpiling of material etc.) and will include a requirement that monthly dust levels be maintained within the guideline limit of 350mg/m2/day as an annual average at sensitive receptors. With regard to sensitive ecosystems, the EIS refers to UK Highways Agency DMRB and a level of 1000mg/m2/day above which sensitive species appear to be sensitive to dust. Subject to the compliance with the guideline limit of 350mg/m2/day, significant impacts on sensitive species will not arise.

It is not anticipated that the improvement of the road will result in significant changes in traffic volumes or the numbers of HGV's, which would give rise to significant increases in emissions and the level of pollutants. The realignment of the road will marginally increase traffic speed due to the improved width and alignment of the route, which will result in increased emissions. A total of 38 no. properties are identified in the EIS as located within the direct zone of influence for air quality (i.e. 50 m). Air quality modelling was carried out to assess the impacts of the development on those properties nearest the scheme. The results indicate that the level of pollutants will remain within the limits specified for public health.

In terms of the protection of sensitive ecosystems, I note that the modelling carried out for the opening year (2015) and the design year (2030) predicts only marginal increases in NO_X, which will and remain significantly below the annual limit. In addition, the predictions of nitrogen deposition rates undertaken in accordance with NRA guidance, indicates that the impacts on ecosystems will be negligible.

The greenhouse gas emissions associated with the construction stage, estimated at 13,772 tonnes of CO_{2eq} per annum for the two year construction phase, is considered negligible when compared with the National Kyoto Target of 63 million tons of CO_{2eq} Included in the annual figure are the carbon losses arising from peat disturbance through site clearance works. The losses will be mitigated by the Peat Restoration Areas, which will be constructed to mimic the peat land habitat and maintain the carbon sink characteristics. During the operational stage total greenhouse gas emissions are calculated at 168 tonnes/per annum compared with the National figure of 63 tonnes $CO_{2eq.}$ Whilst Mr Sweetman raised issues regarding the use of a Scottish guideline document for the calculation of emissions, it was pointed out at the oral hearing that it was the guideline specified for use by the DoEHLG for other projects. I am not aware that an alternative is currently available and I accept that it provides an overall estimate of carbon losses associated with peat removal for the project.

During the oral hearing Mr Sweetman raised issues regarding the cut section at Glengowla. It was his position that the removal of rock, which would involve blasting constituted a 'quarry'. I note that the total quantity of rock that will be removed in this location is limited (27,000 m3) and measures to mitigate dust will be implemented in accordance with acceptable guidelines to protect sensitive receptors. Whilst I accept that the activities associated with the removal of rock will impact on local residents, the impacts will be temporary and not expected to exceed 3 months.

Mr Sweetman specifically referred to impacts on Mr & Mrs Geoghegan's house which was confirmed at the oral hearing was c 65 m from the land take line. It was acknowledged by Mr Chadwick that in the absence of mitigation there could be dust related impacts up to 100m distance. There are a range of measures set out in the EIS to prevent dust generation and dispersal that must be met for all aspects of the project. In addition a monitoring programme will be in place. Subject to these controls, I consider that the potential for dust nuisance will be adequately mitigated. During the operational stage the upgraded road is not predicted to result in increased traffic volumes which would raise the pollutant level above the statutory limit values for the protection of human health or protection of vegetation.

I am satisfied that the impacts on air and climate arising from the construction and operational phases of the development have been adequately assessed in the EIS. I consider that it has been effectively established that pollutant levels will remain below statutory limits and that dust levels will be controlled to ensure that there will be no impacts on public health or sensitive ecosystems in the vicinity.

Noise/Vibration

Baseline monitoring was carried at 12 no locations along the N 59, to establish a representation of the existing noise environment. Four of these monitoring surveys were located within the boundary of the proposed road development. In addition to the noise associated with activity in a rural environment, the monitoring showed that the existing noise environment is dominated principally by traffic noise.

The impact of the scheme was assessed for both the construction and operational phases of the development. It is accepted that construction activity will introduce additional noise sources to the environment with the potential to generate adverse effects. The noise/vibration sources will be associated with ground works including rock breaking, drilling, blasting, piling, filling, and other works including paving, installation of services, traffic etc. Noise/vibration will also be generated by plant/equipment used for these activities.

There is no published Irish guidance relating to the maximum permissible noise level that may be generated during the construction phase of a project. NRA guidance suggests a range of recommendations and maximum noise levels for road schemes covering activity during the daytime, evening, Saturdays and weekends (Sundays/Bank holidays). In order to achieve the NRA recommended daytime noise limit of 70 dB $L_{Aeq\ (1hr)}$, at 1m from the façade of any potentially affected sensitive properties, noise emissions will be managed in accordance with the mitigation measures outlined in BS 5228 *'Noise and vibration control on construction and open sites'*. The mitigation measures which will be employed to reduce potential noise impact are set out in the EIS and include the provision of temporary noise screens in close proximity to the noise source (such as rock breakers), controls on operations to specified working hours, noise monitoring at sensitive properties during particularly noisy activities such as rock/blasting/piling, etc.

Drawing No GC094741-16- 181135 identifies the 52 no properties along the line of the route. It is accepted that the increase in activity will result in varying degrees of noise nuisance. However, it is outlined in the EIS and in the evidence produced by Mr Keegan to the oral hearing that the greatest potential for noise related impacts during construction will occur where cutting is required. Whilst a number of such areas are identified in the EIS, the most significant cutting operations will occur at Glengowla West to accommodate the new off-line section. Here, quantities of rock will be excavated by drilling and blasting and the use of explosives is likely to give rise to vibration. There is a cluster of residential properties in this location, which are located at varying distances from the development, with 9 no. properties within 100m of the proposed cuttings at Glengowla and a further 3 no. properties within 150m. The closest properties to the proposed blast area at Glengowla are approximately 60-70m. In other areas where less cut is required, mechanical rock breakers will be used to extract rock, which is also a significant noise source.

I accept that an increase in noise levels is an evitable consequence of the construction activity, which has the potential to impact on the residential amenity of properties in close vicinity. This being said, the construction phase is temporary and due to the linear nature of the works, noise related impacts will be transient, which will limit the duration of exposure to individual properties. The restriction of noisy activity to daytime periods only, together with standard mitigation methods for construction activity and noise control monitoring to ensure levels are not exceeded, will mitigate the potential for adverse impacts on sensitive receptors.

In terms of traffic related impacts, it is estimated that construction will generate an additional 290 vehicle movements per day which is predicted will increase noise levels by < 2 dB(A), which would be barely discernible and in any event will be short term and temporary.

In terms of operational noise, the Cadna_A noise model was used to generate noise levels for noise sensitive receptors located within 300m of the proposed road development, in accordance with NRA guidance. There is no predicted increase in traffic volume arising from the proposed road development. The information presented in the EIS notes that the majority of the existing properties in close proximity to the existing N59 will remain in very similar proximity to the proposed road development alignment. Therefore, it is predicted that there will be no increase in noise as a result of the development. The main changes in noise levels will occur at Glengowla where impacts will be largely positive, due to the realignment away from existing properties. Based on the NRA criteria for mitigation, no receivers were deemed to require noise mitigation design in the Year of Opening 2015 or the Design Year of 2030 i.e. predicted noise levels do not exceed the 60 dB L_{den} design goal set out in the guidance document. Provided the road is well maintained, vibration from traffic during the operational stage will be limited and insignificant.

Additional impacts may arise due to vibration associated with piling and blasting activity. Guideline limits have been set in NRA guidance in order to protect against any cosmetic/structural damage being experienced during the construction phase. Mitigation of vibration impacts will be achieved by the adoption of good blasting practices including advance warning to property owners in the vicinity. To ensure compliance with specified vibration limits, monitoring will be undertaken by the contractor using a digital seismograph.

It is accepted in the EIS that the design, execution and completion of any blast within 150m of any existing structure requires special consideration and various mitigation measures are proposed such as blasting trials etc. None of the buildings in the area are considered to be susceptible to structural damage arising from vibration. However, it was confirmed at the oral hearing that property condition surveys will be offered in respect of all buildings within 50m of the development boundary and within 150m of the proposed blasting works. Whilst not wishing to under-estimate the concerns of the residents, particularly at Glengowla where the impacts are likely to be the most significant, the off-line section at Glengowla is c 600 m in length and the impacts will short term and temporary. Standard procedures such as compliance with vibration limits, advance notification etc. will mitigate potential impacts.

During the oral hearing the concerns in relation to blasting and vibration related to impacts on the Owenriff River, the hatchery at Oughterard and protected species such as salmon and the freshwater pearl mussel. Whilst Mr Keegan stated that he had no particular experience in this regard and that sensitive receptors are normally considered to be residential property, he was confident that due to the separation distance to the river the impact of vibration would effectively be zero. The trial blast would ensure that vibration limits at sensitive receptors were achieved and the river was over double the distance away (120m) from the blasting works. He stated that it was widely measured and reported that vibration intensity from activities such as blasting will decrease at a fourfold level with a doubling of distance.

This position was not accepted by Mr Mc Cole (Carra, Mask Corrib Water Protection Group) or the manager of the hatchery (Mr Gibbons) who noted the adverse impacts that could arise to species arising from shock. In response Mr Keegan stated that when the blasting plan is being devised, it would be feasible to take a seismograph reading close to the river and assess it as a sensitive receptor. The objectors were not persuaded by this argument and considered that there should be no blasting during the spawning

season (October 1st –April 30th) to eliminate mortality to ova and fry. They also raised issues regarding the impacts of the trial blast.

It appears from the evidence given at the hearing that subject to compliance with vibration limits at dwellings, the vibration from the blasting will have dissipated before it reaches the river. I would point out to the Board the *'Revised Schedule of Additional Mitigation Measures & Environmental Commitments'* (Document 6 –Appendix 7) which was presented at the re-convened oral hearing sets out that minimum set back distances that will be observed for blasting in the vicinity of watercourses.

I am satisfied from the information presented in the EIS and during the oral hearing that noise and vibration impacts associated with the construction stage can be effectively mitigated so as not to impact negatively on sensitive receptors. I accept that the operational impacts are negligible.

Landscape & Visual Assessment

The current Galway County Council Development Plan includes three maps relating to landscape evaluation namely HL2 depicting *'Focal Points/Views'*, HL3 indicating '*Landscape Value Rating'* and HL4 showing '*Landscape Sensitivity and Character Areas'*. These maps are difficult to interpret due to their scale and the level of detail contained therein.

It was clarified at the oral hearing that the entire section of road lies in Landscape Character Area LCA 10. With the exception of the landscape to the west of Maam Cross, which attracts a sensitivity rating of 'Unique', the remainder of the landscape has a 'Special' or 'High' sensitivity rating. 'Special' is applied to the boglands between Maam Cross and Loughanillaun, the open bog and mountain landscape to the south of Bofin Lough and the Owenriff River valley east of Lough Agraffard. The 'High' sensitivity rating applies to the remaining landscape traversed by the road. Ratings have also been attributed to these areas in terms of 'landscape value', with the bogs and mountains extending from Maam Cross to the east of Loughaunierin being classified as 'Outstanding' and the remainder lying within the 'High' value rating.

The Connemara landscape is renowned worldwide for its scenic quality. This section of the N59 is not considered to have the same scenic quality as the landscape associated with the Connemara Mountains further west and this is reflected in the description of the landscape associated with LCA 10 i.e. *'scenic although not remarkable'*. However, the area retains its natural and rugged character and is sensitive to change. Extensive sections of the route travel through open and exposed landscape, which affords long distance views of the surrounding landscape including numerous lakes, the Connemara Mountains and open bogland.

The majority of the route follows the existing alignment, which is positive in terms of mitigating adverse impacts on the landscape. However, changes in the vertical and horizontal alignment of the route can influence the level of impact on the landscape. I accept that where the road travels off-line the potential for adverse impacts increases as the new route traverses into previously undeveloped land. Such impacts are compounded where off-line sections occur in areas of open and exposed landscape. In addition to the road works, 2 no. peat deposition areas and 5 no. material deposition areas are proposed, which also have the potential to impact on the landscape. A total of

52 no. residential properties are identified along the route and the impact of the proposed development on these properties is assessed in the EIS.

A series of photomontages were presented at the oral hearing to support the evidence of Mr Christoph Walter (Landscape Architect). The photomontages show the existing/proposed route alignment at 9 no. locations. Photomontage No's 01- 04 illustrate the impacts of sections of the alignment towards the western end of the scheme. This is one of the areas with the greatest potential for adverse effects as the landscape is open and exposed with limited vegetative cover. It is also the area that affords generally unconfined views towards the Connemara Mountains and over the lakes and bogland that define the landscape. I accept that the route will be more prominent as a result of widening and increased elevation but that existing views are not majorly affected, so as to detract significantly from the visual amenities of the area.

Whilst there are frequent panoramic views southwards over Lough Bofin and Lough Adrehid, the landscape in the vicinity of the road becomes more enclosed with increased vegetative cover travelling east towards Glengowla (Photomontage No 05-06). In some areas views of the lakes are restricted by embankments and vegetation. The road will run at a higher grade at some locations close to these lakes, which will increase its overall prominence in the landscape. This will be compensated for, to a degree, by the improved views that will be afforded from the road. As the road continues eastwards towards Oughterard (Photomontage 07-08), increased vegetative cover, forestry and electricity infrastructure limit the potential for significant adverse impacts on the wider landscape.

As already noted the potential for adverse effects increases where the alignment alters significantly (horizontally/vertically) and moves into undeveloped ground. Whilst I note that c 85% of the road will run at or close to existing grade, the remainder of the road will involve cut and fill with changes in road level. In these areas changes in levels ranging from 2.1m to a maximum of 7.1 m above existing ground level will occur. These are identified in Table 11.3 of the EIS. I accept that in the absence of mitigation, these changes have the potential to result in significant adverse impacts on the landscape.

The EIS identifies 3 no. locations where the road deviates significantly off-line. These include Arderry Lough (Ch 257100-258700) over a distance of 1.6 km, areas at Lough Bofin West between Ch 261500-262600) over a distance of 1.1 km and from Lough Agraffard to Glengowla (Ch 267300-270854) over a distance of 1.8 km.

The first significant off-line section occurs in the vicinity of Arderry Lough. This section of the road extends from Maam Cross and skirts along the northern shores of the lough. Whilst the deviations from the existing route are limited to short sections, the new alignment will move northwards into an area of open bog and a landscape classified as 'Special'. Cut and fill operations will be required along a section (Ch 258400-258800) and will result in level changes of up to 2.5 m. These areas contain limited vegetation and it is acknowledged in the EIS that changes to the horizontal/vertical alignment will be highly noticeable. In terms of mitigation, the proposal is to re-grade all disturbed surfaces following construction so as to allow all road edges and embankment to assimilate into the existing landscape (Photomontage 01). Replacement planting will be provided east of Maam Cross to replace an area of woodland south of the alignment (Inspector's Photograph No 28). It is not proposed to

introduce planting where none currently exists. These measures are considered reasonable having regard to the existing landscape context.

At Lough Bofin West, the alignment will again move northwards over short sections into areas of open bogland. The most significant deviation will be at the north-western lake edge where a curved section of the lake edge is straightened. The substantial re-routing (deviation of 108 m from the existing route) will result in significant ground disturbance. I also note that the route will run at a noticeably higher grade, which will in turn make the road a more prominent feature in the landscape. The landscape sensitivity in the area is classified as 'High'. Similar mitigation measures will be employed with replacement planting to replicate that removed as a result of the development i.e. at Bunnakill scrub planting followed by high canopy woodland planting is proposed on both sides of the proposed route and regrading of disturbed surfaces and embankment.

The most significant off-line section occurs at Glengowla where the route will be relocated to the north. The area has a 'High' sensitivity rating. This is the area where the most significant adverse effects will arise as existing farmland is dissected and where significant cut and fill embankments will be required. Changes in level of up to 7.1 m will occur. It will result in the loss of woodland and hedgerows. The existing road travels through an enclosed lowlying section of roadway (Photograph No's 14-16) where views into the wider landscape are curtailed by existing dwelling houses, vegetation and the uphill gradient to the north. The new section of road will be in-cut which will limit it's impact when viewed in the wider landscape. Mitigation measures will include re-grading of disturbed surfaces to ensure that road edges and embankments tie in with the existing landscape. Hedgerows will be planted to replace existing field boundaries and planting will be incorporated on either side of the new cut section comprising low canopy woodland mix, all of which will facilitate it's assimilation into the landscape.

It is proposed to provide 2 No. Peat Restoration Area's (PR 01 & 02) and 5 No. Material Deposition Areas (MD 01-05) along the line of the route to accommodate unsuitable material arising from the development. All of these areas are located towards the western end of the scheme between Maam Cross and Loughaunierin. The Material Deposition Areas will be proximate to the road and deposition heights will range from 1.0 -1.5m depending on their location. A lower deposition height of 1.0 m is proposed for MD 03 to mitigate impacts on views of Arderry Lough, while a deposition limit of 1.5m is considered acceptable for MD 04 due to its location against a backdrop of coniferous plantations to the south. The proposal is to re-grade and re-seed these areas with a verge similar to the species composition of the existing verge.

The Peat Deposition Areas are larger in area ranging from 4-7 Ha. PR 01 is located along the southern side of the alignment and is a large topographical hollow of cut over bog set against a background of coniferous forestry plantation (Photograph No 26). PRO 2, which is the largest of these areas, is located north of the alignment in an expanse of cutover bog (Photograph No 31). It is set back a distance from the road line. The proposal is to mimic existing bog wetland and encourage re-colonisation of bogland vegetation. The maximum deposition height is 1.1 m for both areas. I wish to point out to the Board that the proposal to provide berms of 1.5m around each of the material recovery/peat deposition sites was included as a technical amendment to the scheme during the oral hearing (Errata document submitted on February 18th, 2013)

The deposition/restoration areas are primarily within the landscape classified as 'Outstanding' with a 'Special' sensitivity rating. However, they are located on lands that have been subjected to significant alteration as a result of human activity and include severed lands, areas of cut-over bog etc. Subject to the mitigation measures proposed, which includes re-grading, re-seeding etc. with native species to re-colonise the areas with indigenous planting, I consider that these areas can be accommodated and assimilated into the existing undulating environment without undue significant adverse impacts on the local landscape.

I accept that the road construction which has the potential to create adverse impacts on the amenity of properties as a consequence of alterations to alignment, removal of boundaries, loss of attendant grounds, privacy etc. The EIS provides a comprehensive assessment of the landscape and visual impacts of the development on 52 no. occupied properties (pre/post mitigation) along the line of the route. The location of each of the properties is shown on Drg No GC094741-16-18140 (Sheet No's 1-5).

The western extent of the route from Maam Cross to Lough Bofin is sparsely populated. The dwellings that do exist are generally located close to the existing route. The new road will be wider but in most cases the line moves away from these properties. No profound or significant adverse impacts are predicted.

The first small settlement along the route occurs adjacent to Letterfore Bridge. Here there are dwellings located north and south of the alignment. A 'Moderate Adverse' pre-mitigation impact is predicted for Receptor No 155 located to the north of the alignment as the route will encroach into the stone walled boundary and will feature more prominently in lake views from this location. Further east the settlement pattern is dominated by ribbon development consisting of one-off houses that align the northern section of the existing road. Of the ten properties identified along this stretch of road, it is concluded that one (No 159) will experience 'Significant Adverse' pre-mitigation impacts arising from the encroachment into the front garden and impacts on views arising from the raised alignment at this location.

The largest settlement cluster occurs at Glengowla West. Here properties align the northern and southern side of the existing road. It is here that the most significant offline section will occur. Mr Walter's (Landscape Architect) evidence at the oral hearing that the properties to the south of the alignment (No's 169-176) would experience ' Moderate Positive' impacts was challenged by residents at the oral hearing. Whilst I can empathise with the concerns expressed, I would point out to the Board that the re-routed section is to the rear of these houses and in-cut throughout which minimises the visual impact from these dwellings. I accept that significant adverse impacts will be experienced at the three properties immediately to the east of the realigned section (No's 177-179). These properties will lose part of their front gardens and the raised profile of the road will impact on views from these properties to the south.

To the east of Glengowla, the pattern of ribbon development continues with houses aligning both sides of the N 59. None of these houses are assessed as likely to experience 'Profound' or 'Significant' adverse impacts. The impacts are assessed ranging from 'Slight Adverse' to 'Moderate Adverse' depending on the degree of encroachment and the degree to which the route features more prominently in views etc.

I accept that impacts on the visual amenity of dwellings is a consequence of road development involving re-alignment and increases in width, particularly where properties lie close to the existing route. The Board will note that of the 52 no properties assessed along the route, only 4 no. have been identified which will experience significant adverse impacts in the absence of mitigation (No's 159, 177, 178 & 179). Whilst the property owners will be compensated for their loss of curtilage, the remaining impacts will be mitigated to a degree by the re-instatement of boundaries/existing vegetation on a 'like for like basis'. Additional mitigation will take the form of roadside planting using vegetation that will blend in with the local landscape. Notwithstanding these measures, I accept the conclusion reached in the EIS that 2 no. properties will continue to experience significant adverse impacts post mitigation. The properties affected are No 177 & 178 at Glengowla, which lie in elevated positions and close to substantial areas of cut, which in addition to loss of curtilage will impact on the visual amenity of these houses.

I would point out to the Board that during the oral hearing an amendment was made to Sheet 4 of 5 of the Landscape Masterplan and Visual Assessment (Drawing No GC094741-16-18140 included in Errata 15 of 18/2/13) adjacent to House No's 166 & 167. These properties were assessed to experience 'Moderate Adverse' impacts pre-mitigation. In addition to re-instatement of boundaries and planting within the property boundary, additional low canopy woodland planting was proposed outside the property boundaries and within the CPO area, to ensure the privacy of the dwellings was maintained. Due to sightline issues the woodland planting is removed. Similar issues arose in an area to the east where a section of low canopy woodland planting was removed in the immediate vicinity of an access junction (AC-0410).

Map HL2 of the Galway County Development Plan indicate focal points /views to be protected in the County. It is of limited value in determining the focal points/views or relevance in proximity to the proposed development, due to it's scale and level of detail. It was confirmed at the oral hearing that there are no focal points/views along or adjacent to the existing N59 from Maam Cross to Oughterard. Focal points/views within the visual envelope of the route include Focal Point/View No 84 – Lackaduuna which rises to an elevation of 317m to the south of Bofin Lough, Focal Point /View No 80 close to Oughterard 'several peaks south of the N59' and Knockbrack to the north of Lough Bofin indicated as Focal Point/View No 90. Whilst the re-alignment of the road will result in sections which are at a higher grade, it is considered that due to the significant distances involved, the proposed development will not impact significantly on these focal points/views.

