

Chapter 18 Interrelationships & Cumulative Effects

18.1. Introduction

In addition to the assessment of impacts on individual topics presented in the previous chapters of this Environmental Impact Assessment Report (EIAR), the interaction between these factors has also been considered as part of the environmental impact assessment. In addition the cumulative effects of the proposed development with those of previous development and developments for which planning authorisation has been received and development objectives in the development plans for the areas through which the development is proposed to run, have been assessed and are described in this chapter.

18.2. Methodology

18.2.1 Interrelationships

The determination of interrelationships was facilitated through an iterative design process that included the holding of a series of workshops, where all designers, environmental specialists and technical specialists met and discussed their particular topic, the evolving road development and their interactions in detail. The workshops were carried out at several key stages throughout the design process. This allowed for dynamic interaction between all parties/topics. Furthermore, there were several sub-group meetings between designers and small groups of specialists where strong interrelationships exist – e.g. between the designers, biodiversity, hydrology and hydrogeology specialists, between designers, landscape, and biodiversity specialists and between designers, archaeology, architectural heritage and landscape specialists. In addition, the process was informed by extensive consultation with land and property owners, statutory and non-statutory consultees and in particular with the Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs (National Monuments Service and National Parks and Wildlife Service), National University of Ireland Galway (NUIG) and Inland Fisheries Ireland. Where a potential exists for interaction between two or more environmental topics, the relevant specialists have taken these into account when making their assessment and where possible complimentary mitigation measures have been proposed.

18.2.2 Cumulative Impacts

In assessing Cumulative Impacts the following were the principal sources consulted:

- Roscommon County Council Planning Department
- Mayo County Council Planning Department
- Roscommon County Development Plan 2014-2020
- Strokestown Area Plan 2014-2020
- Elphin Area Plan 2014-2020
- An Bord Pleanála website
- Coillte Website
- Eirgrid Website

The search identified seven large-scale developments within 10 kilometres of the proposed route alignment:

- N5 Ballaghaderreen Bypass immediately west of the proposed road development

- N61 Ratalen & Treanagry Road Improvement
- N60 Oran Road realignment Project
- N61 Coolteige Phase 1 Road project
- Slieve Bawn Wind Farm (PI Ref: 10/507 Granted)
- Runnaboll Wind Turbine (PI Ref: 13/36 Granted)
- Grid West

18.3. Interrelationships

Inter-relationships are the interaction /interrelations between the impacts and proposed mitigation for one discipline with another associated discipline. An example of this would be the provision of noise barriers to mitigate the impacts of noise on the surrounding environment could have a negative impact in terms of landscape and visual impact.

The impacts and the mitigation provided has been considered by all disciplines to ensure all the interactions have been fully considered within this EIAR.

Table 18.1 shows the principal interrelationships/ interactions identified for the proposed road development and these are described below.

Table 18.1 Matrix to Summarise Key Inter-relationships

Receptor Activity	Traffic	Population and Human Health	Biodiversity	Soils & Geology	Hydrogeology	Hydrology	Landscape and Visual	Noise & Vibration	Air Quality & Climate	Archaeology, Architecture & Cultural Heritage	Material Assets & Land - Agriculture	Material Assets & Land - Property
Traffic	✓				✓	✓	✓	✓	✓	✓		
Population & Human Health	✓	✓			✓	✓	✓	✓	✓		✓	✓
Biodiversity	✓		✓	✓	✓	✓	✓		✓			
Soils & Geology		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Hydrogeology	✓	✓	✓	✓	✓	✓					✓	✓
Hydrology	✓	✓	✓	✓	✓	✓					✓	✓
Landscape & Visual	✓	✓	✓	✓			✓	✓		✓	✓	✓
Noise & Vibration	✓	✓	✓	✓			✓	✓		✓	✓	✓
Air Quality & Climate		✓	✓	✓					✓		✓	✓
Archaeology, Architecture & Cultural Heritage	✓	✓		✓			✓			✓		
Material Assets & Land – Agriculture		✓		✓	✓	✓	✓	✓	✓		✓	✓
Material Assets & Land – Property		✓			✓	✓	✓	✓	✓		✓	✓

18.3.1 Traffic

Traffic will interact and / or interrelate with the following:

Population and Human Health

During construction, the haulage of materials to and along the site will create a significant temporary impact to both road users and to residents living along haul roads with resultant negative impacts. To minimise these impacts, only authorised permitted roads and haul routes as described in Chapter 4 will be used by construction vehicles.

