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## 10. MITIGATION MEASURES

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### 10.1. Introduction

Mitigation measures are required to eliminate/remediate/reduce significant negative environmental impacts. Based on the source/pathway/receptor concept where an environmental burden (e.g. water pollution, air pollution) can impact on a receptor e.g. human, water, biodiversity or landscape via particular pathways these significant impacts can be either mitigated at:

- Source e.g. avoid the impacts at source
- Pathway e.g. reduce the magnitude of the impact
- Receptor e.g. compensate for the impact by providing an alternative

The consultation meetings identified some important environmental issues within the study area for example the protection of biodiversity in Oak Park and along the River Barrow, protection of water, the protection of cultural heritage and industrial heritage and protection of sensitive landscapes. These would potentially be impacted upon by various aspects of the LAP (Section 9). To erase or minimise these impacts, mitigation measures are set out in Section 10.2.

### 10.2. Mitigation Measures

A number of the International and National environmental policies, for example, the Habitats Directive, the Water Framework Directive, the EPA's Code of Practice for Unregulated Landfill Sites, and the DoEHLG Guidelines for Wind Energy for Planning Authorities and the EPA's Guidance Note for Wastewater Treatment Systems for Once-off Housing, have listed appropriate mitigation measures to minimise the impacts on the environment. Many of the mitigation measures, particularly for water will be driven by the Water Framework Directive and the requirement to meet good quality status by 2015.

#### 10.2.1. Water Quality

The objective with regards to water quality will be to achieve compliance with the WFD by 2015 i.e. good water quality status in surface water and groundwater. Groundwater and surface water resources in the study area will require maximum protection from pollution sources both diffuse and point sources.

Carlow County Council is the lead authority in the South Eastern River Basin District and has committed to achieve good water quality status by 2015. Current WRD risk assessment rating for the River Burren is at 1a (at a risk of not achieving good status). There is no available data for the River Barrow. The biotic indices for the River Barrow do however show an improvement in water quality from 2000 to 2003.

Capital projects are being undertaken by Carlow County Council (CCC) to improve water quality further. There are currently 3 no. surface water conduits within the study area:

- Askea River (piped from north to south)
- Burren River (east to west) and
- Barrow River (north to south).

CCC is providing capacity increase in its main drainage infrastructure to increase separation of foul sewer and surface waters. The main drainage scheme will be upgraded to a design based on 1 in 100 year flood volumes. Surface water discharges will only be directed towards water bodies which have sufficient loading capacity. In addition attenuation ponds may be designed to further reduce loading on the surface water conduits.

An example is the surface water discharge from the Erin Foods site on Cannery Road. A new surface water discharge point to the River Barrow is planned for residential developments in Oakpark Road and along the railway line.

The southern fringe of the study area will include the provision of a surface water artery directly to the River Barrow. The eastern and south-eastern fringe will be serviced by the River Burren. The north-eastern fringe will be piped into the existing town network and into the Askea River.

Provision for surface water from the north-east fringe of the study area is through the existing town network and into the Askea River through a 48 inch pipe from the River Burren to the River Askea.

These developments are being progressed by developers contributions scheme at a estimated costs of €20 million for the main drainage infrastructure and €20 million for the flood relief scheme (applicable for Carlow town) and will be completed within the lifetime of the LAP.

### 10.2.2. Biodiversity

Carlow County Council has undertaken a mammalian study in Oak Park in 2006 and is proposing to zone ecologically important areas as green belts to preserve non-designated sites such as the banks of the River Burren and a marsh area beside the railway line in Quinnagh. CCC is committed to undertaking a county-wide biodiversity study in conjunction with the Carlow CDP. This plan will take cognisance of other higher level documents such as the National Biodiversity Plan, Protection of the Freshwater Pearl Mussel and National Parks and Wildlife Services guidelines when working close to sensitive habitats and species.

Conditions on a grant of planning for a development close to designated sites or sensitive habitats might include but not be limited to:

- Consultation with the National Park and Wildlife Services prior to commencement of work
- Requirement for a riparian zone between the work area and nearby watercourses
- Any in-river works in salmonid waters confined outside the season for salmon and trout (May to September)
- Cognisance taken of any aquifer plans in the area
- Provision of fuel bunding on site
- Provision of a surface/stormwater management plan during construction
- Provision to ensure that hedgerows are not removed during the nesting season (March – end of August)
- Provision of bat survey when old trees or buildings are been removed
- Mammal surveys e.g. badgers/otters should be undertaken in the appropriate season
- Provision of mitigation measures e.g. mammal underpasses, bat boxes, replanting of trees post construction
- Compliance with any biodiversity plans in neighbouring counties

The County Heritage Officer should be consulted with prior to a grant of planning in area close to designated sites.