In conclusion, whilst I accept that the development will have a degree of visual impact as it alters the landscape from its present form, I accept that these effects are minimised by the predominantly on-line alignment. I consider that the mitigation measures proposed, which include regarding of disturbed surfaces, replacement of boundaries/vegetation etc and new planting, limit the adverse impacts that will be experienced at both individual properties and by road users generally. I accept that the potential for significant impacts on designated views is limited by distance. I consider that the information provided in the EIS together with the submissions to the oral hearing provide a robust assessment of the visual impact of the development on the road development landscape and on sensitive receptors in the vicinity.

Geology and Soils

Ground investigations were carried out to assess overburden and bedrock characteristics along the proposed road development and to assist in the assessment of the suitability of the Material Deposition and Peat Restoration Areas. The construction phase will result in the removal of rock and soils along the line of the proposed road. Bedrock along the route is predominantly marble and granite with some quartzite's, gneisses and schist also underlying the alignment. The rock is noted to be shallow and commonly encountered at less than 2m. According to the rock cores obtained during site investigations, the majority of the rocks of the development are typically massive displaying poor bedding, layering etc. Soils are predominantly shallow peat with some glacial till.

The proposed development will impact on the geology and soils of the area arising from the earthworks programme which will involve the movement of rock and soil to faciliate construction. It is estimated that 282,165 m3 of hard and soft material will be moved. Soils will be excavated (mainly peat) and replaced with suitable material to allow for construction of adequate road foundations. Cuttings through bedrock will be required in a number of locations. The level of rock excavation will be greatest in two areas i.e Glengowla where cutting will be c 7m in height and east of Letterfore Bridge where the cut will be c 3m etc. Most of the rock will be excavated by mechanical breaking. In Glengowla, drilling and blasting will be required.

Whilst the loss of rock and soil is an inevitable consequence of the construction of the road, the impacts are reduced by the predominantly on-line upgrade, which generally follows the line of the existing road. In addition, some of the excavated material is suitable for re-use (85, 845 m3), which reduces the volumes that will be required to be imported onto the site. The works will also generate volumes of unacceptable material c 196,000, which will be deposited in Material Deposition Areas and Peat Restoration Area. These areas have the capacity to accommodate all of the unacceptable material generated during construction, which has the advantage of reducing the quantity of material that will need to be exported on/off site, mitigating the adverse impacts associated with it's transport.

The development of the two Peat Restoration Areas is considered to be a positive impact. Here, efforts will be made to re-establish peat habitat by creating suitable conditions for the regeneration of Sphagnum moss. In evidence given to the oral hearing by Ms Paula Kearney(Ecologist), it was clarified that such areas have been successfully established i.e. along the N5 Charlestown By-Pass.

Issues were raised by Mr Mc Cole regarding the impact on the Owenriff River of mineralisation and radon gas, which would be released during rock excavation. In response Mr Cawley (Hydrologist) stated that the rock cores reveal massive rock elements of marble with little fractures or fissures. No seams of minerals were encountered. He said that it would take years for mineralisation to occur and radon gas becomes a problem when it is allowed to build up in concentrations but when exposed it escapes into the atmosphere. The amount that could be soluble in water that would affect the downstream catchment would be negligible. He concluded that impacts would be negligible and imperceptible.

I am satisfied that all of the issues relating to impacts of geology and soil have been adequately addressed in the EIS and that any potential impacts can be adequately mitigated.

Surface Water & Groundwater

The road scheme runs through an area where there is an abundance of aquatic features. These include lakes and numerous streams and rivers, some of which contain protected species such as Freshwater Pearl Mussel, Atlantic Salmon and Otter. All of the lakes and many of the rivers along the existing N59 are therefore sensitive with respect to habitat and species.

The road passes through three river catchments, the Screeb, Owenree and Owenriff. The Screeb River discharges southwards to the sea at Camus Bay and the Owenree and Owenriff discharge eastwards to Lough Corrib. The proposed road development crosses 35 surface waterbodies ranging from small minor drains to large streams, rivers and lakes. Many of the watercourses outfall to the lakes in the area. The high density of watercourses increases the potential for the transfer of pollutants downstream to sensitive waterbodies. All of the rivers and streams within the study area flow into Natura 2000 sites and accordingly any pollution incidences to these watercourses will also enter these designated sites. The existing road passes through the catchment for the Corrib-Owenriff Freshwater Pearl Mussel.

The entire aquifer traversed by the road is classified as a 'Poor Bedrock Aquifer (P1) which is generally unproductive except for Local Zones. In the evidence presented at the oral hearing it was noted that groundwater flow and yield is low and confined to the fractured and weathered zones and the upper interface between the rock and the overburden. Groundwater flow is also expected within gravel layers of the subsoil which often underlie the low permeability blanket peat. The soils in the area are of low permeability and have very high surface runoff properties and elevated water tables. Rainfall in the area is high at between 1700-2000mm per annum.

The development has the potential, particularly during the construction and establishment phases, to impact significantly on water quality and protected habitats/species. This could arise due to increased sediment load/pollutants arising from disturbance of vegetation, construction activity, accidental spillages of concrete, fuels, oils etc., in-stream works and the construction of and the transfer of material to the proposed material recovery/ peat deposition sites etc. Impacts on hydrogeology would arise from drawdown of the water table from temporary dewatering of excavations and water quality impacts arising from construction.

To control impacts on water quality, measures will be put in place to control the volumes of water from the catchment entering the construction site. Cut off drains will be installed and clean water will be discharged to watercourses with silt fences provided immediately before the outfall as a precautionary measure. Water from the construction site will be collected and routed to settlement ponds that will provide at least 24 hours retention time for the 1 in 100 year event. The settlement pond will include the permanent wetland pond preceded by a temporary construction stage pond. In order to control sediment release each pond will be fitted with a double silt curtain at the outfall from the pond and a further double silt fence between the construction/permanent pond. The discharge will disperse across at least 3m of undisturbed vegetated ground prior to entering the discharge point.

As already noted , the development will generate material that is unsuitable for re-use and it is intended that it will be accommodated within 'material deposition areas' and 'peat restoration areas' located within the land take. The excavation, removal, transport

and deposition of this material has the potential to result in the discharge of sediment and silt to watercourses. The outflows from these areas all discharge to small streams with final discharge to Arddery Lough. The design of these areas will be engineered to ensure that the potential for negative impacts on water are mitigated. This includes the provision of a bund around each area, which will be excavated down to competent material, to prevent uncontrolled discharge of surface water. The outflow will be controlled and will pass through wetland and settlement pond areas with outlet screening prior to discharge to receiving waters.

The bund settlement system will be designed to facilitate settlement of suspended solids. It will provide 24 hours settlement time for a 1 in 100 year 1 hour rainfall event. Extreme weather events will be accommodated in the 500 mm free board allowed in the bund design and will discharge via the settlement ponds once the event has subsided. The treatment systems will remain in place and will be monitored for a period of 7 years following construction. I note that none of these facilities are located in the Owenriff catchment to ensure that the potential for residual impacts on the freshwater pearl mussel does not arise.

As noted above there are a significant number of water crossings impacted by the development. Each has been assessed for flood risk and any under sized structure will be upgraded/replaced to ensure that it does not present a risk. All culverts/ bridges will be sufficiently sized to accommodate the 1 in 100 year flood event, with a 20% allowance for climate change.

In order to mitigate the potential for contaminants to enter water bodies during construction and the impact on sensitive species and habitat, stringent mitigation measures have been set out in the Preliminary Erosion and Sediment Control Plan (PESCP) included in Appendix 5A of the EIS. The measures will incorporate mitigation by avoidance (i.e. limit area of earthworks at any one time) and standard practices to contain and control the discharge of silt/sediment and other pollutants for the various construction activities. It is proposed that the control measures will be in place before the earthworks begin and remain in place throughout the entire construction process, including excavation, transportation of materials, deposition of material in identified repositories, stockpiling of top soil, in stream works, construction compounds etc. The measures proposed include the provision of silt fences along the land acquisition boundary, at streams/watercourses and water crossings set back at appropriate distances from the bank depending on the size and sensitivity of the watercourse, construction in the dry, use of weather triggers etc.

To ensure effective implementation and monitoring an Environmental Assurance Officer will be employed to ensure compliance with the plan. I would point out to the Board that the document entitled *'Revised Schedule of Additional Mitigation Measures & Environmental Commitments'* (Document 6 –Appendix 7) submitted to the oral hearing, elaborates on and extends the mitigation measures proposed in the PESCP.

The impacts on surface water that may arise during the operational phase are identified as increased road run-off, storm water run-off, morphological changes to the river channel bed as a result of new and extended culverts/bridge structures, routine road discharges etc. At present the drainage along the existing N59 is by a simple 'over the edge' system where water is discharged to land on either side of the road and there is no specific attenuation, outfall control or emphasis on the quality of the discharge. It is accepted that road run-off contains certain pollutants including heavy metals, suspended

solids, hydrocarbons including PAH's etc. Traffic volume is one of the factors influencing the pollutant load. Due to the relatively low volumes of traffic along this section of the N59, the pollutant load would be expected to be low.

However, due to the sensitivity of the receiving environment it is proposed to install a sophisticated water quality control mechanism to reduce the potential for pollutants/suspended solids to enter water. This will be achieved by the provision of a new drainage system, which will incorporate a system of grassed channels along both sides of the road. The grassed channels will provide primary treatment of surface water removing sediment load/pollutant concentrations. They also have the advantage of providing additional storage capacity and reducing the peak run-off rates. The water conveyed via the grassed channels will discharge to linear constructed wetlands providing secondary treatment upstream of 15 no outfalls to receiving water. The density of discharge points i.e. 1 No.outfall/ km of road will have the effect of dispersing and reducing the pollution load from road surface discharge.

I note from a technical report (Appendix 4 Volume 4) that this type of drainage system has proved effective where it has been installed on other national roads in the country including the N18. Research carried out in conjunction with the EPA indicates highly efficient treatment efficiencies with an 88% reduction in suspended solids and 60-80% reduction in metal concentrations. The wetland systems proposed as part of the development are also noted to be effective in attenuating discharges.

The new drainage system will replace the existing system where road surface water discharges untreated to watercourses. It will provide safeguards that do not currently exist to mitigate the potential for pollutants to enter the water environment. Given the limited increase in paved road area (c 1.5 ha or 16%), it is not envisaged that the proposed works will result in a significant increase in volumes generated. I note from the technical report appended to the EIS that the combination of grassed channels in combination with wetland systems are considered to be a highly effective in attenuating flows and will also mitigate any flood risk. Having regard to the limited increase in impermeable surface, the low potential for pollutants (arising from low traffic levels), the documented efficiency of vegetative systems in removing contaminants, and the density of outfalls, it is considered that proposed drainage system will be adequate to mitigate the potential run-off of pollutants to watercourses.

The potential for impacts on groundwater during construction include the local drawdown of the water table from temporary dewatering of excavations at cut sections etc and impacts on water quality arising from construction activities. Some of the impacts identified during the operational stage include increased vulnerability of the aquifer at road cutting sections, impacts on water quality from road drainage, spillages, runoff, impacts and private groundwater supplies could be impacted etc. However, these impacts are assessed to be minor to imperceptible due to the poor and generally unproductive nature of the aquifer and the poor permeability of underlying rock and soil.

Issues were raised at the oral hearing regarding wells in the area. I note that most domestic water supply is provided by the Oughterard Regional Water Supply Scheme or by gravity flow from local surface water streams/ lakes up-gradient from the proposed road. While some properties are supplied from springs and wells, the yield is generally poor to locally moderate. I note that two well sources at Glengowla will be lost due to the proposed road development. Tests carried out on one of the wells revealed that the

water was unfit for human consumption. It was confirmed at the oral hearing that where a well is removed an alternative source will be provided.

The objections at the oral hearing related to the impacts on the water environment arising from construction. Mr Sweetman refused to accept the conclusions reached in the EIS that subject to the mitigation measures proposed there would be no adverse impacts on water quality or protected habitats and species. It was his contention that the Board would not be able to carry out a proper assessment of the development or conclude beyond reasonable scientific doubt that there would be no impact on the freshwater pearl mussel, based on a Preliminary Erosion and Sediment Control Plan, which lacked adequate detail. He also raised issues regarding the appropriateness of locating a settlement pond in the flood plain of the Owenriff at Glengowla and queried the design of the material deposition areas/ peat restoration areas. These issue were considered in detail at the oral hearing and based on the evidence presented it is considered that these elements of the scheme can be provided in a manner that will not impact on water quality.

I consider that the assessment of impacts on the water environment is robust and comprehensive and that the measures proposed to prevent the migration of silt and pollution to watercourses incorporate well-established engineering controls which together with effective monitoring will ensure the effective management of discharges to watercourses. I accept that the proposed drainage system is a significant improvement on existing conditions, which will be effective in the protection of water quality and the ecosystems they support.

Archaeology, Architecture and Cultural Heritage

Chapter 16 of the EIS deals with the subject of archaeology, architecture and cultural heritage. Features of interest identified in the study area are described in detail in Appendix 10 of Volume 4 of the EIS and are shown on maps (Drawing GC094741-16-18159). A detailed inventory and photographs are provided in Appendix 10 B & C respectively. The study area extended to approximately 200m on either side of the proposed road project.

It was confirmed in the evidence submitted to the oral hearing by Mr Jerry O Sullivan (Archaeologist) that no Recorded Monuments or Protected Structures will be adversely affected by the proposed road scheme. The nearest recorded monument is the site of an early mine located to the north of the proposed development in Claremount Td close to Oughterard, There are no longer any visible remains and the site is occupied by modern buildings. There are no Protected Structures in the vicinity.

A positive impact will arise from the improvements that will be carried out to Letterfore Bridge, an early 19th century bridge built under the supervision of Alexander Nimmo. The works proposed will improve the condition and presentation of the original part of the bridge. A bridge at Glengowla West which was built in c 1830 and also under the supervision of Nimmo will be made redundant as part of the scheme, which if not maintained could result in a potential residual negative impact. It is noted in the EIS that the Council have agreed to maintain the bridge.

Various buildings and structures will be affected by the scheme and the majority of these impacts are rated as ‘slight’. These impacts are associated with the removal of remnants of buildings, changes in setting etc. The only ‘moderate’ impact is associated

with the removal of a ruined cottage and lime kiln in Bunnakill opposite Bofin Lodge. Whilst such ruined cottages are noted to be commonplace throughout the area, the impact is rated as 'moderate' due to its association with a group of buildings considered interesting in terms of the social/economic history of the region. I draw the attention of the Board to the photographic inventory (No. 17 in Appendix 10 C) where the condition of the building/lime kiln to be removed can be observed.

The only 'severe' impact identified in the EIS was associated with the demolition of a former schoolhouse which was built in 1930 and later converted to a chapel. The small building, which is in a run-down condition, is located in Lurgan to the south of the scheme near Maam Cross (No 6 Appendix 10 C). The impact was rated as 'severe' arising from its association with two facets of community life, worship and education. During the oral hearing an amended schedule was submitted removing the acquisition of the former school house/chapel from the CPO. Table No's 16.4 and 16.5 of the EIS were also amended to record the fact that the school/mass chapel is not now being removed. The building will be retained and accordingly the impact is amended to 'slight'.

Significant concern were expressed by residents at the oral hearing regarding the removal of several early 19th century pre-famine cottages associated with a much larger clachan and rural community at Glengowla. (Inventory No 49 of Appendix 10C). The residents argued that Galway County Council have a duty to protect such items of valuable heritage. Mr O Sullivan (Archaeologist) giving evidence on behalf of Galway County Council stated there were up to 36 structures (buildings and byres) in the original settlement, which was not well preserved. Whilst he was sensitive to family associations, he noted that there are many examples of the remnants of such clachans in the wider area. These were not recognised by the State to warrant special protection. To mitigate impacts, archaeological investigation in addition to recording is recommended on the basis that it would provide a valuable insight into living conditions at the time.

The Board will note that the DoAHG raised no objection to the development subject to archaeological investigation of all off-line sections, implementation of mitigation measures and supervision by a Project Archaeologist. Subject to the mitigation measures proposed, which included recording, monitoring, testing etc., I do not consider that the proposed development will result in adverse impacts on the archaeological, architectural or cultural heritage of the area. Whilst I accept the associations and the attachment of the Geoghegan family to the ruined clachan, I consider that it's loss has to be balanced against the overall gain that will be achieved by the provision of the upgraded road and improved road safety in the interests of the common good.

I accept that the impacts on architecture, archaeology and cultural heritage have been adequately assessed.

Ecology & Appropriate Assessment

A Natura Impact Statement was submitted in support of the proposal. It identifies 3 no. Natura 2000 sites, which lie within 1km of the N59.

1. Maumturk Mountains cSAC
2. Connemara Bog Complexc SAC
3. Lough Corrib cSAC.

The location of the proposed N 59 road development in relation to the designated sites is shown on Drawing No GC094741-16-18108. Copies of the site synopsis and maps for each of the designated sites and the Conservation Statement for Maumturk Mountains cSAC are appended to the back of this report (Appendix 3).

The Maumturk Mountains cSAC is located north and west of Maam Cross to the extreme west of the scheme. The Connemara Bog Complex cSAC lies predominantly to the south of the alignment and Lough Corrib SAC lies predominantly to the north and east with a smaller section centred on the Owenriff River to the south. The road crossed Lough Corrib SAC at Glengowla Bridge. Other Natura sites situated within 15 km of the proposed road development include Connemara Bog Complex SPA (Site Code: 004181) and Lough Corrib SPA (Site Code: 004042) located 5km to the west and 2.3 km to the east respectively from the proposed road development.

I note from the evidence presented at the oral hearing that approximately 40% of the route length between Maam Cross and Oughterard lies within or adjacent to the Natura 2000 sites. On-line widening will encroach marginally into some of the designated areas, but the amount of area involved, over and above that already within the cSAC's will be minimal.

The integrity of a Natura 2000 site is determined based on the conservation status of its qualifying features. European and national legislation requires that areas designated as cSAC and SPA be maintained at favourable conservation status. Conservation Management Plans have not been prepared for either the Connemara Bog Complex cSAC or Lough Corrib cSAC and accordingly reliance is placed on the generic objective i.e. to '*maintain or restore the favourable conservation condition of the Annex 1 habitat(s) and or the Annex 11 species for which the SAC has been selected'*.

The NPWS has prepared a Conservation Management Plan for Maumturk Mountains cSAC. The following main conservation objectives are listed:

- To maintain the Annex 1 habitats for which the cSAC has been selected at favourable conservation status; Blanket bogs (active), Alpine and Boreal heaths Siliceous rocky slopes with chasmophytic vegetation, Northern Atlantic wet heaths with *Erica textralix*, Depressions on peat substrates of the *Rhynchosporion* and Oligotrophic waters containing very few minerals of sandy plains,
- To maintain the Annex 11 species for which the cSAC has been selected at favourable conservation status: Slender Naiad and Atlantic Salmon,
- To maintain the extent, species richness and biodiversity of the entire site, and
- To establish effective liaison and co-operation with landowners, legal users and relevant authorities.

In the case of the two SPA's the generic objective provided by NPWS is *'to ensure that target bird populations (i.e. the special conservation interests) and their habitats are maintained at, or restored to favourable conservation condition. This includes, as an integral part, the need to avoid deterioration of habitats and significant disturbance such that site integrity is maintained. The long-term population trend for each species should be stable or increasing'*.

Impacts on Natura Sites

The impacts on each of the three adjacent Natura 2000 sites and their qualifying interests is discussed below. None of the Annex 1 habitats for which the European sites are designated are located within the proposed land acquisition boundary. However, some of the habitats are found in the wider study area.

Impacts on Maumturk Mountain cSAC

Within the Maumturk Mountains cSAC (Site Code 002008) the main feature of conservation value is the blanket bog habitat and associated oligotrophic waters. Active blanket bog which is a Priority Habitat extends over much of the area. The proposed N59 Maam Cross to Oughterard road development intersects the cSAC between Ch 255900 and Ch 256150 to the extreme west of the scheme. It encompasses 0.03Ha of the cSAC (of which 0.02Ha overlays existing N59 road pavement). The entire site is 13410 ha in area and accordingly only 0.00002% of the site will be directly affected by the proposed road development.

In terms of qualifying habitats, those identified within the study area include '*Oligotrophic waters containing very few minerals of sandy plains'* and '*Blanket Bog'*. There are no qualifying interests located within the land take. The only oligotrophic lake within this part of the cSAC lies to the west of Maam Cross and the north of the existing N59. The proposed development will not encroach onto the lake. The nearest area of blanket bog is 135m north of the proposed land take. Construction activity will not result in the removal of any of the habitat and it is sufficiently far removed from the works not to suffer any hydrological change. The main threats associated with construction are drainage, damage by machinery or trampling outside the land take and the introduction of invasive species which could have a negative impact on water quality and associated aquatic species.

In terms of qualifying species no crossings within or draining into the SAC are proposed. The small lake to the north is not known to support spawning salmon nor is Slender Naiad recorded in the lake.

Impacts on Connemara Bog Complex cSAC & SPA

The main feature of conservation value within the Connemara Bog complex is the blanket bog habitat and associated oligotrophic waters. Blanket bog is present across the cSAC and active blanket bog extends over much of the area. The proposed N59 road development intersects Connemara Bog Complex c SAC at a number of locations. Of the lands included within the cSAC, 6.23 ha will be directly impacted. However, 2.81 ha of the cSAC overlays the existing N59. None of the qualifying habitats will be directly affected by the road development. Approximately 0.01% (0.007% if excluding area covering road pavement) of the total cSAC will be lost.

Some of the qualifying habitats of the cSAC occur in the vicinity of the proposed road development including Oligotrophic waters, Northern Atlantic wet heaths, Alluvial forests and Blanket Bog. None of the qualifying Priority or Non-Priority Annex 1 habitats lie within the proposed land acquisition boundary.

The proposed road development runs adjacent to numerous lakes classified as '*Oligotrophic waters containing very few minerals of sandy plains'* including Ardderry Lough, Loughs Bofin, Agraffard and Adrehid which are covered by Connemara Bog Complex cSAC. The road will also cross a number of watercourses which feed into these lakes. The main threats considered relevant during construction are pollution and the introduction of invasive species.

Northern Atlantic wet heath with Erica tetralix was found in the townland of Derryerglinna. It is located 120m south of the proposed land take. There will be no removal of any of the habitat and no direct impacts arising from the proposed development. It is located on the southern bank of the Owenriff and will not be indirectly affected through any changes in the hydrological regime.

Lowland Blanket Bog is found within the study area. There will be no direct impacts on blanket bog (either active or inactive) arising from the proposed development, as it is not proposed to remove any of this habitat. The main pressures or threats arise due to drainage, damage by machinery, trampling outside the land take and invasive species. It was recognised in the EIS that indirect impacts could arising on the bog hydrology arising from changes in the hydrological regime as the habitat is located between 15 and 150 m north and south of the proposed land take.