During the operational phase, positive effects on the population will result due to reductions in journey times and a general improvement in journey amenity and facilities for cyclists and pedestrians. The transfer of vehicles to the proposed road development will reduce traffic on the existing N5 by up to 66%, improving the journey amenity and safety for locals within and between towns such as Frenchpark, Tulsk, Bellanagare and Strokestown. However, slight negative impacts are

anticipated in areas where traffic will be introduced due to traffic related severance. Mitigation measures to overcome these impacts have been provided in Chapter 6 Population and Human Health.

Hydrogeology

As a result of the redistribution of traffic, there is a risk to water quality through pollution and spillage accident risk. The construction phase of the project has the potential to impact on groundwater and habitats. Mitigation measures have been put in place to avoid and/or minimise these effects. During the operational stage, sealed drainage systems will be used and stormwater drainage will be suitably treated prior to discharge. The SUDS (Sustainable Urban Drainage System) proposed will be a significant improvement over the current drainage regime and with the movement of 66% of the traffic onto the new route is likely to result in an improvement during the operation stage for hydrogeology.

Hydrology

As a result of the redistribution of traffic, there is a risk to water quality through pollution and spillage accident risk. The proposed drainage design incorporates measures to treat the surface water run-off from the surfaces of the proposed road development, collection and conveyance of surface water flow intercepted by the proposed road. The drainage design also incorporates details of the proposed treatment of existing watercourses affected by the proposed road. A slight positive impact on water quality of the receiving watercourses is likely, as it will provide an improved situation compared to the currently untreated storm drainage from the existing N5.

Landscape & Visual

Traffic along the proposed road development will have landscape and visual effects on properties in proximity to the proposed road development. These effects were taken into account during the iterative development of the design and mitigation measures have been proposed including landscape planting. It is however considered that long term negative effects will occur for a small number of properties along the alignment following the establishment of landscaping. The relocation of traffic from the existing N5 to the proposed road development provides positive landscape and visual impacts along the existing N5, with particular regard to the Rathcroghan Archaeological Complex where existing traffic bisects the internationally important archaeological landscape.

Noise & Vibration

During construction, the impact on noise sensitive locations due to traffic is likely to be moderate and short term. The temporary nature of the construction period and the variety of machinery used will ensure that no construction activity is operational for long periods. The TII/NRA derived guidance limits will be followed as an appropriate target criterion for this assessment.

The operational phase of the proposed road development will provide a positive impact on noise levels at receptors along the existing N5 and through the towns located along the existing N5 due to reduced traffic volumes. Noise levels along the proposed route will be increased due to traffic, however mitigation measures employed include earth bunds, proprietary noise barriers or a combination of both will reduce the impact of the increased noise along the route.

Air Quality & Climate

Construction phase impacts to regional air quality and climate are found to be negligible and a dust minimisation plan has been prepared to minimise dust emissions. Removing traffic off the existing N5 during the operational phase, particularly in the towns, will result in reduced emissions and improved air quality in those towns while not affecting the air quality along the proposed route to any appreciable degree.

Archaeology & Cultural Heritage

The route's selection and design development has given due consideration to key archaeological sites most particularly the Rathcroghan Archaeological complex a Candidate UNESCO World Heritage Site. Reduced traffic volumes along the existing N5 during operational phase which dissects the Candidate UNESCO World Heritage Site provide a significantly improved visitor experience.

Architectural Heritage

The redistribution of traffic resulting from the construction of the proposed road development will reduce the volumes of traffic through the towns along the existing N5, enhancing the amenity, setting and access to the architectural heritage sites including Strokestown Park.

Material Assets & Land

During the construction phase, access to some properties will be affected, however alternative access arrangements will be made and traffic management measures will be put in place. During the operational stage, the proposed road development will have a positive effect on properties along the existing N5, while traffic volumes may negatively affect some properties along the proposed road development.

18.3.2 Soils & Geology

Soils and Geology will interact and / or interrelate with the following:

Population & Human Health

The construction of the proposed road will involve the excavation of existing soils, with unacceptable material being placed in material deposition areas located within the lands of the proposed road development. In some sections rock will also be excavated and reused in the construction of the proposed development. The excavation, processing and transportation of material on and to site have potential to adversely impact on the population. To minimise these impacts, construction compounds are located adjacent to national and regional roads and construction traffic will be limited to certain permitted haul routes.