### 10.2.3. Cultural Heritage

Carlow County Council is currently reviewing their Sites and Monuments (SMR) listing for the county. It is proposed that SMRs reflecting Carlow industrial heritage are included such as the limekiln tower and the harbour on the former Irish Sugar plc site.

It is recommended that all planning applications within 30 m of a listed archaeological site or a site of architectural heritage must be accompanied by an archaeological assessment.

A registered archaeologist should be present during the initial stripping of the topsoil at these sites.

For projects involving the construction of roads the developer will need to take cognisance on the NRA's guidelines on archaeological assessments.

### 10.2.4. Landscape

Carlow County Council is committed to preparing a Landscape Character Assessment (LCA) for the county in conjunction with the CDP. The document would classify each of the landscape areas into one of the following classes:

- Exceptional value
- Very high value
- High value
- Moderate value

Planning applications for developments will need to take cognisance of this document. In the event that a planning application is submitted in a visually sensitive area or is of such a scale to be visually intrusive then the council should insist on:

- An assessment of the potential visual impact of the development and mitigation measures to remedy same. This could take the form of a photomontage or a ZTV
- If the planning application is for a windfarm then the developer will need to have cognisance of the DoEHLG's - The Wind Energy Development Guidelines for Planning Authorities (2006) document
- The use of the indigenous shrubs and trees for screening

#### 10.2.5. Population and Human Health

Planning applications particularly for residential developments must have the provision to provide good quality drinking water and adequate wastewater treatment for these developments.

The compliance rate for drinking water quality was 98.0%, above the national average (Source EPA (2006) The Quality of Drinking Water in Ireland A Report for the Year 2005). An outbreak of *Cryptosporidium* was discovered in April 2005 in the River Slaney supply and a boil notice was issued to consumers on the 13<sup>th</sup> April 2005. On the 24<sup>th</sup> May 2005,

Mitigation measures such as improved water treatment to remove microbial and *Cryptosporidium* contamination should be provided.

The provision of amenities for residential developments should be conditioned as part of planning permission for residential developments. Many of these mitigation measures will be implemented at Local Area Plan level or for project specific developments at the environmental impact statement stage.

#### 10.2.6. Soils and Geology

Carlow County Council has not completed an aquifer protection plan for the county or study area. When the groundwater vulnerability status of the aquifers is finalised by GSI, CCC should prepare an aquifer protection plan.

Existing or potential brownfield sites identified in the study area are;

- Irish Sugar plc
- Strawhill Industrial Estate
- Erin Foods site.

One of the objectives of the LAP is the use of brownfield sites for re-development to fully utilise existing infrastructure. In the event of a planning application on a brownfield site the council should insist that a full risk assessment is undertaken by the developer.

Depending on the type of contaminants, levels of contamination and nearby receptors the risk assessment could be a simple source/pathway/receptor model or a more complex risk assessment model.

Depending upon whether materials are hazardous or non-hazardous a waste licence from the EPA or waste permit from Carlow County Council will be required. The licence or the permit will have requirements for mitigation measures which may include but not be limited to:

- The provision of a surface water management plan
- The provision of noise, odour control
- Treatment of groundwater prior to discharge
- The provision of interceptor trenches between works and nearby rivers and streams
- The final agreed decontamination levels in the soil
- The method of remediation for example bioremediation, dig and dump, in-situ bioremediation etc.

#### 10.2.7. Material Assets

The provision of nodal planning within the draft LAP will require recreational amenities and educational facilities to be provided within most nodes. The town and environs area currently has 6 no. national schools with 1 no. adjacent to the area (Tinryland National School). There are 4 no. secondary schools in Carlow town and environs, 2 no. mixed sex (Presentation and Vocational) and 2 no. single sex ( St Louis Convent and CBS). Third level education is supplied by Institute of Technology Carlow (CIT) and Carlow College (formerly St Patricks). There are existing amenities such as gaelic playing grounds including Dr. Cullen Park, Carlow Hurling, Carlow Rugby and Eire Og grounds and 4 no. existing soccer pitches.

CCC proposes to enhance these amenities by providing:

- A swimming pool/ leisure centre in conjunction with CIT
- A €20 million visual art centre in town
- Conference facilities in Oak Park.