Comprehensive hydrological and hydrogeological assessments were carried to establish the likely effects of the proposal on the peat's water table. Responding to questions from the Inspector, Mr Cawley confirmed (at the original oral hearing) that he was involved in the preparation of the report included in Appendix 9 where it was established from tests carried out in drains/cuttings that no lowering of water table is observed beyond 3m. It is not anticipated that any hydrological changes as a result of the development will influence the habitats outside the proposed land take for the road. Any changes will be highly localised and will not affect areas of blanket bog. There will be no excavation or disposal of material near the habitat and therefore the spread of invasive species is unlikely.

There are 4 no. qualifying species for which the site is selected including Salmon, Otter, March Fritillary butterfly and Slender Naiad. Salmon are known to use a number of watercourses within the study area. The potential run-off of pollutants to these waterbodies during the construction phase would impact on the quality of these waters with a negative effect on the conservation status of the species. Other impacts would include obstruction of upstream migration due to construction of culverts and changes in hydrology, peak and minimum flow rates, with potential for hydrological impacts downstream. Otters are also known to use many of the watercourses and impacts during construction would include disturbance, physical obstructions in watercourses etc, Indirect impacts could arise as a result of reduced food supply where water quality could result in reduced macro invertebrate and fisheries production.

Marsh Fritillary was not recorded during site surveys and no impacts are predicted. Slender Naiad (Annex 11 and IV) is a qualifying interest of the SAC and records exist for it's presence in Lough Bofin. The other oligotrophic lakes in the study area may provide suitable habitat. The rivers/streams crossed by the N 59 are hydrologically linked to these lakes and could be impacted by the run-off of pollutants with negative impacts on Slender Naiad.

The Connemara Bog Complex SPA supports three species listed in Annex 1 of the Birds Directive which breed within the site and two species of regularly occurring migratory birds not listed on Annex 1. None of the lands designated within the Connemara Bog Complex SPA will be impacted by the proposed works. The nearest point of the Connemara Bog Complex SPA is located 5 km west of the study area. The boundary of the site is outside the hydrological catchments in the study area, therefore there will be no deterioration of water dependent habitats as a result of the development. Disturbance to bird species may occur during the construction phase. No operational impacts are predicted as the road is an existing road.

Impacts on Lough Corrib cSAC & SPA

The SAC is of major conservation interest due to the presence of 14 habitats listed on Annex 1, six of which are given priority status. The lake is host to internationally important populations of wildfowl listed on Annex 1 of the Bird Directive.

The main body of the SAC/SPA lies to the north/east with a smaller section of the SAC to the south of the alignment. The N 59 traverses 1.02 ha (0.5 ha covers existing N 59) of the cSAC and which will result in a loss of 0.004% of the total area. None of the qualifying interests of the Lough Corrib cSAC will be directly impacted by the proposed road development. None of the qualifying Priority or Non-Priority Annex 1 habitats of Lough Corrib cSAC are within the proposed land acquisition boundary.

The only qualifying habitats likely to be impacted on by the proposed road development are '*Oligotrophic waters containing very few minerals of sandy plains'*. The eastern shores of Lough Agraffard are included in the SAC and the road will cross one watercourse that feeds into the lake. The main threats are identified as pollution from run-off and the introduction of invasive species. The qualifying species are numerous and include salmon, sea lamprey, brook lamprey, otter, freshwater pearl mussel, freshwater crayfish etc., which would be impacted by pollution, silt/sediments, discharge of toxic substances, nutrient enrichment from disturbance and decomposition of organic matter, obstructions in watercourses, changes to hydrological regime. Other Annex 11 species include Slender Naiad (not recorded in Lough Agraffard) and Green Feathermoss, which were not recorded in the study area. There are no known Lesser Horseshoe Bat roosts in the area.

The proposed road crosses the SAC at the Bunowen River, a tributary of the Owenriff River, which is part of the Corrib-Owenriff Freshwater Pearl Mussel Catchment. The species which is a qualifying interest of the SAC has been recorded downstream of the proposed work. The bridge (Glengowla) over the Bunowen river will be replaced by a new structure.

The potential impacts to Lough Corrib SPA would be direct habitat loss or an alteration to the hydrological regime which could cause deterioration in the extent and quality of associated habitats such as wetlands. A reduction in water quality from pollutants etc., would directly affect all aquatic plants and animals, which would have knock on effects throughout the food chain on invertebrates, birds, fish and mammals. Wild birds are susceptible to disturbance. No operational impacts are expected as the road is existing.

Summary of Impacts

In summary, there are no qualifying Priority or Non-Priority Annex 1 habitats within the proposed land acquisition boundary. Whilst the proposed road alignment will result in a small loss of habitat in each of the three SAC's, none of the qualifying habitats for which the sites are selected will be directly affected. Whilst avoidance has been a key mitigating measure in the design of the scheme (i.e. predominantly online upgrade of existing N59), there will be a degree of encroachment into some of the designated areas. In addition, there are numerous watercourses in the area, all of which are hydrologically linked to the designated sites. These watercourses will act as conduits for any pollutants that may be generated by the proposed development. I note that all activity associated with the road construction works will be confined to the working area and consequently, there will be no direct impact to sensitive habitats within cSAC's.

Potential Impacts/Mitigation

The potential impacts that could arise during construction include the discharge of serious pollutants to watercourses (raw or uncured cement, fuels lubricants, silt/sediments, wastewater, bitumen etc), which have the potential to have a deleterious impact on invertebrates, plants, fish life and protected species. Other impacts include effects on the quantitative/qualitative of the hydrological environment arising from the upgrade /replacement of bridges/culverts, impacts arising from surface water road drainage, impacts on Annex 1 habitat and Annex 11 species during the construction stage (species diversity, loss of habitat, disturbance etc.), potential dispersal of invasive species and the impacts of air pollutants on sensitive ecosystems. The development has also the potential to impact on the hydrological regime resulting in the drying out of peat, which affects the vegetation composition, primarily the peat forming sphagnum moss species.

The works will include the upgrade/replacement of a significant number of watercourse crossings, some over sensitive waterbodies. This will include the replacement of three bridge structures and the widening of one bridge. The Glengowla Bridge crosses the Bunowen River, which is a major tributary of the Owenriff River. It is a very important salmonid spawning and nursery area in the Owenriff Catchment. It is part of the Corrib-Owenriff Freshwater Pearl Mussel Catchment. The Letterfore Bridge over the Letterfore River will be widened. It is also an important spawning and nursery tributary of Lough Bofin/Owenriff catchment with populations of Freshwater Pearl Mussel downstream. Arderry Lough Bridge will be replaced with a new structure. The Lough is classified as Annex I Habitat Oligotrophic waters and it also supports Annex 1 species including Salmon and Arctic Char.

It is clear that one of the main threats to the qualifying habitats and species is the discharge of sediment/silt and other contaminants arising from construction activity. This has the potential to impact on water quality in Oligotrophic waters, rivers and streams with adverse impacts on qualifying species such as salmon, freshwater pearl mussel, otter etc. A number of control measures will be implemented to avoid, reduce or remedy potential adverse impacts on designated sites. These are detailed in the Preliminary Erosion and Sediment Control Plan (PESCP), which sets out comprehensive mitigation, control, monitoring and emergency measures for the proposed road development. It was acknowledged by Dr Moorken's that the plan sets out the minimum that has to be achieved and that the parameters are protective of the freshwater pearl mussel. The measures incorporated in the 'Revised Schedule of

Additional Mitigation Measures and Environmental Commitments' provide additional controls including weather triggers to schedule activities, which Dr Moorken's acknowledged proved highly effective in other sensitive catchments.

One of the most contentious elements of the development is the placement of a settlement pond within the SAC in close proximity to the Owenriff River in an area subject to flooding at Glengowla. The pond will not impact on any of the qualifying habitats of the SAC and subject to the construction methodology outlined and the mitigation measures outlined the PESCP and the additional mitigation measures submitted during the oral hearing, I do not consider that the development will adversely impact on qualifying species or the overall integrity of the SAC

During the re-convened oral hearing Mr Sweetman raised issues regarding the mitigation measures contained in the PESCP, which he regarded as an outline document lacking adequate detail. The Board will note that the document which is contained in Appendix 5 of Volume 4 of the EIS sets out a comprehensive range of mitigation measures to cover each stage of the construction process from site preparation, earthworks, excavation, transportation of material etc. The mitigation measures, which are repeated in the NIS, include well established and recognised protective measures which are standard practice to control erosion, drainage and sediment release and will carry through all phases of development.

Mr Sweetman took issue with the fact that the plan was referred to as 'Preliminary' and that it could be added to at a later stage without the knowledge of or participation of the public. Galway County Council acknowledged that the plan sets out the minimum requirements that must be adhered and any additional measures that may be incorporated at the construction stage will provide at least the same, or, a better standard of protection. Dr Moorken's considered the mitigation measures were sufficiently robust to allow her to conclude as per her report. In evidence she stated that it was her opinion that it would be preferable, that the contractor would not be bound by the measures incorporated in the PESCP, if alternative measures capable of achieving the same or an improved level of protection came to light. All of the requirements of the preliminary plan would be contained in the final plan. I do not consider that any significant issues arise in this regard.

Mr Sweetman raised issues regarding the conclusion reached in Dr Moorken's evidence, which he said was dependent on the mitigation measures being fully implemented. This he argued created uncertainty and was contrary to the precautionary principle. The requirement under the Directive is to establish 'beyond reasonable scientific doubt' and as noted by Mr Keane SC this does not require a personal guarantee to be given that there is no remote chance of an event occurring. It is a requirement of the PESCP that an Environmental Assurance Officer will be on-site for the duration of the works to ensure that the mitigation measures are fully implemented.

Having reviewed the NIS and supporting documentation, I am satisfied that it provides adequate information to allow for appropriate assessment of the proposed development. I accept that that habitats and species have been comprehensively surveyed and assessed. I am satisfied that there will be no direct impacts on the qualifying interests of any of the designated sites in the area and that the indirect impacts which could impact on water quality and the aquatic species they support can be properly mitigated. I note that the bodies charged with responsibility for nature conservation and water quality have raised no objection to the proposal. The Board will note that Mr Warner (NPWS)

found no reasonable probability of significant damage to designated sites or habitats. Inland Fisheries Ireland were not present at the hearing but acknowledged in their report the sensitivity of the receiving environment and that the issues relating to fisheries had been adequately addressed. In addition, Dr Moorken's, an internationally recognised expert on freshwater pearl mussel concluded that subject to the mitigation measures as proposed, any adverse impact on the freshwater pearl mussel can be ruled out beyond reasonable scientific doubt.

I consider that the information provided is comprehensive and sufficient for the Board to carry out a full assessment, and to conclude that an adequate level of protection is provided to ensure the removal of any significant doubt is achieved. I do not accept Mr Sweetman's argument that there are gaps in the information provided.
The operation impacts are expected to be positive arising from the new drainage scheme which will be a significant improvement on existing conditions. The provision of primary and secondary treatment prior to discharge to watercourses coupled with the density of outfalls proposed, will significantly improve the quality of surface water discharges, with positive impacts on receiving waters.

The in- combination effects of other projects such as the Connemara Greenway, various road schemes including the Moycullen By-Pass, and the provision of a new Oughterard WWTP were considered and it was concluded that subject to appropriate mitigation to avoid impacts, there will be no potential for further cumulative impacts arising.

Having regard to the above assessment, I consider it reasonable to conclude that the construction and operation of the proposed development, individually and in combination with other plans or projects would not adversely affect the integrity of the Maumturk Mountain c SAC, the Connemara Bog cSAC & SPA and the Lough Corrib cSAC &SPA.

Access to Information

A number of the objectors commented on the poor level of consultation between Galway County Council and landowners and the late stage in the process when they were made aware of the off-line section at Glengowla. Mr Keaveny in his submission at the oral hearing documented the consultative process which took place and which began in 2010, with introductory letters to land/property owners, visits by agriculture and property specialists, individual meetings with landowners, issuing of draft CPO documents and information days in Clifden and Oughterard. Whilst I do not consider that third party rights have been compromised in any way, I accept that the dissemination of information at an earlier stage would have benefited local residents.

Mr Sweetman stated that he wished it to be placed on record that he strongly objected to the position adopted by the Board in relation to the record of the proceedings. He said that the unavailability of copies until after such time as the decision is made by the Board is contrary to the Aarhus Convention under EU Directive 2003/4 EC.

Errata

A document entitled Errata was submitted on Day 1 (18th February 2013) of the hearing and circulated to all parties. The following provides a summary for the information of the Board.

Errata No 1 – Includes a figure of 65.1 ha for the total area of land that would be the subject of the CPO. Whilst this figure was noted in the main text of the EIS, it was not included in the Non-Technical Summary.

Errata No 2 - Chapter 4 of EIS. Following the removal of the southern extension of Letterfore Bridge, a reduction in the length of the bridge to 16.5 m will occur.

Clarifies that the number of outfalls proposed would be 15 compared to 16 mentioned in parts of the main text of the EIS.

Chapter 8 of EIS - Change in text from 33 to 34 No. farm holdings. Under cross questioning Mr Keaveny on behalf of Galway County Council stated that this resulted from the addition of Ms Maria Lennon as an additional farm under separate ownership, who was notified and made an objection to the CPO.

This section also refers to an increase in the number of hectares lost to agricultural land from 41 to 48.1Ha. This resulted in alterations to Table 8.5 in the EIS. Under cross questioning its was stated that the changes result from amendments/amalgamation of plots to give overall farm size. It was confirmed by Mr Keaveny following questioning by Mr Keane SC that the overall land take had not increased and all lands were included within the land acquisition boundary. It was also confirmed by Mr Bruce Dodd following cross questioning by the Inspector that Ms Lennon's land were included in the original land take, albeit under different ownership. It was also confirmed by Mr Dodd that the changes incorporated into Table 8.5 (Page 5 of Errata No 2) relate to changes to land plot no's and land take areas and that the overall land area will not increase from that indicated in original documents and will all be contained within the land acquisition boundary.

Mr Anthony Cawley in his submission referred to Pg 15 of Errata 2 where there was a tying error in Table 14.12. The area of PRO 2 should read 7 ha and not 5.9 ha as indicated in the main text of the EIS.

Errata No 3 – Includes three sections with replacement documents. The third set amends the numbering of accesses from No 29 upwards. The original drawings showed some of the accesses numbered differently on the vertical plan and the horizontal alignment. The revised maps correlate one with the other so that both are numbered the same.

The first set of drawings shows design amendments to original road layout. These include the removal of the de-celeration lane to the southern leg of the junction at Maam Cross (Sheet 1) due to visibility issues, the re-alignment of a section of the route west of Letterfore Bridge and within acquisition boundary to avoid boundary wall at Ch 263+300. This results in the removal of the proposed southern extension to the bridge and the overall reduction in the overall proposed width by 2m (Sheet 5). A design amendment also occurred at local road AC-044 where the cycle lane was extended down the local access road to improve access onto the cycle lane at this location. The extension is c 30m down along the old N59 (Sheet 7). In addition, a new farm access was provided to Plot 2445 (Mary Conneely) at Ch 266+980 (Sheet 7). The new access will be partly on lands the subject of the CPO and partly on lands retained by Ms Conneely. All of the access numbers shown on these maps follow the amendments shown in the third set of maps.

The second set of drawings comprise aerial photographs showing the alignment and incorporating the design amendments. The drawings contained at (4), (5), (6), (7) show the design amendments at a larger scale. Drainage design drawings are included at (8) for clarity. The labelling of PRO 1 & 2 was mixed up and this is corrected at (9). Detailed drawings of the Material Deposition Areas are provided at (10) and includes the provision of a bund to fully enclose each area, The Peat Deposition Areas will also be provided with a bund and there are some alterations in the location of the settlement ponds to accommodate the bunds. These are detailed at (11). The change of land ownership to Maria Lennon (Plot 2190) is shown at (12). The original maps showing Landscape Value and Landscape Sensitivity included in the EIS showed lake bodies hatched. The revised maps at (13&14) show the hatching removed from the lake areas in accordance with those maps contained in the county development plan. Minor changes to landscaping proposals are proposed at Ch 265+750 to 265+900 and at Ch 266+050 as detailed at (15) and which were dealt in more detail under the Landscape and Visual Impacts section of the assessment.

A document entitled Errata was submitted on Day 2 (19th February 2013) of the hearing which should be read in conjunction with the submission made by Mr Keaveny (Document No 15). These documents are in response to queries raised by the Inspector into discrepancies in the main text of the EIS and NIS submitted to the Board.

No 1 - replaces para 12.3.4 on Page 218 of the EIS and lists four bird species as opposed to eight in the original text

No 2 - corrects Table No's on Page 318 that were incorrectly referenced.

No 3 - corrects Table No's on Page 403

No 4 – replaces Table 5.1 on Page 31 to show habitats with links to Annex 1 Habitats highlighted in bold print.

No 5 – replaces Table 8.12 to include Habitat Code 3260, omitted in original text.

No 6 – replaces the final paragraph on Page 84/85 to include Habitat Code 3110.

No 7-10 - includes amended drawings to show the mass chapel excluded and including drainage detail. The land take boundary is redrawn to reflect the change. An overall reduction in land take occurs as a result of the removal of the chapel.

CONCLUSION

I consider that the land take is reasonable and proportional to the stated purpose to upgrade this section of the N59, remove existing deficiencies and provide a road that is fit for purpose and in accordance with NRA requirements. I accept that alternatives have been considered and rejected on reasonable grounds. I do not accept that there are gaps in the information provided, which would prevent the likely significant effect of the development on the environment being identified and assessed. I accept that the impacts on the environment that have been identified can be adequately mitigated to ensure that the development would not be likely to have significant adverse effects on the environment. I also accept that it have demonstrated that the proposed development, individually and in combination with other plans or projects, would not be likely to

have a significant effect of any of the European sites in the vicinity of the road development in view of the sites' conservation objectives.

RECOMMENDATION (07. KA0027 CPO)

I am satisfied that the process and procedures undertaken by the Local Authority have been fair and reasonable and that Galway County Council have demonstrated the need for the lands and that all the lands being acquired are both necessary and suitable. I consider that the proposed acquisition of these lands would be in the public interest and the common good and would be consistent with the policies and objectives of the Galway County Development Plan 2009-2015.

DECISION

I recommend that the Board CONFIRM the above Compulsory Purchase Order based on the reasons and considerations set out below.

REASONS AND CONSIDERATIONS

Having considered the objections made to the compulsory purchase order and not withdrawn, the report of the person who conducted the oral hearing into the objections, the purpose for which the lands are to be acquired as set out in the compulsory purchase order and also having regard to:

(a) the provisions of the National Development Plan 2007-2013 regarding improvements to the national road network including the improvement of the N59: the National Spatial Strategy for Ireland 2002-2020: "Smarter Travel –A Sustainable Transport Future" A Transport Policy for Ireland 2009-2020 and the National Secondary Roads Needs Study-Network Options Report-West Region 2011,

(b) the provisions of the Regional Planning Guidelines for the West Region 2010-
(c) 2022,

(d) the policies and objectives of the Galway County Development Plan 2009-2015 and Objective RT19 to continue the strengthening and improvement of the N59

(d) the present substandard nature of the existing road network in relation to width, alignment and cross-section and the resultant improvement arising from the proposed road scheme and in the interest of traffic safety,

(e) the community need, public interest served and overall benefits to be achieved from use of the acquired lands for the purpose identified in the order, and,

(f) the proportionate design response to the identified need,

it is considered that, subject to the modification to the Order as set out in the Schedule below, the acquisition by the local authority of the land in question and the extinguishment of public rights of way, as set out in the order and on the deposited maps, are necessary for the purposes stated and the objections cannot

be sustained having regard to the said necessity.

SCHEDULE

1. The Schedule Part 1 of the compulsory purchase order shall be amended in accordance with the Amended Schedule submitted to An Bord Pleanala on April 15th, 2013

   Reason: to date account of updated information in respect of affected landowners.

2. The compulsory purchase order shall be modified to incorporate the amendments identified as (Errata No 3) submitted by the Roads Authority to An Bord Pleanala at the oral hearing on February 18th, 2013

(a) Amendments shown on Drawing No GC094741-16-18112 Layout 1 to 10 Rev A
(b) Amendments shown on Drawing No GC094741-16-18113 Layout 1 to 10 Rev A
(c) Amendments shown on Drawing No GC094741-16-18114 Layout 1 to 10 Rev A
(d) Amendments shown on Drawing No GC094741-16-18117 Layout 1 to 8 Rev A (Sheet Layout 1, 2 & 6)
(e) Amendments shown on Drawing No GC094741-16-18120 Layout 3 of 4 Rev A
(f) Amendments shown on Drawing No GC094741-16-18122 Layout 3 of 4 Rev A
(g) Amendments shown on Drawing No GC094741-16-18123 Layout 2 of 3 Rev A
(h) Amendments shown on Drawing No GC094741-16-18124 Layout 2 of 1, 3 & 4 Rev A
(i) Amendments shown on Drawing No GC094741-16-18125 Layout 1 & 3 Rev A
(j) Amendments shown on Drawing No GC094741-16-18127 Layout 1 to 5 Rec A
(k) Amendments shown on Drawing No GC094741-16-18140 Layout 4 of 5 Rev A

Reason: To take account of the updated information in respect of the CPO.

RECOMMENDATION (07. HA0041-Project approval)

Having regard to

(a) the provisions of the National Development Plan 2007-2013 regarding improvements to the national road network including the improvement of the N59: the National Spatial Strategy for Ireland 2002-2020: "Smarter Travel –A Sustainable Transport Future" A Transport Policy for Ireland 2009-2020 and the National Secondary Roads Needs Study-Network Options Report-West Region 2011,

(b) the provisions of the Regional Planning Guidelines for the West Region 2010-2022,

(c) the policies and objectives of the Galway County Development Plan 2009-2015 and Objective RT19 to continue the strengthening and improvement of the N59

(d) the present substandard nature of the existing road network in relation to width, alignment and cross-section and the resultant improvement arising from the proposed road scheme and in the interest of traffic safety,

(e) the community need, public interest served and overall benefits to be achieved from the proposed road development,

(f) the proportionate design response to the identified need

(h) the submissions on file, including the environmental impact statement, natura impact statement and associated documentation and the submissions made in connection with the application at the oral hearing and the range of mitigation measures set out in the documentation received

It is considered that, subject to compliance with the conditions set out below the proposed road development would not have significant negative effects on the community in the vicinity, would not adversely affect the integrity of any of the European sites in the vicinity of the road development in view of the sites' conservation objectives, would not give rise to a risk of pollution, would not have a detrimental impact on archaeological heritage and would be acceptable in terms of its impacts on the amenities of the area and of residential property in the vicinity and in terms of resulting visual and landscape impacts. It is considered that the development which would constitute an improvement in terms of road safety and convenience would be in the interests of the common good and would, therefore, be in accordance with the proper planning and sustainable development of the area.