Biodiversity

The excavation and replacement of soils within the landtake will result in the loss of some habitat area and disturbance to some species during construction. Due to the presence of a number of groundwater dependant habitats in this karst area a strict regime of mitigation measures will be employed during the construction phase including the preparation of a Construction Erosion and Sediment Control Plan (CESCP). Mitigation measures are outlined in Chapter 7 Biodiversity.

Landscape & Visual

The construction of the proposed road will involve excavation of existing soils, primarily soft in nature, with unacceptable material being placed in material

deposition areas within the landtake. The development of the alignment, both horizontal and vertical, takes account of landscape and visual impacts on residential properties.

Archaeology, Architecture & Cultural Heritage

The development of the proposed road development both including and following the selection of the preferred route corridor has given due consideration to the existing ground conditions and the soils and geology of the area. The iterative development of the alignment, both the horizontal and vertical alignment, took account of the impact on the archaeological, architectural and cultural heritage impacts on all sites but most particularly key sites such as Rathcroghan and Strokestown Park.

During the construction phase, there is the potential to excavate previously unrecorded archaeological and cultural heritage artefacts. As a result, pre-construction surveys are proposed to be carried out to identify and resolve any previously undiscovered sites of archaeological potential prior to the main works commencing. The development of the alignment also took account of Archaeological and Cultural Heritage and Architectural Heritage impacts, as outlined in Chapters 14 and 15.

Hydrogeology

During construction phase the excavation and replacement of soils may pose a risk to groundwater quality if sediment is to block karst features. A strict regime of mitigation measures will be employed during the construction phase including the preparation of a Construction Erosion and Sediment Control Plan (CESCP).

Hydrology

Construction phase impacts on hydrology due to soils and geology include elevated silt/sediment loading due to construction site runoff. A strict regime of mitigation measures will be employed during the construction phase including the preparation of a Construction Erosion and Sediment Control Plan (CESCP)

18.3.3 Hydrogeology

Hydrogeology will interact and / interrelate with the following:

Biodiversity

Groundwater may have an impact on a number of the ecological habitats present. The proposed road development has incorporated mitigation measures to avoid impacts on the groundwater including the preparation of a Construction Erosion and Sediment Control Plan (CESCP). Road drainage and attenuation ponds are included to treat road runoff and spillages before they are discharged to watercourses/groundwater. These measures will protect the regionally important karst bedrock aquifer and other important habitats that could potentially be affected.

Population & Human Health

The potential risk of pollution to groundwater from routine run-off and a spillage event has the potential to contaminate the ground water and subsequently any private or public water supplies in the locality. Measures have been included in the drainage design to avoid and minimise the potential impacts of any pollution event.

Material Assets & Land – Agriculture & Non-Agriculture

The potential risk of pollution to groundwater from routine run-off would have a resultant impact on water quality and therefore material assets. Measures have been

included in the drainage design to avoid and minimise the potential impacts of any pollution event.

18.3.4 Hydrology

Population & Human Health

The proposed road and land drainage has been designed to avoid impacts on flooding and water quality. During the operational phase, storm water attenuation will reduce storm discharge outfalls to Greenfield runoff rates or lower, to reduce flooding risk. Water quality will be maintained by incorporating pollution control features including filter drains, sealed drainage systems and vegetated wetland systems upstream of all road drainage outfalls.

Biodiversity

A number of the habitats in proximity to the proposed road development are hydrologically sensitive and the proposed road design has been developed to avoid or minimise impacts. The proposed road drainage system and the watercourse crossings have been developed to ensure that impacts on water quality and mammal passage are negligible. Watercourse diversions must comply with the Construction Erosion and Sediment Control Plan to avoid any potential impacts.

Soils & Geology

During the construction earthworks, heavy rainfall events have the potential for run-off to impact on the reusability of materials excavated from the works. This could therefore require additional stabilisation or the importation of additional fill material from external sources. In conjunction with this, the run-off from the site would have the potential to increase the sediment loading to the adjacent watercourses. A Construction Erosion Sediment Control Plan (CESCP) has been developed which sets out measures to avoid any silt laden runoff from contaminating the receiving watercourses.