CONDITIONS

1. The proposed development shall be carried out in accordance with the plans, drawings and documentation submitted with the application and at the oral hearing, including the environmental impact statement and natura impact statement and supporting documentation, except as may be otherwise required in order to comply with the conditions set out below.

   Reason: In the interests of clarity.

2. The proposals, mitigation measures and commitments set out in the environmental impact statement and natura impact statement and as further clarified in the *" Revised Schedule of Additional Mitigation Measures & Environmental Commitments"* submitted by the roads authority to the oral hearing on 20th day of August 2013 shall be implemented as part of the proposed road development.

   Reason: In the interests of clarity and to mitigate the environmental effects of the proposed road development and to protect the amenities of the area and of properties in the vicinity.

3. The roads authority shall facilitate the archaeological appraisal of the off-line sections of the road and shall provide for the preservation, recording and protection of archaeological materials or features which may exist within or in the vicinity of the site. In this regard, the road authority shall employ a suitably qualified archaeologist prior to the

commencement of development who shall monitor all site investigations and other excavation work.

The assessment shall address the following issues:

(i) the nature and location of archaeological material on the site, and

(ii) the impact of the proposed development on such archaeological material.

A report, containing the results of the assessment, shall be submitted to the roads authority and, arising from this assessment, the developer shall agree in writing with the roads authority details regarding any further archaeological requirements (including, if necessary, archaeological excavation) prior to commencement of construction works. The report shall be made available for public inspection.

Reason: In order to conserve the archaeological heritage of the site and to ensure the preservation and protection of any remain that may exist on the site.

Breda Gannon
Senior Planning Inspector
October 30th, 2013

Appendix A

Summary of Environmental Impact Statement

1 Introduction – This chapter describes the proposal and the nature of the works proposed. The total length of the road development is approximately 15 km and is shown on Drawing No GC094741-16-18102 (Volume 3). The road falls below the threshold where a mandatory EIS is required. However, Galway County Council was directed by An Bord Pleanala to prepare an EIS for the development under Section 50 (1)(b), on the basis that it would be likely to have significant effects on the environment (07 HD0023 refers).

The principal objectives for the proposed road development are set out in Section1.5. which include

- to improve and upgrading the road to ensure that it is fit for purpose as an access and communications route,
- to improve the level and safety and comfort for road users, t
- to improve safety at road junctions and residential/commercial/community access,
- to remedy capacity deficiencies and reduce journey times, to faciliate better access to and from the main ports and airports
- to offset the negative effects of peripherality,
- to provide the upgrade in a manner that minimises the impacts on the environment, the ionic landscape and minimises construction costs etc.

The chapter provides details of the scoping of the EIS, guideline documents considered, consultations with Government and non-Government organisations and public and landowner consultations. It is noted that no particular difficulties were encountered in compiling the information that could lead to significant impacts not been considered or the appropriate mitigation measures not been developed.

2 Background to Proposed Development – The N 59 extends from Galway city to Sligo and is 298 km in length. It is regarded as a highly significant tourist route and forms part of the Atlantic Sea-Road Corridor. The section of the route to be upgraded as part of the scheme is rural in nature with small settlement such as Maam Cross and Glengowla. One regional road intersects the N59, the R336 at Maam Cross. The interaction between the N 59 as a feeder and Regional roads as distributors is vital to the continuation and growth of the tourism product of Connemara and west Galway and Mayo. There are 6 local roads within the study area which function as a communications vehicle for local communities and to provide access to the wider market through the regional and national road networks.

Most of the route (97%) has a paved width of less than 7m which is the minimum required for a Type 3 Single Carriageway. The horizontal and vertical alignments of the existing road provide a stopping and passing sight distance that is inadequate for the permitted maximum speed limits over much of the route. Safe overtaking opportunities along the rural sections is approx. 6%, which is substantially below the 15% requirement of the NRA, that is generally considered necessary in order to provide a reasonable safe standard of Type 3 road. Junctions between the local road network and the N59 are frequently of poor standard and the majority of other access points have

inadequate sightlines. It has been demonstrated that the existing pavement is not fit for purpose.

The combination of sub-standard roadway, road width, poor alignment, poor junction standards, inadequate sightlines and poor pavement condition along this stretch of the N59 results in a range of difficulties for existing road users. The deficiencies render it unfit to serve the purpose of a National Secondary Route. Intervention is required as the existing road is in an unsafe condition.

Section 2.3 details the strategic and national need for the scheme in the context of national, regional and local policy documents and plans. The need for the scheme has also been appraised through a Common Appraisal Framework based on five criteria i.e. economy, safety, environment, accessibility and integration (section 2.3.11). It reveals that there is a strong positive case for the proposed development. Whilst the project generates relatively neutral scores for the environment, it scores very strongly on economy, accessibility and social inclusion and transport integration. This emphasises the benefits of providing a road that is fit for purpose to serve the local and visiting communities in the Connemara area, while at the same time implementing an environmentally sensitive development in this pristine landscape.

3 Alternatives – Provides an outline of the main alternatives considered and summarises the primary reasons for the choice of the preferred option, taking into account the environmental effects. The identification of alternatives was carried out having regard to the constraints and the principle objectives of the proposed road development as outlined.

A constraints area of approximately 37.33 km2 was identified. It is on average 2.5 km wide and approximately 1.25 km on either side of the existing N59 but varies widely along the route, depending on the physical constraints. The west extent of the constraints area was fixed by the requirement to tie-in to the existing alignment at Maam Cross and the eastern extent by the requirement to tie-in to Oughterard town. The northern boundary of the constraints area is generally bounded by the mountain ranges and hills i.e. Maumturk Mountains and Knockletterfore Hills. The southern boundary was established by identifying the southernmost path that could be treaded through the lake studded landscape and by reference to the main upland hill areas.

The principal constraints identified as having the potential to significantly affect the development of route corridor options are identified in Section 3.3. These include Natura 2000 sites, surface water environment, topography, landscape, ground conditions, settlement/population, existing road network/traffic and accesses and land use. Various route options are examined having regard to the constraints presented.

The Do Nothing/ Do Minimum option will not address existing deficiencies and will not fulfil the objectives for the project because the existing route is substandard and is not fit for purpose. Under this scenario, the road would require continued high maintenance without achieving a final solution to the deficiencies of the road. Unplanned emergency interventions are likely to be required that would, of necessity, have to be carried out without being subject to proper extensive environmental survey and assessments and in the absence of associated mitigation measures having been carried out.

An offline upgrade to the north or south of the existing route would encounter many of the principle constraints of the area. It would encroach extensively into the Natura 2000

network designated sites resulting in direct loss and fragmentation of the cSACs/ SPAs and result in the removal of large areas of Annex 1 habitat type including Annex 1 Priority habitat. To the north an off line route would generally be on higher ground and would not be acceptable on environmental, landscape or cost grounds. To the south it would be intrusive in the lake studded low lying blanket bog lands landscape, be environmentally damaging and would involve high constructions. The offline option would involve significant construction effort and the provision of significant infrastructural elements in the form of embankments, cuttings and structures. It would constitute highly visible infringements in an otherwise open and natural landscape that would detract from the visual amenity of Connemara. The offline option is not considered feasible due to the principle constraints of the area and it does not fulfil the objectives for the project.

The preferred option is an on line upgrade of the existing N59 Road. The existing road treads the least intrusive path through the existing constraints. It is currently in place and does not form part of the designated Natura 2000 sites, does not pass through or meander around lakes and is not located on elevated sites. It is not a significant intrusion on the landscape.

An online upgrade would make the fullest use of the existing roadway, reducing the land requirement by approx. 14.9 hectares (24%). Encroachment and loss of habitat from Natura 2000 sites would be minimised. There would be no fragmentation of Natura 2000 sites and loss of Annex 1 habitat would be minimised. The vertical alignment of the upgraded road would be substantially the same, minimising the potential for visual intrusion. It would continue to serve existing communities. Incorporating the existing road into the proposed road development will ensure that there is the most efficient possible use of existing infrastructure and the construction costs associated with an online upgrade would be less than that associated with an offline route. The Preferred Route is shown on Drawing No. GC094741-16-18110.

The final alignment is predominantly on line, with 30% off line. There are two locations where the centreline of the proposed road is greater than 50.0 m away from the centreline of the existing road (Drawing No GC094741-16-18115). The combined length of these sections is 0.82 km. The first location is at Letterfore townland and the principal parameters leading to this offline section were related to the geometry of the existing road, which is poor. The Connemara Bog Complex cSAC is located to the south and the realignment moves north. The proposed alignment allows for a significant improvement in the horizontal alignment while not encroaching further on Natura 2000 sites, nor on lakes or sensitive watercourses and does not require the acquisition of any residential property.

The second location is at Glengowla West townland, which is a particularly difficult location. The horizontal alignment is substandard. The cross section is below standard with a paved width of generally less than 6m and verge widths of less than 1.0 on either side. There are eleven properties located on either side of the existing road. Sightlines and access to these properties are substandard. The offline option with improved geometry was selected here as no residential property demolition is required, visual impacts for residential properties are minimised, there are less potential impacts on surface waters and on Lough Corrib cSAC, there are less noise and vibration impacts and less community severance.

4 Description of Proposed Road Development – The description of the proposed development is based on the preliminary design of the project, which is stated has been developed to a stage to permit a fully informed environmental impact to be carried out on the proposed road development. It is subject to revision at Detailed Design stage, provided there are no significant adverse environmental impacts over and above those considered in the current environmental impact assessment. The chapter provides details of engineering features, land requirements and construction and operational requirements.

The alignment commences approximately 250m west of Maam Cross and proceeds in a generally easterly direction along the existing N 59 road. It weaves offline at 21 locations for distances ranging from 17m to 665m and on average 223m. The offline sections of the road are detailed in Table 4.1 of the EIS and indicated on Drawing No GC094741 -16 -18115. The vertical alignment matches the existing road centreline as closely as possible while providing for current design standards. The difference in level between the centreline of the proposed road and the existing road varies between -3160mm and 7122mm and averages approx. 457mm. There are three locations where the proposed centreline is more than 1.0 m below the existing centreline level.

There are 4 no principal watercourse crossings along this section, three existing bridges and a replacement culvert. In addition, there are 26 minor watercourse crossings and 5 watercourses identified on maps that will be piped under the proposed road. The proposed alignment is either within or borders a cSAC along 4.5 km of its length. A 2.5 m wide shared footpath/cycle track will be provided in the verge on one side of the proposed road between Derryerglinna School and Glengowla West townland, representing a distance of c 1.65 km (Drawing No GC094741-16-18116). It will faciliate a connection to the proposed Connemara Greenway and to the community settlements at Leam and Glengowla. The N59 intersects the local road network at a number of locations. Alterations to the local road network are required to faciliate the proposed development. There are no single major local road upgrades proposed and the local roads will be realigned in the vicinity of their junction with the proposed realigned mainline. Details of the limited proposed local road works are shown on Drawing No GC094741-16-18117).

The existing public road junction access will be maintained and private access to property and fields will also be maintained but rationalised where feasible. Table 4.3 provides a summary of the proposed Regional Road junction types and locations. (Drawing No GC094741-16-18116). The proposed road development allows for a minor alignment of the R336 regional road accesses onto the proposed Mainline in order to provide a staggered, at grade, ghost island, priority junction (Drawing No GC094741-16-18117). In addition to the regional road junction there are a further 6 junctions with local roads. The proposal allows for minor alignments of these accesses onto the Mainline by means of at-grade simple priority junctions (Drawing No GC094741-16-18117).

Details of structures along the length of the proposed road are detailed in section 4.8 and include watercourse crossings (Drawing No GC094741-16-18118), culverts/pipes and retaining walls. Of the 36 recorded watercourse crossings 35 will require to be upgraded/extended as part of the development by means of a bridge, culvert or pipe (Table 4.4). As noted above there are four principal bridge structures and these will be replaced/widened as detailed in Table 4.5. Retaining walls are proposed at three locations (Table 4.7).

Road Drainage is addressed in Section 4.9. The principal objective for the surface water design includes water quality treatment for the 'first flush' 15mm of road run-off prior to discharge to the receiving environment and to prevent pollution from accidental spillages on the road from entering the receiving environment via the drainage system. The road drainage system will consist of linear grassed channels to provide conveyance and primary treatment followed by linear wetland at each outfall to provide secondary treatment prior to discharge to the receiving watercourses. There are 16 proposed outfall locations (Table 4.8). Each of the outfalls will be routed via a wetland treatment system prior to final discharge to the receiving environment.

Section 4.10 provides details material of earthworks and pavement materials that will be required to construct the road. The greenfield sections of the road will generate 34,800m3 of topsoil. This will be sufficient for landscaping purposes and there will not be a need to import or dispose of any of this type of material. Details of the materials that will be generated, that are suitable for reuse/require disposal and the quantities of material that will need to be imported are set out in Table 4.9. In the region of 232,100 m3 of material will need to be sourced for the development.

It is estimated that approx. 195,650 m3 of unacceptable material, mainly peat will be generated by the proposed development. It is proposed that the material will be will be placed within material deposition /peat restoration areas within the proposed land acquisition boundary. A number of such areas have been identified as detailed in Table 4.10. Five material deposition areas have been identified (Drawing No GC094741-16-18123). A typical layout is shown in Drawing No GC094741-16-18124. It is estimated that the volume of material that can be placed in these areas is c 83,000m3 and that 42,000 m3 can be won. The earthwork import requirement will therefore be reduced to c 190,000 m3. Two peat restoration area have been identified and it is estimated that the volume of material that can be placed in these areas is approx. 117,000 m3. A typical layout for these areas is shown in Drawing No GC094741-16-18125. The net result of this construction method is that approx. 20% of the fill requirement for the proposed works and 100% of the disposal requirement can be accommodated within the site boundary.

The proposed development will result in the permanent acquisition of land. Approximately 65.1 hectares is included in the CPO. The area includes c 15.1 hectares that is classified as road bed and approximately1.9 hectares classified as site (residential or commercial). There is approximately 45.5 hectares classified as land and c 2.6 hectares as forestry. The general ownership pattern is indicated on Drawing No GC094741-16-18127.

It is estimated that construction will be carried out in a number of mainly consecutive stages. Each section would include a section of road typically in the 5-10 km long range with an associated typical construction period that will extend over a period of 18-30 months. The road will remain open to traffic during the construction period. There are likely to be a number of construction compound sites along, and/or in the vicinity of the proposed road development, none of which will be located within designated sites or ecologically sensitive locations. The compounds are likely to include stores, offices material storage areas, plant storage, parking areas for staff and will remain in place for the duration of the works. A Construction Management Plan will be produced by the contractor and will include a detailed programme of works. It will include the Environmental Operating Plan (EOP) and Waste Management Plan (WMP). It will set

out the contractors approach to managing environmental issues associated with the construction of the road. Included within the EOP will be the Construction Erosion and Sediment Control Plan, which will set out the construction methodology.

5 Traffic – This chapter assesses the traffic impacts of the N59 proposed road development. A Local Area Model was developed with 2010 as the base year. On this scenic recreational route, traffic flow is highest at the weekends and in the tourist season-March to October. Traffic flow is c 47% above the average during the months of June, July and August. Traffic levels are highest in the PM Peak and there is in effect no AM peak. The average vehicle proportions are 92% light and 8% heavy.

Traffic surveys were carried out as described in Table 5.1. Analysis of the base year traffic flow information derived from traffic counts indicate that the largest movement in the study area is the movement on the N59 between Maam Cross and Oughterard. There is also a significant traffic movement on the R336 at Maam Cross. There are no other significant traffic generators or junctions along the proposed road development. The information is displayed on Drawing No GC094741-16-18104.

The proposed road will not result in an alternative route for traffic. Future trip matrices for the 2015 Opening year and 2030 Design year were developed for medium growth rates, based on the NRA Project Appraisal Guidelines 2011 using the National Traffic Model. Table 5.3 gives the predicted traffic flows for the opening and design year on the road network within the study area for 2015 and 2030. The upgrade works will achieve an approximate 3 minute journey time saving.

The earthworks operations will result in the movement of c 520,000 m3 for the total development, which is estimated at c 290 vehicle movements per day. In a worse case scenario where all the material is transported along the existing N59 and from a location to the west of Maam Cross, that has a 2010 traffic level of 2835 vehicles, this would represent a temporary increase in traffic levels of 4%. Given the spread of existing quarries in the area, it is likely that a number of sources will be used, diluting these additional traffic movements on any one road. The impact is temporary in nature.

Bus services are provided by a number of public and private operators. Bus Eireann provides an average of five bus services per day between Clifden and Galway City.

6 Socio-Economic Community – This chapter deals with the potential impacts of the proposed development on human beings. The existing N59 currently serves the strategic local and regional needs of the population.

The baseline conditions of the existing environment are described in Section 6.3.2. The predominant economic activity along the route is agriculture and the proposed development will require the acquisition of land, which is primarily in agriculture use (discussed in Chapter 8). Employment is weighted towards ‘farming, fishing, forestry and other agriculture’ and weighted away from ‘Manufacturing Industries’ and ‘Commerce and Trade’ when compared with the state, reflecting the predominantly rural make up of the area.

There are a range of community facilities along the route of the existing N59, which are particularly sensitive to impacts from the proposed development (Drawing No GC094741-16-18109). These include a local school, tourist accommodation, tourist

facilities (Glengowla Mine Experience), recreational facilities, walking and cycling and driving routes including the Western Way, Connemara Loop etc.

Impacts can be expected during both the construction and operational stage (Section 6.4). Construction impacts relate to temporary employment, new temporary customers for local businesses, compensation for land will generate additional spending and economic activity in the catchment. Adverse impacts likely to affect the socio economic environment of the corridor include noise and dust, congestion, disruption to road users, occasional disruptions to water, gas and electricity supplies, temporary disruption of access to properties and facilities, delays in journey times.

Operational impacts are likely to involve the provision of a fit for purpose road, improvement to journey times, journey safety, accessibility to community and social facilities and businesses. It will also improve access to Galway city, strengthening Connemara's connection to national infrastructure, markets etc, improvement of access to nationally important landscapes/ tourist attractions with consequent improvements in economic activity, reduction is isolated communities. The improved accessibility and economic connectivity will be the principal overall socio-economic benefit of the scheme. The proposed development will not have a material impact on the businesses and community at Maam Cross as access to and connectivity with the N59 will not be affected. Similarly, each of the businesses on-line in the more rural parts of the route will continue to have access to the proposed N 59 road development.

As the route generally comprises an upgrade of the existing N 59, the extent of localised severance of communities is minimised. The provisions of the pedestrian and cycle way along sections of the proposed route will significantly improve connectivity with the communities affected. The upgraded road, with a wider paved surface and wider verges will enable safer movement along the route. There will be a loss of the informal parking area along the existing N 59 serving the school at Derryerglinna. While there will continue to be a drop-off and circulation space within the school property, the loss of external parking will have a long term minor negative impact on the school.

Impacts during the construction phase will be mitigated by advance notice to the public of works, route diversions, planned disruption of services, appropriate use of signage etc. A construction traffic management plan will be developed to mitigate against potential traffic delays. Measures will be implemented to reduce levels of dust, noise etc.

Design changes have been incorporated into the scheme to improve the connectivity of the road during its operational phase. These are predominantly improvements to the route to faciliate connections to local services, to the proposed Greenway project, and to other strategic tourism routes. They include the proposed provision of the pedestrian/cycle way, which will connect the cycle way at Derryerglinna to the Greenway and the national school to the cycle way. It will also improve connections between communities along the route. Other improvements that have been incorporated include the provision of viewing bay and bus stop at Maam Cross, a viewing bay at Bunnakill and direct connections with the Greenway at Tullaghboy. These measures have been added to the final route design.

No residual impacts are likely to result from the construction phase. The operational phase will contribute to fulfilling a wide range of transportation and planning objectives with benefits at regional, national and local level. Travel times and transport costs will

be reduced and journeys will be safer. This will enhance prospects for economic development and will improve accessibility to recreational and social facilities. There are particular benefits to the tourism industry through the improved accessibility of Connemara.

In terms of cumulative impacts, the proposed 'Connemara Greenway' scheme comprising an off-road walking and cycling route between Oughterard and Cliften along the former rail line will have a direct relationship with the proposed N59 road development. When the two proposals are assessed together, the cumulative impact to the community is likely to be 'long term moderate positive' due to the increased connectivity for residents and tourists to the settlements and facilities on the proposed N59 road development and at Clifden and Oughterard. The proposed Greenway may also increase tourist traffic along the route, which would benefit those businesses in the tourist industry.

7 Material Assets (Non Agricultural Property) – This chapter examines impacts on non-agricultural properties e.g. residential and commercial and community property. Roadside and desktop surveys were carried out to assess the potential impacts of the construction and operational phases of the proposed development. Most of the non-agricultural properties assessed either 'front' and/or access directly onto the existing N 59. Impacts on these properties will primarily be limited to the acquisition of frontages, loss of boundaries and the realignment/replacement of existing accesses. The properties directly affected include one-off residences, hotel, depot, tourist attraction, school, forestry plantation and land.

The existing land use environment along the proposed N 59 road project is predominantly agricultural. There are 50 non-agricultural properties identified which are directly affected by the construction and operation of the proposed N59 development. The route corridor of the proposed development includes sporadic one-off residential and ribbon development. The density of residences is higher on the eastern end and increases as one travels towards Oughterard. Four commercial and community properties are located along the route.

Whilst the development has sought to avoid impact on properties, the acquisition of land from the curtilage of properties is unavoidable in a number of areas. The acquisition is generally necessary to accommodate the proposed road cross-section and provide adequate access and junction sightlines and safe tie-ins to the existing road network. The development does not involve demolition of any residential property.

A total of 39 residential properties will be affected by the permanent acquisition of part of their holdings. The significance of effects is assessed using standard criteria from published documents. The impacts are described in Table 7.2. In the case of 10 properties the impacts is assessed as 'Moderate Negative' and 'Minor Negative' in the case of 24 properties. A total of 5 properties are identified with 'Not Significant' impacts. There are 7 properties situated close to the route where no land acquisition will be required. The predicted impacts on these properties is presented in Table 7.3.

The 4 no. commercial and community property which will be affected by the acquisition of part of their holding include a former petrol filling station, Peacock Hotel, National School and Glengowla Mines (Table 7.4). The impact will arise from acquisition of land along N59 frontage alterations to entrances etc.