Material Assets & Land

Field drainage systems currently in situ will be disturbed and in places impacted by the construction works. These systems will be restored as part of the completed road works. However, there may be temporary impaired drainage in the period of time between initial disturbance and final reinstatement of such drainage works. In cases where impeded drainage during construction will cause obvious difficulty to a particular landowner, temporary measures will be employed on a site specific basis. This may include allowing waters to drain to less critical areas, so as to minimise the impact.

18.3.5 Biodiversity

Biodiversity will interact and / or interrelate with the following:

Landscape & Visual

Ecological mitigation measures entail planting of native species to mitigate any loss of trees from landtake. Planting of these species can also be incorporated into the mitigation measures for Landscape & Visual by reducing impacts on the surrounding environment during the operational phase. Ecological mitigation measures will create a positive effect on the landscape and reduce visual impacts on sensitive receptors.

18.3.6 Landscape & Visual

Landscape and visual will interact and / or interrelate with the following:

Population & Human Health

Negative temporary visual impacts will arise for residents located close to or adjoining the construction boundary. Landscape and visual mitigation measures have been incorporated into the design of the proposed road development to reduce impacts on property. The Contractor will prepare an Environmental Operating Plan (EOP) to ensure that good working practices are followed during construction phase to minimise environmental impacts that may arise. The Environmental Operating Plan (EOP) will be prepared in accordance with the TII/NRA *Guidelines for the Creation and Maintenance of an Environmental Operating Plan* and will set out the Contractors approach to managing environmental issues associated with the construction of the road and provide a documented account to the implementation of the environmental commitments set out in the EIAR and measures stipulated in the planning conditions.

Specific mitigation measures include the provision of hoarding around construction compounds during the construction phase for properties particularly impacted by the works. Operational phase landscape & visual impacts will arise from the built physical presence of the road. Mitigation measures will include general measures such as the re-connection of field boundaries with hedgerows established along the boundary of the proposed road development and planting distributed along the entire proposed route.

Material Assets & Land – Property

Landscape & visual effects may impact on residential properties located near the proposed road development. Likely landscape and visual effects will be most pronounced during the construction and initial operation stages causing initial visual impacts, after which landscape mitigation measures will be increasingly effective in integrating the road within the landscape and in reducing landscape and visual impacts on properties.

Biodiversity

Trees, parts of hedgerows and scrub vegetation will be removed in the construction of the proposed development which will have a negative effect on landscape quality, visual amenity and biodiversity. Landscape mitigation proposals have been developed to be complementary with the ecological requirements. These include planting of native, naturalised and indigenous species and reconnecting ecological networks resulting in a positive effect on biodiversity.

Archaeology, Architecture & Cultural Heritage

The development of the proposed road development following the selection of the preferred route corridor has given particular consideration to the historic landscape and the presence of Rathcroghan and the significant number of protected sites. The iterative development of the alignment, both the horizontal and vertical alignment, took account of the impact both on the archaeological landscape and the impacts on individual sites of archaeological and architectural interest. The new planting proposed along the road corridor will take account of any new archaeological or cultural heritage findings over the construction period, but has the potential to restrict views from archaeological sites.

18.3.7 Noise and Vibration

Noise and Vibration will interact and / or interrelate with the following:

Population & Human Health

The sensitive receptors as described in the noise and vibration chapter are mainly residential dwellings and as such are occupied by human beings, and therefore all noise and vibration impacts relate directly to the residents, those working in the area and users of the new road and the adjacent existing road network. The noise and vibration Impact Assessment describes in detail the changes to noise climate that noise sensitive receptors will experience.

In particular the construction phase may also pose potential for elevated levels of vibration at neighbouring sensitive locations due to excavation and rock-breaking. Potential residual impacts on the population during construction phase will be moderate to significant while being temporary in nature. Mitigation measures have been incorporated into the design to reduce such impacts on sensitive receptors.

Landscape & Visual

During the Operational Stage, noise and vibration mitigation measure in the form of noise barriers and bunds have been developed to be complementary with the landscape and visual assessment and requirements. These noise barriers will improve the landscape & visual effects by screening views of the proposed road development from receptors.

Material Assets & Land – Agriculture

The removal of soils and rock excavation could affect neighbouring livestock. Due to the amount of livestock along the proposed development, good communication between the contractor and adjacent landowners during the construction phase will allow farm animals to be moved, avoiding undue disturbance.