Measures to mitigate impacts will be required during construction and this will involve payment of compensation for loss of property, provision of information on construction programme/works involved to affected parties, erection of temporary fencing to delineate boundaries, provision of alternative access where access is impeded etc. The NRA's Code of Practice Guide to Process and Code of Practice for National Road Project Planning and Acquisition of Property for National Roads' will be adhered to.

Mitigation measures during operational phase will involve the replacement of boundaries in consultation with owners of property, maintenance of access to properties were it is affected and the provision of a replacement access if necessary and the reinstatement of services/utilities affected by the road development. The local authority will liaise with affected parties on all matters relating to the road development, road closures, restoration of services etc and it will implement best practice measures in seeking to avoid flooding from land of land from the roadway.

In terms of residual impacts, the proposed development will result in the loss of part of the curtilage of 43 residential, commercial and community properties. The mitigation measures required and the residual impacts are detailed in Tables 7.5, 7.6 & 7.7 of the EIS. The impacts range from 'not significant to 'minor' to 'moderate'

8 Agriculture & Agricultural Property – This chapter examines the impact of the proposed road development on Material Assets, being agricultural property and land uses. There are 33 identified farms directly affected by the construction and operation of the proposed development. Detailed farm, roadside and desktop surveys were carried out to assess the impact of the development on current farming activities.

The alignment is through lowland, which consists of lands of average to good agricultural range and usage. The intensity of farming varies between farms with moderate to high levels encountered on most farms. The main enterprises are predominantly beef and mixed livestock comprising beef and sheep. There are a number of farms with equine stock. The impact on agriculture will be limited to those farms directly traversed by the development.

During the construction phase, the main impacts that will occur include noise/vibration, dust, disturbance of watercourses/land drains, disruption of services, restricted access to retained land parcels, boundary treatment and shelter.

Additional noise emissions will occur in the vicinity of the road construction. Whilst animals generally become accustomed to regular noise/sounds, it can be of significance when it becomes excessively loud. In general intensive dairy and equine enterprises are more adversely impacted upon by excessive noise and vibration levels. There are no dairy operations in use along the route of the N 59 and the equine enterprises which do exist are not of an intensive nature.

Dust generated during construction can cause annoyance and irritation to humans and farm animals and impact on vegetation. In general intensive dairy and equine enterprises are more adversely impacted upon by excessive levels of dust. There are no dairy operations in use along the route of the N 59 and the equine enterprises which do exist are not of an intensive nature.

Field drainage systems currently in use will be disturbed and in places destroyed by the construction of the new road. Whilst they will be restored as part of the works, there

may be temporary impaired drainage prior to final reinstatement of such drainage works. This may lead to wet/flooded fields and reduced productivity.

With regard to services, ducting for piped watering services may be severed during the period of the works. Access to either piped water supply or drinking points on watercourses are likely to be disconnected or removed during construction.

Access to retained land parcels will still be required during the road construction works and before the accommodation works have been completed. It is expected that there will be increased difficulty in providing such access to farmers during the construction phase due to the need to allow machinery and equipment continual movement along the construction corridor. This will conflict with the farmers' requirements to move livestock from one part of the farm to the other. Existing fences and boundary features will be removed resulting in loss of stock retention measures and the temporary restriction of stock movements. There will also be a loss of shelter during the construction period.

The potential impacts that will arise during the operational phase are identified in Section 8.2.3. The degree to which an operational road development may impact upon an individual farm will depend on a range of factors including noise/vibration, dust, disturbance of watercourse/land drains, disruption of services, removal/relocation of access, boundary treatment and shelter, land take, division of land holdings, type of enterprise farm size and farm buildings and/or facilities.

Whilst noise/vibration may arise as a result of daily traffic, animals become accustomed to regular noises and sounds. There are no dairy or equine enterprises of an intensive nature. Dust generated from daily traffic can result in localised pollution and the ability of plants to photosynthesise. In general dairy and equine enterprises are more adversely affected by excessive levels of dust. There are no dairy operations along the route and equine enterprises are not of an intensive nature.

Pollution events may arise as a result of traffic collisions and resultant spillages of hydrocarbons. These may impact on watercourses and field drainage systems and these are discussed in Chapter 14 Hydrology. Access to certain water supplies and drinking points on watercourses are likely to be removed in a limited number of cases. Providing replacement services can mitigate this impact, or, alternatively this matter can be dealt with by compensation.

The removal of boundaries will be mitigated in certain cases by the replanting of boundary hedgerows/ trees. The removal or relocation of an access or a right of way may have an impact on the farm holding. This can be mitigated by the provisions of replacement or alternative access points together with farm access tracks as necessary.

Land take is one of the principal impacts on a farm. The road alignment can divide a land holding resulting in permanent fragmentation. This can impact on farm buildings, animal holding facilities, viability of farm, less profitable operation etc. Dry stock enterprises are less severely impacted as stock on these farms is not moved as frequently and farmers can adapt their farming practices to mitigate the damage caused by the proposed road. In general these farmers suffer less of an overall adverse effect if impacted by a development of this type. The location of the land lost in relation to the farm buildings and the use of the land will have more relevance in assessing the overall

impact on the farm than the amount of land lost. The removal of farm buildings and/or facilities on the farm will contribute towards the overall impact on the farm.

The current farming enterprises along the proposed road development are discussed in Section 8.3.3. Table 8.2 and 8.3 presents the category of farming enterprise affected by the proposed road development. The tables indicate that grass based livestock enterprises predominate and that the farms under assessment are predominantly involved in beef and mixed livestock production. There are no specialist tillage farms or dairy farms evident in the farms assessed within the development corridor. In terms of farm size, there are a smaller percentage of small farms to the level occurring nationally. The number of medium sized farms is well below the national overage and the percentage of large farms is well above the national average. The figures are skewed somewhat by the inclusion of commonage.

The proposed development will result in minor levels of disturbance in terms of access, noise and dust during the construction phase. Individual farm level impacts are identified in Tables 8.5 and 8.6. Prior to any mitigation measures being put in place, there will be a major negative on one farm (Ref 2390) due to its loss of farm buildings, severance of the holding and loss of frontage and access track. There will be a moderate negative impact on 8 of the farms representing 24.2% of farms along the proposed development. The impacts arise from loss of frontage and severance of holding. Over 63% (21) of the farms will experience a minor negative impact arising from loss of frontage and aceess. A 'Not Significant' impact is recorded for on 3 farms (9.1%). Three farms will be affected by the loss of livestock handling facilities and/or farm buildings. The mitigation measures required for individual farms are detailed in Table 8.5 and 8.6.

Mitigation measures during the construction phase are discussed in Section 8.5 but are limited to engineering accommodation works only. These include measures to control noise, vibration, dust etc and are discussed in greater detail in proceeding chapters. One important consideration is that access be maintained to all areas of retained land during the construction phase. Access to farmland will be addressed as a priority issue and temporary access will be provided until more permanent long-term access arrangements are constructed. The continuance of sources of water supplies for animals is also of particular relevance and where continuity is affected, alternative supplies will be provided or will form part of the compensation agreement. The road frontage along the proposed road development will be secured and stock proofed before construction starts. Any disconnected water services will be restored. Access to retained land parcels will be provided and watercourses/land drains reinstated.

Mitigation measures during the operational phase will include provision of access to fragmented farm and reinstatement of watercourses and surface water run-off control to ensure it is discharged to a suitable outfall and not to adjoining properties.

Following mitigation there are no cases where there is a major impact on farm holdings along the route and the number of moderate negative impacts will be reduced to 5 farms (15.2%). There will be a minor negative impact on 19 farms (57.6%), however, many of these will be mitigated after the works are complete. Table 8.8 shows the details of the individual farm assessments and a comparison of the overall impact with the anticipated residual impact of the realigned road on each farm following the implementation of the mitigation measures.

9 Air Quality & Climate – Site specific baseline air quality monitoring has been carried out along the route corridors of the existing and proposed N59 road development to supplement the existing air quality data available from the EPA National Air Monitoring Programme. The subject site would coincide with Air Quality Zone D: Rural Ireland as classified by the EPA.

The site specific monitoring identifies the existing pollutant trends in the area and establishes compliance with relevant ambient legislation. Due to the proximity of residential and ecological receptors to the proposed road development and the potential for traffic derived emissions, levels of nitrogen oxides were monitored at 7 locations over 3 months. The locations are shown Drawing No GC094741-16-18134. At each of the sites, levels of NO_2, NO and NO_X were measured. In addition to the site-specific baseline assessment, monitoring data for nitrogen dioxide, sulphur dioxide and particulate matter are reported by the EPA on a continuous basis at the rural background Air Quality Monitoring Stations at Kilkitt in Co Monaghan. The results of the monitoring are indicative of rural background levels and are considered representative of background levels of the Maam Cross to Oughterard area.

There are various types of receptors located along the route including residential and sensitive ecosystems. The receptors vary in distance from the centreline of the proposed development. Of particular interest is the number of Natura 2000 sites and the potential impact on such sensitive ecosystems. There are two designated sites within 200m of the development (Lough Corrib cSAC, pNHA & Connemara Bog Complex cSAC, pNHA). Other than traffic there are no major sources of pollutants along the route corridor.

The results of the baseline air quality monitoring and data from the EPA are presented in Section 9.3.2. Long term exposure to high concentrations of nitrogen dioxide can have negative health impacts. The baseline monitoring indicates that all levels for nitrogen dioxide are less than half of the annual limit for the protection of human health (40ug/m3). The highest levels recorded were in the centre of Oughterard, at a location where traffic sources are highest and travelling at the lowest speeds. At all other locations annual averages are typically less than 10 ug/3, which are consistent with rural areas close to a national road of moderate traffic volumes.

Nitrogen oxides in high concentrations can affect vegetation and there is an annual limit for its protection (30ug/m3). With the exception of the centre of Oughterard, the baseline data reveals that levels of nitrogen oxides are below the annual limit for the protection of vegetation. The EPA levels for both nitrogen dioxide and nitrogen oxides are lower than those determined in the baseline assessment. This is expected, as the EPA station is located away from the local road network in contrast with the study area of the N59.

The concentrations of PM_{10} detected at the Kilkitt station indicate an annual average of 8-10 ug/m3. This is considered to be representative of a rural background PM_{10} level, typical of the study area. $PM_{2.5}$ has similar effects on human health as PM_{10}, but is a better indicator of anthropogenic emissions. There is currently no monitoring of $PM_{2.5}$

carried out in the D (rural) locations in Ireland. Monitoring is carried out in A,B and C locations. A study carried out by the EPA which examined the relationship between PM_{10} and $PM_{2.5}$ revealed that consistently between urban, rural and coastal locations in Ireland the $PM_{2.5}$ fraction of PM_{10} is approximately 60%. This approximation is bourne out by the PM 2.5 values recorded in Ireland's in Zone A, B and C locations. Applying this fraction to the EPA PM_{10} data at Kilkitt would provide an approximate $PM_{2.5}$ annual average of 6ug/m3 compared to the annual average target value for the protection of human health of 25ug/m3 . This level is considered indicative of the air quality in the study area of the proposed N59 development.

The construction phase will generate dust, which has the potential to impact on sensitive receptors located within 100 m of the source of the dust generated. It is expected that the impact will be 'Temporary Slight to Adverse', as per NRA guidance. Other impacts likely to arise during construction include greenhouse gas emissions from site materials and vehicles delivering materials to the site. These emissions have been quantified using the Environment Agency *Carbon Calculator for Construction Sites* and the results are presented in Table 9.12. It is predicted, based on the volumes of material described in the earthworks section, that total estimated greenhouse gas emissions will be in the region of 27,543 tonnes of $CO_{2eq,}$ which is a negligible increase (0.04%) in the context of the National Kyoto Target of 63 million tonnes of CO_{2eq}.

During construction areas of peat lands will be disturbed and may have an impact on the net carbon flux from these areas. Of the estimated 195,000m3 of peat material to be excavated, approximately 110,000 m3 (56%) will be rehabilitated in designated Peat Restoration Areas. The aim of the Peat Restoration Areas is to maintain the moisture content with the objective of generating a peat-land type habitat and maintaining the carbon sink characteristics. This will reduce the carbon emissions from the peat disturbance during the construction of the development. It is estimated that the carbon losses from the peat removed and not rehabilitated will be in the region of 17.143 tonnes calculated as tonnes of carbon dioxide equivalent (tCO_2 eq). These carbon losses have been included in the total estimated greenhouse gas emissions associated with the proposed construction presented in Table 9.12. The losses from peat disturbance equate to approx. 62% of the total GHG emissions from the construction stage.

Tables 9.14 and 9.15 shows the overall change in exposure to NO_x if the development does not proceed and if the development goes ahead. The results indicate that with the proposed N59 road development in operation there will be an overall slight 'Permanent Positive' impact on air quality on a regional scale. Whilst the traffic analysis indicates that there will be no variation in traffic volumes or the number of heavy goods vehicles with the N 59 in operation, the proposed development will cause an increase in the average traffic speeds with increases in emissions. This will be counteracted by the new alignment moving the carriageway away from houses at certain sections such as Lough Agraffard.

Modelling of local impacts on air quality took place at four sections along the mainline of the proposed N59 development (Table 9.16). The findings of the air dispersion modelling indicate that predicted pollutant concentrations show uniform spatial and temporal variation in general. Levels are predicted to be well below the statutory limits for the protection of human health under the four scenarios examined whether the proposed road is in operation or not. The impacts to air quality predicted in the area are categorised as 'Negligible' for all receptors.

With respect to sensitive ecosystems the principal pollutants of concern area the nitrogen oxides. The results of the local modelling presented in Table 9.17 to 9.20 indicated that NO_X along the route are well below the annual NO_X limit of 30 ug/m3. In addition, the increase in annual NO_X concentrations from the Do- Minimum to Do Something scenarios are less than 0.8 ug/m3. As such the impact of the road development on the ecology of the area is considered negligible. Due to the ecological sensitivity of the area, a nitrogen deposition assessment was carried out. The results (Table 9.12) indicate that the levels of nitrogen deposition are approximately 6% of the critical load as set by UNECE with the proposed N59 road in operation. It is also indicated that the same level of nitrogen deposition will occur on these ecological sites if the proposed N59 road was not in operation.

Other than nitrogen oxides, the other potential impact on sensitive ecosystems will be construction dust deposited on the leaves of plants reducing the photosynthetic potential. According to guidance, the most sensitive species appear to be affected at levels above 1000mg/m2/day. Once dust deposition rates are maintained within the standard guidance for human nuisance (350mg/m2/day) the impact of construction dust on sensitive ecosystems is considered negligible.

Table 9.22 provides details of total emissions of CO_2 and NO_x from the existing/proposed road. Total GHG emissions as CO_2 will increase slightly (4%)from the proposed road in operation. Similarly, the annual emission of NO_x will increase slightly (3%). The increases are a direct result of the slight increases in average traffic speeds. The increases are considered to be negligible in the context of the targets set by the National Kyoto Target and the National Emission Ceilings Directive.

During the construction phase mitigation measures will be required for dust. The potential for dust emissions will be assessed qualitatively through a Dust Risk Assessment. A Dust Minimisation Plan will also be prepared to ensure that all key construction compounds are located at sufficient distances from the nearest residential and ecological receptors, thus avoiding or reducing dust related impacts. Key construction compounds will be located greater than 75m from any receptors to avoid impacts. The Dust Minimisation Plan will include good practices measures to reduce dust related impacts during the construction period and the contractor will be required to maintain monthly dust levels below the guideline of 350 mg/m2/day.

As outlined in the prediction modelling findings, if the development becomes operational, compliance with all relevant limit values will be achieved at the nearest sensitive residential and ecological receptors. Therefore no route specific mitigation measures have been identified as a result of the assessment for the operational phase.

Residual impacts are discussed in Section 9.6. Dust, if effectively managed during construction will result in a ‘Short-term, slightly negative’. Greenhouse gas emissions arising from the development are ‘Negligible’ compared to the National Kyoto Target. The predicted air quality impact during the operational phase on local human and ecological receptors is classed as ‘Negligible’.

Since there are no predicted increase in traffic over and above the do-minimum on the N59, there are no cumulative impacts during the operational stage

10 Noise and Vibration – Baseline monitoring was carried out at noise sensitive locations N1-N12 (Drawing No GC094741-16-18134) along the proposed N59 route.

The baseline monitoring results are shown in Table 10.3. The survey results indicate that the existing noise environment is dominated primarily by traffic noise at the majority of properties along the route. As ground vibrations produced by road traffic are unlikely to cause perceptible structural vibration in properties located near to well maintained and smooth road surfaces, no baseline vibration monitoring was carried out. It was not considered that this aspect needed further consideration as there are no known unusual circumstances under which higher than normal traffic vibration levels might be expected.

The majority of the works associated with the construction phase will be ground works to excavate the cut sections and to form the embankments and fill sections, road paving and installation of services along the proposed N59 road development. Equipment and noise sources, such as rock breakers, rock drilling and blasting, excavators, generators piling, dump trucks and road rollers etc will be the main noise sources associated with the construction phase. The NRA Guidelines outline maximum permissible noise levels at the face of dwellings during construction and these are set out in Table 10.4. According to the EIS there are no construction related operations that will give rise to an exceedance of limits as set out in Table 10.4. Estimated traffic flows that will be generated during the construction phase during a full working day (290 HGV movements) are set out in Table 10.5. It indicates that the increase in noise level in close proximity to the roadside will be less than 2 dB(A) over the course of a full working day and is therefore nor considered significant at noise sensitive receivers. According to NRA Guidelines a change in level of 3 dB is just perceptible.

The works will include rock cuttings from Ch. 260,220 to 260,620 and 263, 530 to 263, 880 involving modest widening to existing cuttings and modest quantities of rock extraction. Rock breaking will be accomplished by means of mechanical breaking. It will result in noise levels of 87 dB $L_{Aeq,\,1\,hr}$ at 10m and 66 dB $L_{Aeq,\,1\,hr}$ at 100m. These noise levels will occur over short-term intervals and during daytime periods only. A greater level of widening and rock extraction will be required along the realignment at Glengowla West, necessitating drilling and blasting. The use of explosives is likely to give rise to both ground and airborne vibration. Where blasting is due to occur, there will be a warning system for residents to minimise disturbance. The adoption of good blasting practices will reduce the inherent and associated impulsive noise. The closest receptors to the proposed area of blasting will be 50-60 m. It is not possible to provide precise prediction of noise levels that will occur from blasting due to the many individual factors that will affect noise levels from a single blast. Construction vibration impacts are considered to be short term and temporary.

During the operational phase, vehicles travelling along the route have the potential to generate a negative due to traffic noise at nearby receptors. In accordance with NRA guidance all receptors within 300 m of the proposed N59 alignment were identified and assessed for operational noise related impacts. There are 52 No. receivers in the vicinity of the proposed N59, which are located within 300m of the proposed alignment. Road traffic noise impact prediction was made using the Cadna_A noise modelling software. The screening effects of embankments, bunds and cuttings along the proposed road development which have the potential to provide natural noise attenuation were incorporated into the model.

The results of the predicted noise levels indicate that there will be either ‘No Change’ or a ‘Negligible’ increase or decrease in traffic noise levels at 44 of 52 noise sensitive receptors located in proximity to the proposed road development. The majority of

residential properties in close proximity to the existing N59 will remain in very similar proximity to the proposed road development and therefore on account of no increase in traffic volume there will no increase in noise levels at these properties arising from the proposed development. The main changes in noise levels will occur at Glengowla West where the proposed N 59 road development will be realigned away from existing properties and the development will be located in a cutting to the north of the properties. At this location properties will experience permanent positive impacts.

Mitigation during construction will involve compliance with the recommendations set out in BS 5228 *'Noise control on open and construction sites'* in order to achieve the noise limit of 70 dB(A) $L_{Aeq,\,1\,hr}$. This will involve standard good operational practices and may involve the erection of temporary noise screens to mitigate impacts particularly in close proximity to noise sources such as rock breakers etc., employment of noise reducing systems, noise monitoring etc. Impacts from blasting and pilling operations may require special considerations such as blasting trials to monitor vibration patterns, blasting design, public notification systems etc.

During the operational stages, none of the 52 receivers were deemed to require mitigation measures in the Year of opening (2015) or the Design Year (2030) as the predicted traffic noise levels at noise sensitive locations comply with the NRA design goal criteria (Section 10.2.6). Therefore no noise mitigation measures need to be incorporated into the design of the proposed N 59.

It is predicted that no cumulative impacts will arise as the traffic assessment predicts that there will be no significant increase in traffic over the 'Do Minimum' scenario.

11 Landscape and Visual Impact – The proposed road development travels through the scenic west coast region of Connemara and forms part of the Atlantic Tourist Route between Sligo and Galway. The west-east route is set in extensive bog lands and is framed to the north and south by shallow treeless mountains. There are numerous lakes in the vicinity. The largest and dominating land cover surrounding the route is expansive open bog and moorland. Whilst this section of the N 59 is outside the principle Connemara Mountains areas, it is strongly embedded in this landscape as the main thoroughfare through Connemara. It is also considered as one of Ireland's busiest tourist routes.

Section 11.4 of the EIS discusses predicted impacts in terms of landscape and features contributing to character distinctiveness and outlines the principle impacts of the proposed road development along each section of the road. Impacts from the proposed development can occur where the proposed development comprises features contributing to local distinctiveness of character and/or where it carves through sections of open countryside currently undisturbed by the existing route corridor. Large sections of the route are set in an open and highly exposed boglands where both horizontal and vertical route deviations tend to be clearly noticeable. Tables 11.2 and 11.3 identify sections of horizontal and vertical alignment deviations respectively.

In terms of horizontal alignment, it is noted that most of the proposed works are online. Approximately 70 % of the proposed road is substantially online with the remaining 30% being off-line (Table 11.2). Whilst the offline sections never stray more than 175 m from the existing road, they would encroach frequently on land that is currently undeveloped open countryside. It can be therefore expected that the offline sections may give rise to a higher adverse impact than those sections that are online.

In terms of vertical alignment, approximately 85% of the proposed road will run at or close to existing grade avoiding the need for substantial cut or fill. Approximately 15% of the road will involve cut and fill areas with level changes in excess of 1.5m above or below existing ground levels. The highest rated adverse landscape impacts of the scheme are likely to arise from those areas of noticeable cut and fill (Table 11.3).

Section 11.4.3 discusses the anticipated impacts for each of the main landscape elements from east to west. Impact judgements are listed in Table 11.7. The anticipated impacts range from 'Slight Adverse', 'Slight to Moderate Adverse' to 'Slight to Significant Adverse'. The greatest potential for adverse impacts arises in the vicinity of Lough Agraffard to the north of Glengowla. Here, a major route realignment is proposed where the new route will be relocated 174m northwards into sloping farmland. Extensive cut areas will be necessary with changes in level of up to 7.1 m followed by an elevated section of fill further east. Considerable vegetation loss is anticipated both at Lough Agraffard and Glengowla and within the farmland area to the north. The proposed re-routing will also introduce a major dissection of an established pastoral landscape.

The predicted visual impacts of the road development are discussed in Section 11.5. The likely visual impacts (pre mitigation) at the 52 properties are summarised in Table 11.4 and Drawing No GC094741-16-18140. It demonstrated that none of the dwellings are expected to experience a 'Profound Adverse' impact. 'Significant Adverse' impacts will be experienced by 4 properties, which typically will arise where the alignment is in close proximity, where part of the property is directly impacted or where elevated road sections on embankment may overlook dwellings. Mitigation measures will be required to reduce the level of adverse impact.

A 'Moderate Adverse' impact will be experienced by 8 properties arising say from a minor loss of garden or boundary, the opening up of a new but limited view of the road etc. Mitigation measures should in most cases be capable of alleviating the adverse impact without difficulty. The vast majority of the properties (33%) will experience 'Slight Adverse' impacts. The residents of these 17 properties will not experience a critical level of impact and reinstatement works are sufficient to reduce the level of adverse impact in most cases. A quarter of the properties (13 no.) will experience an 'Imperceptible' impact as their setting and views remain largely unchanged by the road realignment or where the road is on-line with the existing road scheme. The remaining properties will experience positive impacts arising from increased distance, reduction in visual blurring caused by passing traffic etc.

Section 11.5.3 discusses the visual impacts for road users of the N 59. The impacts are assessed as 'Slight Adverse, with the exception of the section of the route adjacent to Lough Agraffard and Glengowla, where the alignment will be re-routed. The re-routing of the alignment through an area in cut north of Glengowla will majorly restrict any long distance views throughout Glengowla townland. The impact is assessed as 'Slight to Moderate Adverse'.

Landscape and visual mitigation measures for this proposed road development are predominantly in the form of roadside screen planting, the assimilation of embankments within the land take boundary of the proposed road and the incorporation of measures for wildlife. The mitigation measures are shown on Drawing No GC094741-16-18140.

The species composition of the screen planting will reflect the landscape context of each section of the road.

At individual properties, the landscape and visual mitigation proposals are primarily focussed on reinstatement works including the replacement of existing boundary vegetation. At properties in a woodland setting mitigation measures will normally comprise high or low canopy woodland planting. Outside woodland areas at properties where existing panoramic views are to be preserved a shrub mix comprising smaller species is proposed for screening purposes. Details of the plant species for various habitats is provided within the text of the EIS.

Within the open landscape where screening options are limited, proposed cut and fill areas and disturbed surfaces require to be sensitively treated. All surface areas, including the edges of new embankments, rock cut slopes and deposit areas should be re-graded following completion of construction works to tie seamlessly into existing levels. At lower slopes and road verges and where reinstatement of existing peat bog areas is not possible, re-graded areas to be seeded with a suitable native grassland seed mix, similar to the species commonly found in the locality.

The entire route will be fenced off on both sides using appropriate fencing to minimise visual intrusion. Two viewing areas are proposed at Maam Cross and Loughaunierin (Drawing No GC094741-16-18116). Mitigation measures along the various segments of the route corridor are set out in Section 11.6.1 and for the various properties in Table 11.6.

In terms of residual impacts, the majority of the macro landscape areas surrounding the proposed route alignment is judged to continue to experience 'Slight Adverse' landscape impacts following completion of re-instatement and mitigation works and after a planting establishment and re-colonization period of 5-7 years. The highest rating impacts remain at the Lough Agraffard to Glengowla section with 'Moderate Adverse' post mitigation landscape impacts. Post mitigation visual impacts for road users at all segments of the road alignment following the re-colonisation period are judged to be 'Slight Adverse'.

Following the implementation of the mitigation measures and the completion of an establishment period of 5-7 years, residual impacts on individual properties are expected to be considerably reduced. A summary of the impacts before and after mitigation is presented in Table 11.8. The proposed mitigation measures should bring about a considerable reduction in landscape visual impact for many local residents with a sizable majority of impacts in the 'Positive' to 'Slight Adverse' range. There remain a 'Significant Adverse' impact at two locations as shown on Drawing No GC094741-16-18140) i.e. property No's 177 & 178. Visual impacts of the scheme in relation to individual properties post mitigation measures and completion of the 5-7 establishment period is summarised as 'imperceptible to positive' for 44% of properties assessed. 'Slight Adverse' impacts will be experienced by almost half of the properties as a result of the proposed route alignment development. 'Moderate Adverse' impacts will be experienced by 6% and 'Significant Adverse' impacts by 4%.

12 Ecology - This chapter examines the terrestrial and aquatic ecological environment of the proposed road scheme. Information on the existing environment was gathered initially from desk top studies followed by site surveys.

Three Natura 2000 sites lie within 1 km of the N59 including the Maumturk Mountains c SAC (Site Code: 002008), Connemara Bog Complex SAC (Site Code 002034) and Lough Corrib cSAC (Site Code 000297). Some lands within Connemara Bog Complex cSAC/pNHA have been recently designated as Connemara Bog Complex SPA (Code 0041810 and is located 5 km west of Maam Cross. Lough Corrib cSAC is located north and south of existing alignment. Lough Corrib SPA covers the main lakes and wetlands and is located 2.3 km west of the N 59 road development. The locations of the alignment in relation to the three designated sites is shown in Drawing No GC094742-16-18106.

Descriptions of the designated sites and their qualifying features are given in Table 12.2. The percentage cover of each habitat within the Natura 2000 site is described and the degree of representativity is detailed in Table 12.3. This is followed by more detailed descriptions of each of the designated sites, the main features of conservation value, qualifying habitats (percentage cover, representativity) and species. The location of the proposed N59 road development alignment in relation to these designated sites is shown in Drawing GC094741-16-18106.

Extensive field surveys were carried out in order to identify the habitats and species present within the study area. Habitats are classified in accordance with the guidelines set out in *'A Guide to Habitats in Ireland'* (Fossitt 2000). They are also described in terms of their correspondence to Annex 1 habitats as per the Interpretation Manual Of European Union Habitats –EUR27.
The habitats found in the study area are shown in Drawing No GC094741-16-18141.

Details of aquatic habitat findings are set out in section 12.4.1. Four main aquatic habitats were identified and these include Acid Oligotrophic Lakes, Mesotrophic Lakes, Eroding/Upland Rivers and Reed and Large Sedge Swamp. The proposed road development runs adjacent to 6 lakes, which have been classified as Acid Oligotrophic Lakes and include Lough Shindilla, Ardderry Lough, Lurgan Lough, Loughaunierin, Lough Bofin and Lough Agraffard. The lakes are stated to be host to several species of conservation interests including Artic Char. In terms of links to Annex 1 habitats the oligotrophic lakes within the ZOI study area correspond with *'oligotrophic waters containing very few minerals of sandy plains'*.

Three mesotrophic lakes occur within the study area including Lough Adrehid, with two small un-named lakes at Ch 257300 and Ch 264400. Lough Adrehid at the eastern end of the scheme is part of the Owenriff catchment and lies upstream of the Owenriff River which supports an internationally important population of Freshwater Pearl Mussel. This habitat category is not linked to any Annex 1 habitat type. However, the lakes are considered to be of conservation importance as they support several species of conservation interest including Freshwater Pearl Mussel and Atlantic Salmon which are listed as Annex 11.

The study area traverses 36. No surface water bodies (Eroding Upland Rivers), the largest are the Owenwee and Letterfore River, Derryerglinna Stream and the Bunowen River (a tributary of the Owenriff). The rivers are important spawning and nursery areas. All of these rivers/streams drain or flow into sites designated for nature conservation. The ecological significance of these rivers and streams is provided in Table 12.19. Whilst no Annex 1 habitat was found in the watercourses, they are either included or flow into designated water bodies. At least four of these watercourses

support Annex 11 species. Details of the Fisheries Assessment carried out is contained in Volume 7C.

None of the drainage ditches support any Annex 1 habitats. The Reed and Large Sedge Swamp occurs as fringing vegetation around lakes and in drainage ditches. It does not correspond with any Annex 1 habitat. A summary of the aquatic ecology findings and ecological constraints at each watercourse crossing is provided in Table 12.19.

Terrestrial habitats are discussed in Section 12.4.2. Detailed descriptions are provided for each of the habitats identified from the survey work and links to Annex 1 habitats which are qualifying features of the Lough Corrib cSAC are identified (Table 12.20), The table also details the area of each habitat lying within a Natura Site. The majority of the 29 No. habitats identified do not have links to Annex 1 habitat. Those that do include Wet Heath which corresponds to the habitat '*northern Atlantic wet heaths with Erica tetralix*', lowland blanket bog which corresponds to Annex 1 habitat *'blanket bogs (Priority Habitat if active bog*) and Rich Fen and Flush which corresponds to Annex 1 Priority habitat '*calcareous fens with Cladium mariscus and species of Caricion davalliancae'*. One area of Wet Willow Alder Ash Woodland supports species composition that corresponds to the Annex 1 Priority Habitat ' *Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae).* It is located between chainage 266400-266550. The habitat is located within the lands designated under the Connemara Bog Complex cSAC, however, it is not a qualifying habitat of any of this or any other designated site within the Zone of Influence.

A number of non native species were recorded throughout the survey and include Giant Rhubarb, Japanese Knotweed, Rhododendron, Himalayan Balsam and Himalayan Knotweed.

Faunal species are discussed in section 12.4.4. Seasonal bat surveys were carried in October, December, June and September. Five species were recorded including Common and Soprano Pipistrelle, Leisler's, Daubeton's and Brown Long-eared bats. Although not observed during the survey, Natterer's bat is known to occur locally and Whiskered/Brandt's are expected to occur occasionally but there are no extant records for either of the two species. The Lesser Horeshoe bat was not observed but is known to occur at the east of the route where the habitat is more favourable for the species. Bat roost potential is identified in Table 12.22 and includes bridge structures and buildings. The disused schoolhouse at Lurga/Shindilla is one identified as a roost and the building is scheduled for demolition. Other protected species recorded during the survey include Hare, Badger, Otter, Hedgehog. Otter is listed as one of the qualifying interests of Connemara Bog Complex cSAC and Lough Corrib SAC. A number of signs of otter were found along the banks of the Owenriff River. The area would also provide suitable habitat for Red Squirrel, Pine Marten, Stoat, Deer and Pygmy Shrew but none were recorded during the surveys.

Bird surveys were carried out during the four seasons. The species recorded are listed in in Table 12.23. Cormorant, Great Black-headed Gull, House Sparrow, Snipe, Chaffinch and Swallow are all species listed on the BoCC1 amber list and were recoded in the study area. These birds are of medium conservation interest. Cormorant and Great Black-headed Gull are qualifying interests of Lough Corrib SPA. Red Grouse is red listed i.e of high conservation concern. Signs were recorded in the townland of Claremount near Oughterard.

Although Marsh Fritillary (Annex 11) has been recoded in the area none were recorded during the site surveys. Devil's-bit Scabious, the plant food for the Marsh Fritillary larvae can be found in mosaic of Wet Grassland/ Acid Grassland vegetation on areas of highly modified bog. The surveys, whilst conducted within the optimum time of year revealed no signs of larvae webs or adults. Whilst the Kerry Slug, a species listed under Annex IV (a) of the Habitats Directive has recently been recorded at Lettercraffroe, c 4.5 km south of the N 59, it was not recorded during site surveys.

The lakes and rivers within the study area are host to several species of conservation interest. These include Artic Char recorded from Ardderry Lough and Lough Shindilla. Lough Bofin also has potential. Atlantic Salmon is known to occur within the Letterfore and Owenriff rivers and Ardderry Lough and Lough Bofin. The Letterfore and Owenriff rivers provide very important salmonid and nursery area. Full details of the aquatic ecological assessment and the fisheries assessment is provided in Appendix 7C (Volume 4). A summary of the fisheries potential within the zone of influence of the road is provided in Table 12.19.

The Freshwater Pearl Mussel is listed in Annex 11 and Annex V of the Habitats Directive. Dr Evelyn Moorkens carried out a survey (Appendix 7D of Volume 4) in the water bodies affected by the proposed development and the data relevant for the project is provided in Table 12.24. A summary of the Freshwater Pearl Mussel locations within the zone of influence of the road is also provided in Table 12.19. No pearl mussel were found in the immediate vicinity of the crossing points proposed for the road project. The Owenree and Ownewee rivers (Sites 24 & 25) do not provide suitable habitat for this species. Sites 19 to 23 are located within the Owenriff catchment and there is a high potential for the species to be impacted on as a result of the proposed road development works. The populations of the species within the study area are shown in Drawing No GC094741-16-18141.

Section 12.4.6 discusses the importance of the ecological receptors within the study area. Despite anthropological pressure on the area, large areas of intact lowland blanket bog remains, which is listed under the EU Habitats Directive as an Annex 1 Habitat 7130 Blanket Bog (Priority Habitat if active). These areas have suffered major decline and are considered to be of major ecological importance. The proposed road runs parallel to numerous medium sized oligotrophic lakes which correspond to the Annex 1 habitat '*oligotrophic waters containing very few minerals of sandy plains'*. Many of these lakes have been included in the designated sites in the area. Slender Naiad (Annex11) is one of the qualifying interests of Connemara Bog Complex cSAC and it has been recorded in Lough Bofin. Slender Cottongrass was recorded on the shores of the small lake at Maam Cross.

A total of 15 Ecological Receptors were recorded in the study area. Table 12.25 provides a description and valuation of these ecological receptors Sensitive habitats are identified as Ecological Receptor's. The ecological Receptor valuation system follows the NRA 'Geographic Context for Determining Value set out in the 'Guidelines for Assessment of Ecological Impacts of National Road Schemes (NRA 2009). In the context of national road projects, ecological resources of below 'Local Importance (Higher Value) should not be selected as 'Key Ecological Receptor's' for which detailed assessment is required. A total of fifteen of the Ecological Receptors were selected as Key Ecological Receptors on that basis.

The predicted impacts of the proposed scheme are considered in Section 12.5 of the EIS. The construction activities likely to give rise to ecological impacts are set out in Table 12.26 and range from vegetation and soil stripping, earthworks, blasting, drainage, demolition, construction of hard surfaces, drainage, environmental incidents and accidents, lighting etc. These activities could potentially result in loss of habitat, species disturbance, impedence of movement noise/vibration pollution, air /dust pollution etc. Operational impacts include the physical presence of the new carriageway and its potential to inhibit movement of wildlife, hydrological impacts through discharge or run-off and embankment loading, management/ disturbance of soft estate including ditch clearance, and traffic related animal mortality.

The most significant loss and impacts to habitats will be during the construction stage. This will impact on species diversity and loss of feeding habitat for local animal populations. The development has the potential to disrupt the hydrological regime of the wetlands and peat bogs, such as drying out of the peat which affects the vegetation composition, primarily the peat forming *Sphagnum* moss species. The 15 no. Key Ecological Receptors and the significance of the impacts are set out in Tables 12.27-12.41.

Mitigation and avoidance measures are set out in Section 12.6. These include standard type measures for the control of air borne pollutants during construction such as watering of construction site, controls on vehicle speeds, road cleaning etc. The road construction has the potential to give rise to adverse effects on water quality which discharges into Lough Corrib cSAC. This has the potential to have indirect effects on water dependent Annex 11 species such as salmon, otter and freshwater pearl mussel. Water quality mitigations measures are proposed to avoid, prevent and minimise impacts. These measures include the preparation, implementation and monitoring of an Environmental Operation Plan which will include a detailed Construction, Erosion and Sediment Control Plan based on and including all the controls and measures outlined in the Preliminary Erosion and Sediment Control Plan. An Environment Assurance officer will be employed to monitor activity and liaise with environmental bodies such as NWPS and IFI. All culverts will be sized as per IFI recommendation to allow for the retention of existing riparian features and avoidance of impacts on the bed of the river. Best practice measures will be employed to prevent accidental spillages, disposal of concrete etc and the works will be scheduled to avoid the salmonid spawning season.

Appropriate mitigation measures (physical and chemical controls) will be employed to control and prevent the spread of invasive species. These species are highly invasive and out-compete native flora to form single species stands. Its presence along watercourses is particularly significant as contaminated soil or vegetative material washed from an infected area can result in the spread of the species downstream.

Standard mitigation measures apply for bats and these are detailed in the EIS . These include limiting season of disturbance of trees/vegetation so as to reduce impacts on breeding species, habitat replacement and implementing measures to avoid and/or control pollution and sedimentation into watercourses during construction and operation phases. Specific measures will be required to protect bats on-site and pro-active enhancement measures are also recommended in relation to the improvement of bat habitat along the route. The disused school at Lurgan/Shindilla requires demolition and to mitigate the loss of the roost, two Schwegler bat boxes will be erected in the immediate vicinity one month prior to the demolition. Works to the building and to bridges, which could be potential bat roosts will be carried out under the supervision of

a bat specialist. Trees to be removed shall ideally be felled in the late August-early November in order to avoid the disturbance of roosting bats. Trees to be retained in the vicinity of the alignment shall be protected during construction. There will be no permanent lighting installed outside existing lit area and best practice will aim to retain the quality of the landscape where possible and to provide habitat replacement. The success of the mitigation measures will be monitored for three years after construction

The material deposition areas and peat restoration areas have been established following consultation with NPWS and IFI. None of the facilities will be provided in lands covered by designations or that host sensitive habitats. The material deposition areas are small to medium sized areas (Table 12.51) where materials unsuitable for engineering purposes will be deposited to heights of up to 2m. Some of the areas also coincide with rock cut areas, which will be excavated for construction materials and will be refilled with unacceptable material. Where these areas are in proximity to the road they will be reseeded with a verge grassland mix as detailed. None of the areas lie within the freshwater pearl mussel catchment.

Details of the two peat restoration areas are set out in Table 12.52. These areas have been selected in areas of cut-over bog where the contours indicate that there is potential for these areas to accept peat material. The overall aim for these areas is that measures will be put in place (such as blocking drains) to try and maintain a water environment conducive to the establishment of a wet peat habitat that will encourage natural colonisation by peatland vegetation. In addition to blocking the drains, to provide wet and humid conditions for the regeneration of Sphagnum moss it is proposed to mulch the cleared surface vegetation from cutover bog in the vicinity and distribute it over the finished peat surface. This approach will minimise the drying out and oxidation of the surface peat making the conditions less favourable for colonisation by *J.effusus* vegetation. It is expected that restoration areas will be re-vegetated initially by early colonisers from the peat seed bank. As the hydrology stabilises it is expected that the Sphagnum species etc will play an important peat forming role.

Mitigation measures for the protection of habitats are provided in Tables 12.54 to 12.69. The overall aim is to avoid sensitive habitats. Mitigation measures for species are set out in Tables 12.59 to 12.62.

Potential residual impacts on each of the Natura 2000 sites within the vicinity of the proposed development are discussed in Section 12.7 of the EIS. It is concluded that the impacts on the three designated sites would no longer be significant on an international level. This is because the Specimen Design has been developed with an overall objective of minimising the impact on ecologically sensitive sites. The proposed road widening works has been designed on the least ecologically sensitive side of the road, where practicable based on environmental surveys and consultation with statutory bodies including the NPWS. In addition, access to the habitat will be restricted outside the land take of the road, which will be fenced off prior to site clearance. Finally detailed mitigation measures on pollution prevention in watercourses outlined in Section 14.5 will significantly reduce the potential impacts to the qualifying species of the site.

13 Soils & Geology – Trial pits, boreholes and other ground investigations were carried out to assess overburden and bedrock characteristics and to assist in the assessment of the material deposition and peat deposition areas. The data was used in conjunction with

other existing data sources to confirm existing soil and rock types and characteristics present along the N 59 road development.

The proposed road development is underlain predominantly by marble and granite, with quartzite's, gneisses and schist also underlying the alignment (Drawing No GC094741-16-18144). Rock in the region tends to be relatively shallow and highly variable in profile. Rock was encountered in 67% of the trial pits and boreholes and of these 50% encountered rock within 2m of the surface. Only 5% encountered rock at greater than 5m depth below surface. The majority of the rocks are typically massive,displaying poor bedding, discontinuities of foliations in their structure. Based on the review of the rock type, mass jointing and mechanical characteristics, rock excavations in two new cuttings will require drilling and blasting with the remainder of rock excavations being performed by mechanical breaking methods (hydraulic hammer).

There are numerous small quarries along the existing N59, which have been used for abstraction of rock materials for road construction. Table 13.2 lists the locations where such quarries have been quarried more intensively as part of commercial operations and those that have been noted as having specific mineral contents. The region is also known for producing Connemara Marble for decorative residential and ornamental use. Glengowla Mines is approximately 300 m south of the development and was worked in the past for lead, copper, zinc and silver. It is now open to the public as a show mine and is a designated County Geological Site and is also proposed as a NHA, as identified in consultations with the GS1 (Table 13.3).

The majority of the site and surrounding area is covered by a relatively thin blanket of peat deposits. Ground investigations revealed near surface deposits and depths of no more than 2m with only a small number of trial pits/boreholes indicating thickness exceeding 3.5m below ground level. The maximum thickness encountered was 4.4m (Ch 261+700 to 262+100) between Shannakinlougha and Letterfore. Peat soils sitting directly on rock, steep or even moderately shallow slopes may be susceptible to instability. No instances of peat or debris slides have been recorded along the existing N59 or the nearby hillside. Glacial soils were most noticeable between Ardderry Lough Bridge to Bunnakill and from Lettrfore to Glengowla. GS1 mapping suggests that only 2km of the 15km route contains glacial till directly below surface topsoil.

In terms of predicted impacts the proposed N59 alignment will have several impacts on soils and geology. The majority of the earthworks impact relate to moving soil and rock materials to allow the construction of the road development, requiring the excavation of hard and soft materials, replacement, deposition and compaction of acceptable fill materials and disposal of unacceptable material. Table 13.4 details the earthworks quantities. It is estimated that 233,839 m2 of material will need to be imported onto the site. With abundant sources of rock and numerous quarries operating in the region, the availability and demands of such resources and import fill will have a 'Permanent Moderate Adverse" impact.

The presence of soft ground over much of the study area requires that significant quantities of material, primarily peat, be excavated and replaced below the earthworks outline to allow for construction of adequate road foundations, creating significant import and export volumes. It is estimated that approximately 196,320 m3 of soft ground would need to be disposed of (Class U1 material). There is an abundance of these soils in the locality and accordingly the impact is considered, in a worst case scenario, where all excavated peat is disposed of off-site, the impact is assessed to be

'Permanent Moderate Adverse'. However, it is possible to reduce the overall volume and hence the level of impact (as discussed below).