Material Assets & Land – Property

Noise and vibration impacts to property will be mitigated by means of timing of works and noise and vibration limit values. Good communication between the contractor and adjacent property owners during the construction phase will minimise disturbance. Condition surveys of dwellings within 50m of the proposed road will also be undertaken prior to works, given the owner's permission.

Archaeology, Architecture & Cultural Heritage

The proposed road development following the selection of the preferred route corridor has given due consideration to the noise and vibration levels at key archaeological and architectural sites. A significant reduction in noise and vibration levels during the operational phase in proximity to the Candidate UNESCO World Heritage Site of the Rathcroghan Archaeological complex will provide a significantly improved visitor experience.

18.3.8 Air Quality & Climate

Population & Human Health

Emissions to air during both the construction and operational phase of the proposed road development have been considered in relation to human health and their living environment. Construction phase impacts to regional air quality and climate are found to be negligible and a dust minimisation plan has been prepared to minimise dust emissions. Removing traffic off the existing N5 during the operational phase,

particularly in towns, will result in reduced emissions and improved air quality for locals while not affecting the air quality along the proposed route.

Biodiversity

The potential for impacts from air emissions in designated sites within the vicinity (guidelines recommend 200m) of the proposed road development were assessed and the impact of the proposed road development on the nearest Natura 2000 site, Bellanagare Bog SAC/SPA which is further than 200 metres was found to be negligible.

Material Assets & Land

The potential for impacts on property from air quality and climate during both the construction and operation phases are negligible and a dust minimisation plan has been formulated for the construction phase of the project to avoid any impacts on material assets.

18.3.9 Material Assets & Land – Agriculture & Non Agriculture (Property)

Material Assets & Land will interact and / or interrelate with the following:

Population & Human Health

Primary impacts on population and human health due to material assets & land will entail landtake and impact on the property (both agricultural and non-agricultural). Potential impacts on human beings as a result of material assets & land will be mitigated by measures including the provision of new accesses and replacement boundaries to affected properties. Accommodation works have been incorporated within the design to accommodate access where possible during construction.

Other mitigation measures include the provision of accesses to severed areas of land and fields, stockproof boundary replacements and underpasses reconnecting farmer's land for operational stage. Monetary compensation will be subject to negotiation with all relevant parties from whom land or property is acquired for the proposed road development.

18.4. Cumulative Impacts

Cumulative Impacts are impacts that result from incremental changes caused by other past, present or reasonably foreseeable developments together with the proposed road development. Cumulative impacts were assessed by looking at all previous developments and current developments for which planning has been received within 10km of the proposed site location. A consideration of development objectives in the current development plans in the area was also carried out. This cumulative assessment has considered cumulative impacts that are:

- (a) Likely;
- (b) Significant; and
- (c) Relating to an event which has either occurred or is reasonably foreseeable together with the impacts from this development.

A search in relation to plans and projects that may have the potential to result in cumulative impacts was carried out. Data sources included the following:

- Roscommon County Council (planning and roads sections);
- Mayo County Council (planning and roads sections);

- An Bord Pleanála website (planning searches);
- Web search of windfarm projects in Co Roscommon and Co Mayo;
- Web search for major infrastructure projects in Co Roscommon and Co Mayo;
- An Bord Pleanála website
- Coillte Website
- Eirgrid Website
- Roscommon County Development Plan 2014-2020
- Strokestown Area Plan 2014-2020
- Elphin Area Plan 2014-2020

In addition to the plans and projects listed, a number of small scale developments, including dwelling houses and extensions were identified from the wider area surrounding the proposed road development.

Plans and projects which were identified from this search are listed and discussed below.

18.4.1 N5 Ballaghaderreen Bypass

The N5 Ballaghaderreen Bypass was completed in August 2014 and involved the construction of 13.5km of standard single carriageway bypassing the town of Ballaghaderreen. The project is located immediately west of the proposed development. That scheme has been operational for some two and a half years and has resulted in significant improvement in journey times as well as significantly reduced congestion in Ballaghaderreen. Positive cumulative impacts are likely to develop as a result of the existing Ballaghaderreen Bypass and the proposed road development such as reduced journey time, improved road safety standard and reduced traffic congestion in local towns, sequentially reducing noise and air emissions during operational phase. Consideration of any cumulative effects on water quality whether through surface or ground waters showed an overall safeguarding of water quality by reason of the introduction of modern environmental protection measures in relation to drainage from that scheme and the current proposed development.