Impacts will also arise from transporting the peat some distance from the proposed N59. The level of impact will vary depending on the construction programme and travel distances required. Permanent disposal sites may also require licensing as landfill facilities. The overall potential of disposing large volumes of unacceptable material from the road development to off-site locations is likely to constitute a 'Permanent Significant Adverse' impact on these sites. However, the impact can be mitigated by measures to reduce the volume of peat to be disposed off site.

Where possible, excavations in rock were avoided by modifications to the horizontal and vertical alignment. Where not possible, the occurrence of rock close to the surface will involve regular breaking or ripping of minor rock volumes to allow construction. In the majority of cases blasting will not generally be required. Details of the locations of proposed rock cutting are listed in Table 13.5. No impact on the Glengowla Mine is foreseen. The orientation of the shafts and distance to the proposed N59 are such that the proposed development does not affect the mines.

Measures to mitigate and avoid impacts are detailed in Section 13.5. Where possible the requirement for rock cuttings was avoided and this was achieved through the mainly online upgrade of the N59. In off line locations where rock was found to be close to the surface, it was generally avoided by minor modifications to the vertical/horizontal alignment. The review of the rock cuttings on the existing N59 identified that one side of the road generally has favourable dip and strike while the other has unfavourable orientations for road widening under the N 59 road development. To avoid impact on slope stability where possible, the proposed N59 road alignment has been widened towards the favourable side. Adequate wider verge width has been provided in locations where such instability is already evident and requires re-grading.

To reduce the overall earthworks requirements, the design of the proposed N59 has followed the existing carriageway where possible. As a result approximately 70% is in the same plan location but is either significantly above or below the existing carriageway levels, such that permanent overlay construction is not feasible. In addition, a 'Floating' cycle track is to be provided, which will minimise disturbance of soft ground/peat deposits. Its construction will increase short-term stability and locally reduce differential settlement.

Five areas have been identified that can potentially be used as a source of fill and can also be used to deposit peat and unacceptable soil (Figure 13.2). The location of these Material Deposition Areas is shown on Drg No GC094741-16-18123 to 18125. The five areas could facilitate abstraction of approximately 42,000 m3 of soil and rock material (Table 13.6). The areas also faciliate the permanent storage of c 83,000m3 of unacceptable soil in bunds or general landscaping above ground. This would reduce the magnitude of the impact associated with transportation and disposal to landfill or offsite disposal areas.

In addition, 2 No. peat restoration areas area proposed for the permanent storage of peat. The peat storage areas, referenced as PR01 and PR02 have become depleted following years of abstraction and now potentially offer up to 117,000 m3 storage. It is proposed to design these two areas to act as peat lands, with drainage design targeted at maintaining a wet habitat once peat surface and vegetation has re-established.

The fill material borrow and peat deposition/restoration areas provide that the net volume of soft ground which would require off-site disposal to landfill will be eliminated since disposal volumes (196,000 m3) would be exceeded by available storage (200,000m3). The elimination of off-site disposal will reduce the magnitude of impact of disposal from 'Permanent Significant Adverse' to 'Permanent Slight Adverse' impact. Development of the two peat restoration areas is expected to have a 'Permanent Slight Beneficial' impact on the peat soils.

Whilst the avoidance and mitigation measures help to reduce the environmental impact of the project, the residual impacts continue to include

- the need for multiple rock cutting several of which will require breaking, ripping and/or split and blast techniques. The proposed measures help to either avoid the need for such methods at several locations or else minimise their occurrence. The residual impact will be 'Permanent Slight Adverse'.
- extensive excavation/replacement of soils, for which fills imported or sourced from many borrow bits will be required impact. The proposed measures help to reduce the import requirements. The residual impact will be 'Permanent Moderate Adverse'.
- the potential need to dispose of unsuitable materials off-site. The proposed measures help to reduce these requirements resulting in impacts ranging from a 'Permanent Slight Adverse'.

14 Surface water (Hydrology) – The road passes through three principal catchments as summarised in Table 14.6 and shown on Drawing No GC094741-16-18149. These include the Screebe, Owenree and Owenriff, which are described in Section 14.3.6. Over 100 lakes have been identified within the three catchments and 10 of these lakes/ponds are located immediately adjacent of the proposed N59 road development alignment (Table 14.3).

This section of the N 59 crosses 35 No. surface water bodies from small drains to reasonably large rivers and lakes. The majority of these crossings lie in the Owenriff river catchment (29 No), while the remainder lie in the Screebe (5 No) and Owenree (I No). The majority are on-line at existing structures, which will be retained, modified or replaced. Due to the widening works most of the existing culverts will need to be extended or if deemed inadequate, replaced. A total of 7 new culverts will be required as part of the off-line sections of the proposed road.

Along the entire route the watercourses generally rise to the north of the road flowing southwards with a few exceptions. Many of the watercourses to be crossed outfall to one of the lakes that characterise the landscape adjacent to the N59. Details of the 35 No. water crossings are provided in Table 14.17 which includes comprehensive data on catchment type and area, estimated mean annual flood flow, estimated low flow, Q-value and the watercourses ecological evaluation.

Section 14.3.8 considers the existing and potential for flood risk associated with proposed N59 alignment. Whilst areas east of Arderry Lough are prone to flash flooding due to high run-off from the hilly terrain, the reported incidences of regular extensive road flooding instances are relatively few. Potential sources of flood risk to the proposed N59 road development are identified in the EIS as watercourse crossings and bridges and culverts, river reaches and floodplain areas, lakes and runoff from hillside slopes. The proposed road development includes some minor filling/embankment works

within lakes and floodplains associated with the on-line widening of causeways and shoreline roads on the existing road. The loss of storage associated with these works relative to the vast storage of the affected lakes is such that the increase in flood risk is 'Imperceptible'. The proposed embankment works being porous will reduce the loss of storage and allow for on-going passage of water through the embankments.

There are no filling works proposed within the effective floodplains of rivers and therefore no impact is foreseen on river floodplains. The section of the road development alignment at Derryerglinna is located at the base of a steep hill slope and would be potentially prone to temporary pluvial flooding from sheet flow directly from the hillside. It is proposed to construct flood relief/overflow culverts in this area to reduce the flood risk to the road to an acceptable level. The review of the OPW flood database identifies 7 no. locations of recurring flood or high flood risk. Table 14.4 identifies the location of flooding events, the flood source and mechanism and provides an assessment and a proposed mitigation where one is required (Drawing No GC094741-16-18152). Low flood data from the EPA Hydrometric Data System is summarised in Table 14.15

The drainage system along the existing N59 is direct discharge to lands or roadside open drains via 'over the edge' /grass margins and no specific attenuation or outfall control to receiving waters is provided. Considering the high sensitivity of some of the receiving waters and the Freshwater Pearl Mussel and salmonid habitats downstream of the development, an upgraded drainage system will be provided. The proposed system includes roadside vegetative/grassed channels, which provide a level of attenuation. The grassed channels discharge to a system of roadside open drains and constructed linear wetlands which are designed to remove road pollutants from run-off in addition to providing emergency storage in the event of a fuel spill. The drainage system will provide sufficient attenuation to mitigate any potential flood risk and channel morphology impact making the relative impacts from all the proposed outfalls imperceptible. A total of 15 No. outfalls are proposed and the locations are shown on Drawing No GC094741-16-18153. Details of the outfalls, their locations and receiving waters are presented in Table 14.18.

The outfall discharges and the magnitude of impact on the receiving watercourses have been assessed using flood flow estimation methods, stream channel capacity assessment and evaluation of the importance of the attribute. The potential impact with regard to flood risk in considered negligible for 11 of the outfalls. The remaining outfalls 4 outfalls discharge to streams that have catchments less than 5 km2 and two of which are expected to either frequently dry up or have insignificant base flows.

The materials deposition areas will be within engineered bunded sites with associated run-off being drained to settlement ponds which ultimately outfall to surface watercourses. Due to the nature of the regional bedrock characteristics, in general, there will be little opportunity for the water arising from the deposited peat to escape to the aquifer. The pit will act like a settlement pond with the surplus water from the deposited peat being decanted by surface drains which discharge to road drainage deposited. Cut off drains will prevent surface water from surrounding land from entering the pits and preventing effective recovery of the pits.

The peat restoration areas will be located close to Maam Cross in cut over bog areas. A bund system will be constructed around the site with restricted drainage by blocking existing local drains. The excavated peat will be deposited at the sites to levels matching

the original ground level of the area, filling up the various depressions left from cut away activities. A 25m buffer to watercourses will be provided. Water levels in the bunds will be controlled by a high level overflow weir and penstock system that discharge to settlement ponds which ultimately outfall to surface water.

Surface water quality is discussed in Section 14.3.12. The EPA data from the 5 No. water quality monitoring stations located adjacent/downstream of the road scheme indicate that the water is unpolluted (Q4-Q5). Surface water quality sampling was undertaken at four locations to assess physic-chemical conditions within the sub-catchments traversed by the proposed development. The watercourse sampling locations are given in Table 14.23A and the results (Table 14.23B) reflect generally unpolluted watercourses.

The trophic and ecological status for 7 No. lakes within the study area (Table 14.24) are summarised in Table 14.25 and Table 14.30. There are 17 No waterbodies/sub catchments traversed by the proposed N 59 which are included in the River Basin District projects, which have been assessed on the likelihood of achieving an objective of 'good' status by 2015 as per the WFD and these are detailed on Table 14.29 & Table 14.30.

There are a number of aquatic ecological sites of interest adjacent to the proposed N 59 development (Table 14.32). The road is also bordered by three Natura 2000 site. The key ecological receptors at risk of hydrological impact are detailed in Table 14.34 and include habitat and species.

Construction activities within and alongside surface waters can contribute to a deterioration in water quality, can alter the stream bed and bank morphology with the potential to alter erosion and deposition rates locally and downstream. The predicted impacts on surface water associated with the construction phase are set out in Section 14.4.2 These include contaminated surface water run-off to watercourses arising from elevated silt/sediment loading, spillages of concrete and other cement products, accidental spillages of hydro carbons, release of chemical contaminants and faecal contamination from inadequate of on-site toilets and washing facilities. Activities within or near the watercourse can lead to increased turbidity through re-suspension of bed sediments and release of new sediments from earthworks. In-stream works can potentially represent a severe disruption to aquatic ecology. The run-off from peat extraction, its transport and disposal, which will be extremely prevalent along the proposed N59 road development, can be highly concentrated with fine (light) organic sediment, which is readily suspended and mobile and can lead to excessive deterioration of water quality in receiving waters and also represents a severe disruption to aquatic ecology.

The general impacts during the operational stage include permanent interference with river, stream, lake causeways and floodplains at water crossing points. Bridges/culverts which area not properly constructed can cause obstacles to flow and increased flood risk as a result of backing up of flows. Inappropriately designed structures can locally alter bed levels and channel dimensions resulting in changes in flow velocity and water depth which can during low flow conditions act as a barrier to fish passage. These structures can also result in localised bed and bank erosion resulting in long-term changes to the morphology and ecology of a stream channel. Other potential impacts include removal of flood storage as a result of encroachment on a floodplain, diversion of water between drainage catchments as a result of the proposed realignment, interference with local

drainage network, increased run-off to watercourses due to the impervious nature of the road and water quality impacts on receiving watercourses from routine road run-off. Road drainage and associated storm outfalls may provide a direct pathway for contaminants from accidental spillages. Salt and grit applied to road surfaces may result in localised increased salinity, pH etc which can alter the ecological balance of the aquatic system and increase the bioavailability of chemical contaminants.

Section 14.4.4 sets out site specific impacts of the construction and operational phases of the development. The potential operational and constructional impacts and significance are quantified under the heading of watercourse crossings, channel diversions, road realignment adjacent to lakes and watercourses, storm drainage outfalls, water dependent ecological habitats and on-site unacceptable material.

Watercourse crossings - The potential impacts on the 7 No. off-line and 28 No. online watercourses in the absence of mitigation during the construction and operational stages is presented in Table 14.44 (Appendix 8). It is recognised that the on-line as well as the off-line watercourse crossings may give rise to potential construction and operational impacts. Potential construction impacts will be associated with direct discharge of silts/sediments and the risk of contaminants from accidental oil spillages, release of concrete etc. During the operational stage impacts could include potential changes to flow regime, changes to morphology of channel etc. The text of the EIS provides an assessment of each of the watercourse crossings and it is concluded that unmitigated impacts during construction will range from be short term slight to short term significant. During the operational stages the impacts are considered to be negligible but with potential for short term slight to moderate impact arising from localised changes in channel morphology.

Channel diversions - The potential for interference with drainage paths has been minimised by closely following the existing alignment. Due to the extreme sensitivities associated with the existing environment, the proposed strategy is to preserve existing watercourse crossings as far as possible, with diversions and truncations being avoided in order to prevent any significant changes to the existing hydrological regime. A number of existing watercourse structures will need replacement due to either structural considerations or hydraulic capacity considerations. While minor channel works will be required associated with new and upgraded culverts these works will not change the hydrological regime of the associated watercourse.

One section of unavoidable watercourse diversions has been identified between Ch 268+400 and 269+100 involving a series of road side channels and minor streams to faciliate road widening outside of the adjacent Lough Corrib designated lands. The diversions which are immediately upstream of the SAC, discharge to the Owenriff River and its tributaries. The Owenriff is an internationally important habitat for freshwater pearl mussel. Strict construction phase mitigations will be provided to prevent water quality contamination of the downstream cSAC. There are other small or minor streams and drainage channels that will require lateral relocation of channels to faciliate construction of widened road embankments or realigned sections which will not cause a permanent impact but which will require strict construction phase mitigations to prevent water quality contamination of downstream designated areas.

Impact of road alignment adjacent to lakes and watercourses - The hydraulic impact of the sections of the development located adjacent to lakes and watercourses is considered in Page 418 of the EIS. Approximately one half of the scheme lies adjacent to lakes (7.2

km) with 1.9 km located within 50 m of lakes shores. It runs immediately adjacent to the Owenree River between Ch 260+900 to 261+080 (i.e less than 10m from the proposed road edge and close to the Owenriff River Ch267+000 to 267+220 (40m at its closest to the proposed road edge). In general the proposed alignment follows the existing alignment or is aligned away from the lake shore. However, at Lough Agraffard, a section will realign 25m closer to the lake but the disused railway embankment will remain a buffer between the road and the lake shore.

The existing road alignment crosses a section of Lough Ardderry via a causeway. It is proposed to continue to use this causeway structure with minimal road widening works. However, the existing watercourse structure under the causeway has been assessed to be structurally unsound and will be replaced as part of the road development. The works along the causeway over Lough Ardderry include road widening which will involve encroachment into the cut off portion of the lake (not within the main body). These works will require site specific construction phase mitigations to prevent a temporary significant hydrological water quality impact on the lake system.

The potential hydrological impact associated with the road development adjacent to lakes and water courses is the increased risk of water quality contamination from accidental fuel spillages and the lack of a buffer zone area between the road edge and the shoreline. The road drainage system will also be implemented along these sections with added precautions to include a raised edge on the lakeside of the channels which prevents direct overflow from the channel to the lakes and the provision of a sealed channel sub-base which prevents road run-off from percolating through the causeway embankment into the lake.

The potential impact of routine run-off represents a small to moderate local impact on water quality in the receiving environment. Given the sensitivity of the lakes, in the absence of mitigation the residual impact would be considered to be significant with a rating of small adverse. The proposed road channel incorporates an improved drainage system using grassed road channels, linear wetland areas and ponds which will provide a primary and secondary treatment of road run-off and containment that will intercept any accidental spillages preventing water quality contamination.

It is concluded that the low traffic volumes combined with the proposed density of discharge points and the improved drainage system and road alignment will reduce the permanent hydrological impact rating of the road development associated with both construction and operational stages adjacent to lakes and watercourses to imperceptible and is considered to be an improvement over the existing scenario (an impact magnitude of negligible to minor beneficial). The EIS provides details of the hydraulic impact of the proposed N59 road development on each of the lakes, ponds and water courses in the absence of mitigation, which is summarised in Table 14.42 included in the appendices and summarised in the main text.

Impact of storm water outfalls - The impact of storm drainage outfalls is considered in Pg 421. There will be 15 No. separate storm outfall discharges along the road. All will discharge to surface waters with the hydrological conditions of poor permeability soils, high water tables and poor/impervious bedrock, which means that the option of percolation to ground is not feasible. The outfalls have the potential to adversely impact on water quality arising from routine contaminant and large liquid spillages as a result of an accident. They also have the potential to impact on the flood and morphological regime of the receiving waters by increasing run-off due to the increased impervious

area and conveying and concentrating flow to single point locations and potentially increasing the volume of discharge during storm/flood events.

The current drainage regime along the existing road is over the edge runoff to either infiltrate to ground, discharge to land, to road side channels or directly to watercourses. No engineered attenuation exists along the existing road. The proposed road drainage system will use vegetated grass channels to convey road drainage waters to the proposed outfalls and a linear wetland will be incorporated upstream of the outfalls to provide additional treatment and a containment volume in the event of a serious spillage.

The predicted impact of storm discharge on flooding and channel morphology is examined on Page 422 of the EIS. The 15 No. outfall discharges and the magnitude of impact on the receiving watercourses is assessed using flood flow estimation methods, stream capacity assessment etc. Nine of the proposed outfalls will discharge directly to lakes either vis existing open drains or proposed channels and pipelines. Two of the proposal outfalls will discharge to open drains immediately upstream of river channels (Owenriff River) and in these cases the potential impacts regarding flood risk is considered imperceptible. The remaining four catchments will discharge to stream that have catchments of lees than (5 km2). The proposed scheme, will reduce the flood risk associated with storm run-off as the existing road does not have a purpose built attenuation system. The proposed system will provide sufficient attenuation to mitigate the potential flood risk and channel morphology impact thus making the relative impact from all the proposed outfalls imperceptible.

Impact of routine run-off - It is noted in the EIS that research has found that a broad band of potential pollutants are associated with run-off from road schemes arising from traffic and road maintenance. These can include heavy metals, hydrocarbons, suspended solids, de-icing agents etc. In terms of potential impact on receiving waters research has found that the first flush (10-15mm) can produce elevated concentrations locally in receiving water. The impact of contaminants within routine road runoff depends on the loading (associated with traffic numbers) and the available dilution in the receiving waters. The pollutant load will be low given the relatively small traffic volumes and the density of proposed outfalls (I No outfall per km of road). It will be further reduce by the provision of a sustainable drainage system. The proposed road scheme is expected to lead to an improvement in the receiving water quality over the existing scenario which has no specific storm drainage attenuation, primary and secondary treatment and containment system.

The risk of serious pollution to both surface and groundwater from accidental spillage is a major issue with road infrastructure projects. Predicting the risk is difficult but the risk is influenced by the type of road, length of road, traffic volumes etc. It is predicted that the spillages risk associated with the scheme will be very low. However, given the sensitivity of the watercourses adjacent to the road development and the designation of much of the study area in general as SAC, spillage containment will be provided on all outfalls. Each constructed storm drainage wetland area will have a minimum storage capacity of 50m3 and be fitted with an outlet penstock which will act as an emergency spillage containment system, that will reduce the overall potential spillage impacts from the N59 to negligible.

Hydrological impact of material deposition and peat restoration areas -The materials deposit areas have a potential to adversely impact water quality in adjacent watercourses

by the discharge of sediment and silt laden run-off. Such sediment and silt may settle out in in lakes etc and impact on internationally important habitats, such as freshwater pearl mussel and salmonid habitats. The outflows from the proposed material deposit areas and peat restoration areas all discharge to small drains that eventually outfall to Ardderry Lough. The construction of these areas and their initial operation until re-vegetation, stabilisation and drying out of the peat represent a potential temporary significant impact on the water quality of this Annex 1 habitat.

Hydrological Impact on ecological receptors - All of the rivers and stream within the N59 road development flow into the Natura 2000 sites and any pollution incidences to these watercourses will also enter these designated areas. The impacts can arise during both the construction and operational stages of the scheme. The predicted hydraulic impact on the ecological receptors in the absence of mitigation is set out in Table 14.45.

Measures to mitigate impacts are detailed in Section 14.5 of the EIS. It is noted that all potential moderate to significant impacts to watercourses and lake system are associated with the water quality impacts during the construction stage and for a short period of establishment post construction and are temporary in nature. The operational impacts of the scheme after being designed out represent slight to imperceptible impacts not requiring further mitigation. The drainage system proposed is an improved system that will provide better protection to the receiving waters with containments facilities provided should a serious traffic accident spillage occur.

The main focus of hydrological mitigation is the construction and establishment phase. The Owenriff system comes under special consideration, as it is a designated fresh water pearl mussel system. The peat recovery and material deposit and borrow pits have been located out of the Owenriff system so as reduce risk to the species. A detailed and comprehensive erosion and sediment control and management plan has been prepared for the entire scheme (Appendix 5A). It will be included in an Environmental Operation Plan (EOP) which will also include emergency response procedures in the case of accidental spillages etc and take cognisance of best practice documents. Other measures will include careful siting of compounds, controls on foul drainage, storage of hydrocarbons and other bio-hazardous materials etc,

During operation the new drainage system will reduce water quality impact on all sensitive watercourses to a scale of negligible to minor beneficial impact. The proposed system of vegetated channel and linear wetlands for treatment purposes will naturally attenuate storm run-off. Attenuation of the storm flows as a flood mitigation measure will not be required. All culverts and bridges are designed to prevent permanent impact to the river morphology. This will be achieved by ensuring that the river width is not exceeded or contracted by the proposed structure. All culverts/bridges are designed to maintain or improve on existing provision for both aquatic and mammalian species and to maintain the existing riverbed as far as possible. The main source of floodplain storage loss is the widening of the causeway across Ardderry Lough. Compensation storage is provided and no mitigation measures are proposed as the impact on flood risk and flood storage is negligible.

Surface water run-off will be diverted away from the proposed material disposal and peat restoration sites by the provision of temporary cut-off drains/permanent diversion channels. The areas will be completely bunded off the prevent run-off from the sites discharging to water courses. Surface water outlets from these bunded areas will be controlled and pass through settlement ponds with outlet screening (silt curtains) prior

to discharge to receiving waters either through a system of open drains or surface diffusion onto existing cutover bog areas.

Predicted residual impacts are discussed in Section 14.6 in the context of water quality, flood risk, aquatic ecology and morphology. No negative residual impacts to water quality are anticipated where all the mitigation measures are implemented. The classification status of the receiving waters are likely to remain as they currently are. It is expected that surface water quality will improve over time due to the improved drainage system. This will therefore comply with the objectives of the river basin management plans. The proposed material deposition and peat restoration areas will be designed and maintained with settlement ponds and screening systems which will ensure that there are no negative residual impacts on water quality associated with these sites.