18.4.2 N61 Ratalen & Treanagry Road Improvement

This proposed road development is located approximately 7.3km to the north of the proposed N5 Ballaghaderreen to Scramoge Road Development. The N61 Ratalen and Treanagry Road Improvement project involves the realignment and widening of approximately 2.7km of National Secondary road to Type 2 Single Carriageway in the townlands of Cloonshaghan, Treanagry & Knockroe (ED Rushfield) Co. Roscommon. The sections are approximately 2km apart and are located approximately 8km to 10km south of Boyle town. The main construction contract works were completed in December 2016. A consideration of the haulage routes and those likely to be used for this scheme was carried out. Given the geographical separation between same, no cumulative impacts giving rise to a larger more significant impact are anticipated.

No likely significant cumulative impact is expected as the proposed road realignment will have a localised construction footprint with no pathway to the study area of this development.

18.4.3 N60 Oran Road Realignment Project

The Oran Road Realignment Project involves the realignment of approximately 3.4 km of the N60 National Secondary route including 2.1 km of offline construction and 1.3 km of online widening to Type 1 single carriageway. The planning process for the project was approved by the elected members of Roscommon County Council in July, 2013 and has been considered as part of the development of this EIA. No cumulative impacts giving rise to a larger more significant impact are anticipated as the proposed road development is located 15km north of the said project.

No likely significant cumulative impact is expected as the proposed road realignment will have a localised construction footprint with no pathway to the study area.

18.4.4 N61 Coolteige Phase 1 Road Project

The N61 Coolteige (Phase 1) Road Project involving the realignment and improvement of approximately 2.9km of a section of the National Secondary Road on the northern outskirts of Roscommon Town. Works carried out in 2015 included, the completion of a tree removal contract, a 110kv ESB diversion and a fencing Contract to secure the Compulsory Purchase Order lands. Ground investigation studies were also undertaken to inform the design of the project and the resolution of archaeology sites discovered during testing. No cumulative impacts from that scheme giving rise to a larger more significant impact from the current scheme are anticipated.

No likely significant cumulative impact is expected as the proposed road realignment will have a localised construction footprint with no pathway to the study area.

18.4.5 Sliabh Bawn Wind Farm

The Sliabh Bawn Wind Farm is a joint venture project between Coillte and Bord na Móna, located approximately five kilometres south east of Strokestown, Co. Roscommon, in the Doughill Forest on Sliabh Bawn mountain. An Bord Pleanála granted planning approval in March 2012 and in March 2017 all construction works associated with the 20 turbines and power station had been completed. The Sliabh Bawn Wind Farm comprises 20 wind turbines and connecting substation with an export capacity of 58 Megawatts (MW) which will supply the equivalent of approximately 37,700 households. Due to the distance from the proposed road project, and the fact that at its nearest point the proposed road development is very close to existing ground level as it approaches the tie-in to the existing N5 at Scramoge and therefore no cumulative impacts giving rise to a larger more significant impact are anticipated.

The proposed wind farm has been subject to EIA and explicit and bespoke Management Plans were required both for planning and as conditions of the planning approval. No likely significant cumulative impact is expected.

18.4.6 Runnaboll Wind Turbine

The Runnaboll wind turbine project is located on the N61 approximately 7.6 km north of the proposed road development. The wind turbine project includes a hub height of 60m and rotor diameter up to 48m, a hard-standing, control building, associated site works, drainage and site works.

The proposed wind farm has been subject to EIA which was approved by An Bord Pleanála in July 2014 and explicit and bespoke Management Plans were prepared for the project. Construction of same has not yet commenced and it is understood

that there is currently no firm timeline for completion of same. Given the distance between the developments and the quantities of traffic involved as well as measures proposed to protect the environment from both schemes in terms of run-off etc., no likely significant cumulative impact is expected.

18.4.7 Grid West

The Grid West Project was launched by Eirgrid in 2012 and proposes to connect renewable generation companies in the north Mayo region to the National Grid via a substation in Flagford via an approx 100km grid connector. Three different options for the Grid West project have been assessed comprising; a fully underground direct current cable, a 400kV overhead line and a 220kV overhead line with partial use of underground cable. Two route options have been developed, one for the underground option and one for the overground options. The underground option travels north of Ballaghaderreen and Frenchpark and is mapped approx. 2km north of the proposed project's western tie in with the existing N5. The other two options comprising partial overhead lines are proposed to travel south of Ballaghaderreen and Frenchpark before terminating in Flagford, crossing the route of the proposed road development south of Frenchpark at approx Ch 10+500. The Grid West project is currently on hold, while assessments are made further to An Bord Pleanála's decision to grant permission for a wind farm in Co Mayo. In 2017, EirGrid published 'Ireland's Grid Development Strategy' which states that EirGrid are currently investigating the option of a more local reinforcement of the grid. Dependant on the final volume of generation, a final solution and preferred technology type will be selected.