The road development will require that the majority of the existing watercourse crossing structures will be extended to facilitate on line widening. The existing watercourse structures found to have less than the proposed design flow capacity (i.e. a 100 year flood with a climate change allowance and appropriate freeboard) were identified and these structures will be replaced. Seven additional culverts will be required. The culverts are designed to appropriate flow capacities and no negative residual impacts on flood risk due to loss of conveyance is anticipated. Whilst the development will involve an increase in impermeable area, the new drainage system will mitigate the potential impact on the flood regime in receiving watercourses. The impact on flood storage arising from loss of flood storage associated with works in lakes is expected will be negligible due to the extensive areas and volumes of the lakes in comparison to the loss of storage volume. No loss of river floodplain storage is envisaged as part of the road development.

One of the primary constraints on the road development is the sensitivity of the internationally important receiving waters and water sensitive habitats that lie adjacent to the road. Strict mitigation measures will be put in place for both the construction phase and by design in the operational stage and the Preliminary Erosion and Sediment Control Plan to ensure the impact of the road scheme on aquatic ecology will be negligible. No negative impacts on the river, stream or lake morphology are anticipated provided the mitigation measures in respect of culvert and watercourse diversions etc are implemented.

The residual impacts on hydrology from the scheme have been reduced to slight and imperceptible. The cumulative in-combination impacts from other schemes such as the Connemara Greenway and the ESB 110 Kv Reinforcement project will not significantly alter the rating of impact by the project.

15 Groundwater – This part of the EIS seeks to assess and evaluate the proposed alignment in relation to hydrogeology. The majority of the road development comprises on line road improvements and widening with some short sections of re-alignment. There are 21 No. areas of offline, cut and fill works with the most significant sections located at Lurgan, Lettermore and Glengowla West. It is expected that the greatest hydrogeological potential impact will be associated with these greenfield undisturbed areas and that the online sections generally involving slight widening and regarding works will have the least impact on hydrogeology and hydrology of the area.

Four soil types are traversed by the proposed alignment. The subsoil type is predominantly either Metamorphic Rock Till, Granite Till or Blanket Peat (Table 13.2). Blanket Bog and cutover bog are located along the majority of the proposed alignment. These are very soft and are unsuitable for use as earthworks during construction. The subsoils encountered during geotechnical investigations include made ground and fill (in existing roads), peat layers, alluvium, glacial till and bedrock. Groundwater was encountered at numerous test sites ranging in depths from at ground level to 8.0m below. The GS1 geological maps identify four main rock units (Table 13.3) traversed by the alignment. The proposed alignment passes through an area with a number of fault lines and 10 no. mapped faults are crossed by the alignment (Table 13.4). There is no evidence of major groundwater flows associated with the fault lines nor the presence of springs issuing from the bedrock.

The entire aquifer traversed by the alignment is classified as a Poor Aquifer-Bedrock which is generally unproductive except for Local Zones. There are 3 No separate hydrogeologically defined groundwater bodies traversed by the proposed alignment and these include Oughterard Marbles, Recess Marbles and Maam-Clonbur (Drawing No GC094741-16-18156 and Table 13.7). Each of the three areas are considered in more detail in Section 15.3.5 in terms of overlying strata, bedrock geology and aquifers, groundwater vulnerability, surface water/groundwater interaction, recharge, groundwater flow and storage discharge and hydrochemistry and presence of karst features.

A number of ecological sites (Table 13.10) were identified where alterations to the hydrological and hydrogeological regimes may potentially occur due to the proposed road development. The road works that pose the greatest risk to the regimes include cut sections and deep excavation, fill section and replacement sections which could lead to dewatering of nearby groundwater sensitive ecological habitats.

No karst features were identified along the alignment and the nature of the bedrock underlying the scheme is not conducive to the formation of karst features. Two geological heritage sites have been identified in the area of the proposed development and these include the Glengowla lead mine and the Owenriff Falls (Drawing No GC094741-16-18144).

Groundwater vulnerability is discussed in Section 15.3.9. GSI vulnerability mapping in conjunction with site investigation data for the road was used in the preparation of vulnerability mapping for the scheme presented in Drawing No GC094741-16-18157. It is concluded that for the majority of the proposed alignment that the groundwater vulnerability is High to Extreme due to the shallow depths of overburden (mostly peat) and rock outcrops with short sections of moderate to low vulnerability in deep peat and silt deposits.

Seven significant cut sections (> 1.5m deep) and 20m in length are proposed and are associated with the off-line alignment and widening at existing cuttings. The maximum cut depth proposed is 6.9 m below ground level associated with a 0.62 km offline/realignment section at Glengowla (Ch 266+570 and Ch 266+920). The removal of a depth of subsoil will have a localised effect on the groundwater vulnerability rating, as the pathway for the migration of contaminants is shortened. An assessment in relation to the hydrogeological aspects of all significant cut sections was undertaken (Table 13.13). High water tables (<0.5 m from the surface) is expected to be encountered at four cut sections (CS3, CS4, CS12 & CS13) and to a lesser degree at

CS1,CS6 and CS8. Two of the proposed cut sections will be traversed by fault lines (CS9 and CS20 and there is a potential for groundwater flow to be encountered in these areas.

In terms of water supply the area in general is not served by either public or large water water supply schemes. Other than those supplied by the Oughterard Regional Water Supply (between Derryerglinna to Oughterard), the majority of properties are supplied either by gravity flow from local surface water stream and lakes up gradient from the proposed road development or from springs, spring wells and private bore holes. Due to the unproductive nature of the bedrock, it is likely that the springs or wells are either from surface water supplied indirectly or weathered bedrock layers. The Oughterard Region Water Supply Scheme extends westwards from Oughterard to Derryerglinna supplying the Glengowla, Knockbaun and Derryerglinna Group Water Schemes. There are no source protection areas mapped for the region.

Groundwater level monitoring was carried out in three locations. A detailed hydrogeological involving the assessment of five sites either in blanket bog or cut over bog and located adjacent to existing road and open drainage features commenced in May 2012. Groundwater tables/piezometric levels at the bedrock interface and within the peat layer and for setbacks for the existing road drain of 1, 3 and 8m were monitored. The observations show no drawdown influence from the road or side drain with full recovery of the water table within 1 to 3m of the drain and water table gradients following the topography. The monitoring indicates that water table gradients within the peat are dominantly influenced by recharge from the upstream catchment and that the downstream influence of the existing road and/or drainage channel is disconnected with no perceptible impact beyond 1-3m of the drain edge.

Construction impacts – Temporary dewatering will be required in cut and other deep excavation areas. More extensive dewatering may be required in areas where there will be cut below the water table. Where local shallow dewatering is required the impacts will be mainly local and on subsoil deposits. The zone of influence is unlikely to extend beyond 3-5m from the excavation and within the land-take boundary. The piezometric testing carried out showed that no influence on water tables within the peat was detectable beyond 1-3m of the drain edge at the test locations (Appendix 9B). The significance of this impact is considered to be Slight Negative Temporary Impact.

Dewatering associated with high groundwater table will be required at six cut sections namely CS1, CS3, CS4, CS6, CS12 and CS13. The impact will be confined locally at the cut section given that the aquifer is a poor non-productive aquifer and will therefore have an imperceptible impact rating on the groundwater body and the integrity of the European Sites. The impacts will be slight local temporary negative impact on the quality of the groundwater resource.

During construction the potential exists for impacts on ground water quality i.e. arising from spillages, leakages, storage of excavated material etc. As all of the aquifers traversed by the scheme are Poor Aquifers, the impact is rated as a potentially slight temporary negative impact on the water quality of the groundwater resource.

Operational impacts – The main potential impact on water quality during the operational phase will be from contaminated road run-off. This could be in the form of petrol or diesel from accidents or leakages from cars. The significance of the impact on the water quality will depend upon the thickness and permeability of the unsaturated

zone and whether the road is in cut or fill. The nature of the overburden and the underlying poor aquifer with raised water table make such contamination very immobile and therefore will remain local to the source. Although the road development is likely to encounter bedrock at 14 No. of the 25 No. significant cut sections, the aquifer is classified as unproductive except in local zones and consequently the significance of the impact on water quality is rated as imperceptible.

During the operational phase, the impacts would be from the presence of the proposed alignment through cuts in the aquifer. By removing parts of the aquifer permanently, groundwater within the system is being removed through drainage and the aquifer storage potential is being reduced. Where the road runs through a deep cut in the aquifer it may act as a barrier to the groundwater flow regime. Cut sections have the potential to impact on the level of the groundwater table in the surrounding area as well as to cause deterioration in aquifer water quality. The main impact targets would be water supply springs, wells and boreholes as well as any nearby wetland habitat features. Cut sections travelling traversing hydrologically sensitive areas have the potential to cause an impact on the hydrological regime.

In areas of small cut which are above the water table, the significance of the impact of the groundwater resource during the operational stage would be imperceptible. The significance of the impact associated with the deeper cut sections has been rated as imperceptible as the aquifer is poor and generally unproductive and the amount of aquifer storage that will be removed is negligible when compared with the aquifer extent. There will be groundwater seepage from the aquifer in deep sections of cut which will ultimately discharge to surface water through the drainage system. The drainage system will easily accommodate such seepage flows given the unproductive nature of the bedrock aquifer and imperviousness of the overburden. The impact is rated as a slight permanent negative impact, which will not impact on the integrity of any European site. No major regional or group water scheme groundwater supply sources or source protection zones were identified along/in proximity to the proposed road alignment.

The Aquifer Classification along the proposed route has been combined with the groundwater vulnerability assessment based on depth and permeability of overlying subsoil, to highlight any significant changes to the risk of impact to the hydrological regime (Table 13.20). In general, the impact on the aquifer due to the proposed cut sections is categorised as very localised imperceptible to slight. Eight private groundwater supplies have been identified within 150m of proposed cut sections (Table 13.19). Four of these supplies are domestic and four are land supplies. The cut sections are generally shallow (< 1.5m) and unlikely to impact on the aquifer.

In the absence of adequate culverting of surface water channels and floodplains through road fill embankments, there is a potential for upstream flooding which could lead to the spread of potentially contaminated surface water (arising from landspreading, farmyard wastes etc within the area). Part of these flood waters would eventually infiltrate into groundwater via the subsoil and impact on the groundwater body supplying base flow to streams and water supplies. The impact is rated as imperceptible due to the nature of the underlying bedrock poor aquifer. Further impacts could result from the compaction of subsoil under the weight of the filled section which could restrict shallow subsurface groundwater flow.

At the majority of the fill sections, the underlying soil/subsoil is unsuitable for road construction (i.e peat) and will be excavated out and replaced with fill which will probably be more porous than the excavated material. The impact of this filling on the adjacent soils/subsoils will be reliant on the surrounding topography. In flat areas groundwater from the adjoining peat lands will permeate and fill the voids in the newly placed material with little or no gradient for dewatering or movement away from the area. The potential impact on adjoining sites is rated as negligible. In steeper gradients, the potential impact on groundwater sensitive habitats could be significant as the newly placed fill may act as a pathway for drainage away from the area and thus lower the water table, leading to localised dewatering of adjacent peat lands. The entire 15 km of the road has been assessed and there are no significant sections of the road alignment, which could give rise to the formation of new drainage pathways that would divert groundwater flow and result in a significant drawdown of the water table. The highly undulating nature of the bedrock limits the length of such drainage paths to develop and combined with poor permeability within the peaty overburden as shown at the piezometer test sites the dewatering effect of the road formation material on adjoining peat area will be extremely localised to within 1 to 3m of road formation.

Impacts on Ecological Receptors - The groundwater sensitive habitats along the route are identified in Table 13.22. The Annex 1 groundwater sensitive habitats associated with the SAC's within the study area/zone of influence are shown in Table 13.23 and include Wet Heath, Lowland Blanket Bog, Cutover Bog etc. Potential impacts could include contamination of ecological habitats arising from road drainage, dewatering of shallow groundwater associated with deep cut sections and disruption of natural groundwater drainage paths resulting in either the lowering or raising the water table caused by excavation and fill. The proposed road drainage system relies completely on surface water discharges collecting and conveying water to nearby watercourses. There is no proposed discharge to groundwater or to the ecological sites.

There are no significant cut or fill sections proposed adjacent to Blanket Bog and Cutover Bog Ecological Receptors. A short section of proposed road cutting associated with road widening at Ch260+350 will be adjacent to land classified as Wet Heath which is an Annex 1 habitat. The cutting is not expected to impact on groundwater levels at this habitat. Another section of Wet Heath lies immediately adjacent to the proposed road between Ch 268+000 and 268+280 at Glengowla. The proposed realignment of the road at this section will mean that the existing road embankment will remain as a buffer between the Wet Heath Habitat and the new road embankment and therefore an imperceptible impact is expected.

The proposed cut section located adjacent to Ardderry Pond will involve minor cutting associated with an offline section and road widening. The cut section is expected to have a negligible impact on groundwater levels associated with the Rich Fen and Flush habitat.

An area of Eroding Blanket Bog has been identified between Ch 263+360 and 263+470 upstream of the existing alignment to the east of Letterfore Bridge. Erosion in the study area is caused by extensive grazing, burning or drainage. The proposed road which is infill and realigned downstream of the existing road, with section of the existing road being retained upstream will not affect the drainage levels in the upstream eroding bog area of the upstream blanket bog area. The proposed road formation edge is typically set back 5-8m from the eroding bog and outside the zone of influence that the road is likely to have on water table levels. Tables 13.24 A and B summarise the potential

hydrogeological impact assessment due to the cut and fill sections in the Wet Grass Land and Cutover Bog areas along the proposed route

Impacts from Road Drainage - The potential exists for contamination of the bedrock aquifer from contaminants in the routine drainage waters as a result of spillage and road maintenance. The aquifer classification and vulnerability along the proposed route, is with few exceptions, a poor aquifer with high/extreme vulnerability. The impact on the aquifer is considered to be imperceptible as the mobility of contaminants through the overburden and within the bedrock aquifer is impaired by the generally poor permeability of the soils/subsoils and the low transmissivity/storativity within the bedrock aquifer?

The risk to the underlying aquifer associated with constructed linear wetlands and spillage control ponds would be poor construction where contaminated water would be able to percolate/infiltrate downwards through the pond lining into the aquifer, overspills during heavy sustained rainfall events or where discharge outfalls into ecologically sensitive surface features. As the aquifer is classified as poor there is no potential impact to aquifer expected due to the proposed constructed wetlands and spillage control ponds.

Impact of peat and unsuitable material disposal – It is proposed to deposit a quantity of excavated unacceptable material, including peat at 5 no locations adjacent to the proposed alignment as summarised in Table 13.25A and B. The material will be deposited within engineered bunded sites with associated run-off being drained to settlement ponds (Appendices 5A and 5B). Due to the impervious nature of the hydrogeology in the area there will be little opportunity for the water arising from the deposited areas to escape to the aquifer. The hydrogeological impact in terms of groundwater quality and quantity of these material deposit areas is rated to be slight to negligible both in terms of groundwater flow and water table levels and water quality status of the underlying aquifer and will have no perceptible hydrogeological impact on groundwater dependent ecological sites.

Two large peat restoration areas will be established close to the road scheme at Maam Cross. These will be located in cutover bog areas of relatively gentle slopes where the topography is either below the proposed road level or below surrounding land. As part of the restoration it is proposed to bund the area and block up internal drains so as to raise and maintain relatively high water tables in the area. Water levels will be controlled by a high level overflow weir and penstock system located downstream of a large settlement pond area and will ultimately outfall to surface water. The proposal to raise the water table locally so as to retain the deposited peat in its relatively wet state and to allow potential for wetland habitats to establish over time. The deposition of the peat will typically raise levels to up to 1m above existing ground level. This creates the potential for the release of nutrients and organics and suspended solids from the peat. The impact to the underlying groundwater system will be local moderate impact through increasing the water table and local disturbance to the site during construction and the potential release of contaminants. The water quality impact to the groundwater resource and nearby water supplies will be imperceptible due to the lack of mobility of potential contaminants via groundwater routes.

A number of material deposition areas and peat restoration areas are traversed by/lie immediately adjacent to reported geological fault lines where there may be localised

productive aquifers. As the proposed activity is filling as opposed to cuttings such fault features are unlikely to be negatively impacted.

Mitigation – A summary of proposed mitigation measures and residual impacts in relation to hydrology are included in Table 13.27 to Table 13.29. General mitigation measures are detailed in Section 15.5.2 and include the location of construction compounds away from key hydrolgeologically sensitive areas and features and that best environmental practices and good housekeeping procedures are in place to ensure no impacts occur. Where significant groundwater flows are encountered, in deep cut sections, it will be necessary to ensure their continued flow by either piping or construction of gravel filled pathways. In cut sections through groundwater sensitive habitats specific mitigation measures are required to prevent dewatering resulting in loss of habitat. Chemical tests will be carried out on imported fill to ensure its suitability for embankment construction and to demonstrate that there are no contaminants present. Wells in the direct line of the proposed road development will be decommissioned in accordance with NRA Guidelines and a replacement supply provided.

The impact to groundwater from routine road drainage for the road project has been classified as low based on a scoring calculated under the DMRB risk assessment and therefore no specific mitigation measures are required. The impact on the vulnerability of the underlying aquifer throughout the road project will be low as it is generally classified as poor and unproductive. In general no specific mitigation other than good practice of control of spillages etc during the construction stage and an appropriate drainage system will be required.

With regard to road drainage it has been designed with the objective of mitigating the potential for impacts on the receiving waters and no further measures are required. In cut sections where high water levels were encountered, the roadside drainage system is amply sized to accommodate groundwater flows arising from the cuttings. The impact of the intercepted groundwater on receiving waters will be imperceptible as the volumes of groundwater being intercepted will be small in comparison to the volume of surface water run-off being drained by the road. No mitigation is proposed. The main impact from the road cut sections will be the potential to cause localised dewatering of adjacent soils/subsoils which may impact on groundwater sensitive habitats. The impact on the groundwater resource has been rated as imperceptible and for intercepted wet grass land and cutover and eroding bog areas classified as ‘local important higher value’ habitats the impact is rated as only a slight local impact. These impacts are contained inside the scheme Land Acquisition Boundary and as such no specific mitigation is proposed. There will be no perceptible impact on any European site as a result of the potential local dewatering of the aquifer and overburden water table at the road cutting.

In fill sections the impact magnitude on groundwater and associated ecological habitats (such as the cutover bog, eroding bog and wet grassland) represents a local slight negative impact and the zone of influence will be confined to within the Land Acquisition Boundary. Therefore no specific mitigation measures are required. No perceptible hydrolgeological impact to European Sites of importance is predicted.

A number of private groundwater supplies were identified to be potentially at risk of contaminant impact as a result of the proposed road development both during construction and from road run-off during the operational stage. The baseline water quality conditions on groundwater supplies within 200m of the route will be assessed prior to, during the construction period and for a defined period thereafter through a

groundwater level and water quality-monitoring programme. The design provided will ensure that any disruption to water supplies from wells will be minimised. Where necessary equivalent water supplies will be provided.

No specific mitigations relating to the protection of groundwater are required for the peat deposit and peat wetland areas to protect the aquifer other than the general construction stage mitigation and good practice. The underlying peat in the cut-over bog areas will act as a buffer to the aquifer.

Residual impacts – The main hydrogeological impact arising is the potential localised dewatering of soils/subsoils adjacent to the proposed road associated with cut and fill sections both on and off-line, including replacement of existing road section to competent rock. The zone of influence is shown to be very localised and the impact will be contained with the road land take boundary throughout the route.

This impact represents a slight local negative impact to hydrogeology of the intercepted local important higher value habitats that include Cutover Bogs, Wet Grassland and Eroding Bogs. There will be no direct or indirect residual impact on any of the Annex 1 habitats and European Sites within the Study Area.

Cumulative impacts – Any potential impact has been rated as very localised and imperceptible in respect to the groundwater bodies and local slight in respect of the Cut over and Eroding Bogs and to Wet Grassland. The impacts to hydrogeology of any Annex 1 and European Sites is shown to be imperceptible. Therefore the potential in-combination effects based on the projects listed in Table 17.2 of the EIS which relate primarily to completed and proposed road schemes, the Connemara Greenway and the ESB 110kV Reinforecment Project will have no in-combination impact of significance on hydrogeology.

16 Archaeology, Architecture & Cultural Heritage – There are no known (previously recorded) prehistoric or medieval sites or monuments in the immediate environs of the proposed road and none is affected by it. There are numerous features of early modern date including 19th century cottages, sporting lodges, a Victorian railway line, early road bridges and old road remnants and the site of a former lead mine, but the impacts are generally rated slight or nill. The only severe impact is to a disused roadside chapel in Shindilla which is to be demolished. Remnants of several 19th century cottages are also to be removed but in all cases these are in a ruinous condition and the impacts are rated moderate or slight. One early 19th century bridge will be made redundant by the new scheme and thus is in danger of neglect. On the other hand, at another early 19th century bridge (Letterfore Bridge), a reinforced concrete structure built in the 1970's is being replaced by a new concrete structure with stone cladding which will more sympathetic to the original bridge and is thus rated as a slight positive impact.

In quantitative terms, the road if approved will result in one severe impact, one moderate impact, one potential residual impact, one positive impact and 20 slight impacts. The predicted impacts are examined in detail in Section 16.6. Table 16.4 contains a summary of the archaeological and architectural features in the study area and the impacts of the proposed road development. No recorded monuments and no protected structures will be adversely affected by the development.

Mitigation will include building recording at 10 locations of affected buildings or early bridges, sectors of old road, early bridges etc. Boundary replacement and/or planting is

proposed at two locations where there are slight impacts on buildings arising from encroachment onto their curtilage, grounds (Catmount, No 65) and/or setting is affected (Bofin Lodge No 18). Reinstatement is proposed in one instance where a pair of millstones is currently displayed in a roadside setting that lies within the footprint of the road project. Monitoring and maintenance by the Council is proposed for one bridge which will be made redundant by the development.

Archaeological investigation is proposed at two sites of ruined pre-historic cottages and also on the site of a small enclosure or boulder group of possible archaeological origin. As it is not possible to predict all of the potential archaeological impacts associated with the development, standard precautionary mitigation will be carried out. This will include archaeological testing in all areas throughout the footprint of the proposed road development at pre-construction stage with archaeological monitoring at site clearance and construction stage.

17 ***Interrelationship between environmental aspects and cumulative impacts –*** This chapter of the EIS provides details of the various interactions between the various environmental topics. It also provides details of other projects (past and future) in the area likely to give rise to cumulative impacts. It is concluded that no cumulative giving rise to a larger more significant impact are anticipated.

18 Summary of Mitigation Measures and Environmental Commitments – The final chapter of the EIS summarises the mitigation measures proposed to mitigate or ameliorate potentially significant adverse impacts.

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Inspectorate
October 30th, 2013