The final project will be subject to in depth environmental assessment by means of an EIA, which will presumably consider any cumulative impacts from this development if approved. Since it is not possible to state which development if any is likely to proceed at this stage between the various options considered by EirGrid, no detailed assessment of likely cumulative impacts can be assessed as part of the EIAR in this project.

18.4.8 Construction of Residential Units

Planning applications have been submitted for a number of residential developments within Strokestown during the last ten years. The largest of these proposed developments for which planning permission has been granted or which remains likely include the following:

40 Bedroom Nursing Home [Planning No. 10426]

A planning application to construct a single storey 40 bedroom nursing home, 8 no. semi-detached retirement cottages, car parking, foul sewerage pumping station and associated site development in Lisroyne Townland, Strokestown was granted an extension of planning permission in September 2016. This site is located 700m south west of the proposed road development. A five year extension of the planning permission was granted in 2016.

7 no. two bedroom bungalow type dwelling houses [Planning No. 172]

A planning application was lodged on 3rd January 2017 to construct 7 no. two bedroom houses, together with seeking full planning permission or for the proposed connection to the existing foul sewer, watermain networks which service the existing housing estate. The site is located 1.3km south west of the proposed road development.

No likely significant cumulative impact is expected as the proposed residential developments will have a localised construction footprint with no pathway to the study area.

18.4.9 Roscommon County Development Plan 2014-2020

Objective 4.22 of the Roscommon County Development Plan 2014-2020 states that it is an objective of the Council to “[f]acilitate the programmed improvements to the National Road Network as per Table [4.2] of National Roads priorities in Section 4.1.3 of the County Development Plan”. The N5 Ballaghaderreen to Scramoge Road Project is listed in this table. Furthermore, both the Strokestown Area Plan 2014-2020 and Elphin Area Plan 2014-2020 form part of the Roscommon County Development Plan 2014-2020 and were included in the scope of the Strategic Environmental Assessment (SEA) undertaken for the plan.

The Strategic Environmental Assessment (SEA) Environmental Report prepared for the Roscommon County Development Plan 2014-2020 did not find significant cumulative effects on the environment from this scheme in conjunction with any other proposed development objectives after mitigation, was adopted and came into effect on 12th May 2014. No likely significant cumulative impact was expected in the SEA and our analysis of that assessment confirms this position.

18.4.10 Major Accidents and/or Disasters

As required in the Directive 2014/52/EU, this EIAR has looked at the effects on the environment in the event of major accidents and/or disasters relevant to the project, including those caused by climate change. It is considered that the three main areas of potential for major accidents and/or disasters relevant to the project are:

- Proximity to Seveso sites;

There are no Seveso (COMAH) sites near the proposed road development, with the nearest Seveso site being Florgas Ireland Ltd, located in Ballyhaunis, located approximately 23km west of the western tie-in. Therefore there is no likely significant impact as a result, as is discussed in Chapter 6 Population and Human Health.

- Risk of Flooding;

The road drainage for the proposed road development has been designed in accordance with the principles outlined in the TII/NRA Design Manual for Roads and Bridges (DMRB) and CIRIA which takes account of anticipated climate change factors. The principal objectives for the proposed road drainage system include:

- To ensure the speedy removal of surface water from the road pavement in order to provide safe driving conditions;
- To mimic, in as far as is practical, the existing greenfield drainage regime, particularly in relation to runoff rates and watercourse outfalls, while at the same time providing improved water quality treatment by means of wetland ponds prior to discharge;
- To ensure that the impact of the drainage outfalls on the receiving waters is negligible;
- To minimise the impact of runoff on the receiving environment; and
- To provide effective sub-surface drainage to maximise longevity of the road pavement and associated earthworks.

The road drainage has been designed to accommodate, without surcharge, a once in 1 year storm event with a maximum rainfall intensity of 50mm per hour. The design is checked against a five-year storm intensity to ensure that surcharge levels do not exceed the levels of chamber covers.

In assessing the risk of climate change, the risk of flooding was investigated for the proposed development, accounting for the estimated 100 year flood flow and allowing for statistical error and climate change. This measure was also applied for all crossings of watercourses with each being approved by the Office of Public Works (OPW) through Section 50 applications. There is a potential to increase peak flow rates and runoff volumes due to the increased impermeable area associated with the proposed road development and the collecting drainage system which discharges at outfall points. The implementation of sustainable drainage systems (SUDs) through the incorporation of engineered attenuation ponds and controlled discharges at all outfalls will control storm runoff rates to Greenfield flood runoff rates so as not to exacerbate flooding and flood risk in the receiving watercourses. This will mitigate negative impacts on flood risk in the receiving streams from road runoff.

The proposed development has been designed to include a storm water conveyance system. The proposed storm water system will convey rainfall runoff from the road to attenuation ponds located adjacent to the proposed development. Storm water attenuation storage has been sized to accommodate the 100 year storm event which represents a higher design standard than the 50 year return period recommended in the TII/NRA Guidelines. The flood risk of the proposed development has been assessed at sensitive locations which may have a history of flooding particularly adjacent to water courses and in low-lying areas. Attenuation ponds have not been located within the known extents of floodplains or lands which are prone to flooding. There will therefore be a slight to imperceptible residual impact from the proposed road development with respect to flooding.

No negative residual impacts on flood risk due to loss of conveyance are anticipated at river and stream crossings. All culvert design flows provided for include large factors for uncertainty associated with flood estimation in small ungauged catchments and thus the proposed culvert sizes are considered to be conservatively large and in all cases substantially exceed the existing culvert sizes on such streams and therefore avoid any conveyance capacity issues. There will be a slight to imperceptible residual impact from the proposed road development.

This loss of floodplain storage where the proposed road development crosses such areas is minor relative to the catchment flood flows and will result in no perceptible impact on flood levels either locally upstream or downstream and therefore will have negligible impact on flood risk at these locations. There will be a slight to imperceptible residual impact from the proposed road development.

- Risk of an accident leading to spillage

The risk of an accident on the road and same leading to a spillage is also considered in the Traffic and Hydrology Chapters. While the proposed road development forecasts a reduction of 324 collisions over the 30 year scheme appraisal period, mitigation measures put in place to prevent the contamination of watercourses through sealed drainage systems as described in Chapter 10 and through the fitting of pollution control facilities at proposed outfalls, will prevent any potential spillages caused by accidents on the proposed road development.

All pollution control facilities and attenuation areas will be fitted with a penstock or similar restriction at the outfall to the receiving channel. The overall risk assessment to quantify the likelihood of a serious accidental spillage indicates a cumulative risk for the entire road length to be very small at 1 in 250 year risk and with individual outfalls having a considerably lower risk (DMRB Volume II Section 3 Part 10).

The impact from accidental spillages on stream outfalls will be reduced by the use of treatment forebays incorporated within the attenuation pond upstream of the outfall and the provision of a penstock on the pond outflow which can be closed off in the event of a serious pollution incident arising. There will be a positive residual impact from the proposed road development due to these measures.

18.5. Conclusion

Interrelationships

The interrelationships between the individual environmental disciplines have been considered and assessed. It is concluded that once relevant mitigation measures are implemented, no significant adverse residual impacts will exist as a result of the construction or operation of the proposed road development.

Cumulative Impacts

The proposed road development has been assessed, taking full consideration of the cumulative and in-combination effects acting together with effects from past, present or reasonably foreseeable projects/ actions.

Major Accidents and/or Disasters

There are no “Seveso” sites (establishments within the meaning of the Chemicals Act (Control of Major Accident Hazards Involving Dangerous Substances) Regulations 2015) in the vicinity of the proposed development. The closest establishment is at least 23 km south west of the nearest part of the proposed road development.

In relation to flooding, there will be a slight to imperceptible residual impact from the proposed road development.

In relation to accidents and accidents resulting in a spillage of polluting material, the risk of these occurring will be significantly reduced and if a spillage should occur the proposed road development provides for positive road drainage with cut-off facilities to allow the spilled material to be contained. Both of these are substantial improvements over the existing situation.

The Hydrological Assessment included an assessment of flood risk based on the vertical alignment of the proposed development which found that there is minimal flood risk to the proposed road development.