



MALLOW TOWN DEVELOPMENT PLAN 2010-2016

SEA STATEMENT

January 2010

1.0 Introduction

In accordance with Article 7 of the Planning & Development Regulations 2004, section 13(1), this report consists of an SEA Statement in relation to the Mallow Town Development Plan 2010 - 2016 and forms the final part of the requirements for the Strategic Environmental Assessment (SEA) of the Plan.

The main purpose of this SEA Statement is to provide information on the decision-making process and to document how environmental considerations, the views of consultees and the recommendations of the Environmental Report have been taken into account in the adopted Mallow Development Plan 2010 - 2016. It illustrates how decisions were taken, making the process more transparent. This statement will be made available to the public to accompany the adopted Plan.

The SEA Statement includes the following information:

1. Summary of how environmental considerations and the Environmental Report were factored into the plan;
2. Summary of how submissions/consultations were taken into account and how consultation responses have been taken into account;
3. Reasons for choosing the plan as adopted, in the light of other reasonable alternatives considered;
4. Measures to monitor the significant environmental effects of implementing the Plan;

2.0 Process

As part of the preparation of the Mallow Development Plan, RPS Planning & Environment carried out a Strategic Environmental Assessment (SEA). SEA is the process by which environmental considerations are required to be fully integrated into the preparation and adoption of Development Plans and other plans and programmes. The objective of the SEA process is to provide for a high level of protection of the environment and to contribute to the integration of environmental considerations into plans and programmes with a view to promoting sustainable development.

The SEA process was undertaken in parallel with each stage of the Plan making process and involved close consultation and meetings with the SEA Consultation Authorities, members of Cork County and Mallow Town Council(s), members of HRA Planning Consultants that prepared the Mallow Town Development Plan, the SEA team and a number of specialists that focused on the important environmental issues of the plan as identified during the screening and scoping phases and assessment of baseline information for the area.

In carrying out the Strategic Environmental Assessment of the Mallow Development Plan 2010 - 2016, the SEA Team were involved in the Plan preparation process. The SEA Team were fully involved in the analysis of development options and were in a position to make suggestions throughout the process of plan preparation to ensure that environmental considerations and environmental effects were considered in the formulation of strategic aims and development objectives. Furthermore, environmental scoping responses, consultation submissions and mitigatory measures against potential environmental impacts were incorporated into the Policies and Objectives of the Development Plan where possible.

3.0 Summary of How Environmental Considerations and the Environmental Report were Factored into the Plan

As part of the SEA Environmental Report, a matrix was developed and used to assess significant environmental effects of the key objectives of the draft Mallow Development Plan. This process enabled an overview of where potential environmental problems may arise from implementation of the draft Plan and allowed for additional policies/objectives to be generated and included in the Plan. As a result of this process, it was considered that the key environmental issues of the Mallow Development Plan, as set out in the Plan, related mainly to biodiversity and water matters such as flooding and water supply. The key trends and significant environmental effects are set out in Table 1 appended to this statement.

Where significant effects were identified in the drafting of the environmental report and had not already been mitigated sufficiently by policies and objectives within the Plan, additional mitigation measures were recommended and were incorporated where possible into the Plan. Table 1 as appended to this Statement documents all significant effects and mitigation measures as identified in the environmental report and sets out where the proposed mitigation measures have been implemented into the Plan. A Habitats Directive Assessment of the draft Plan was also carried out and is appended to the Environmental Report as part of the Adopted Plan. This assessment recommended a number of amendments to the policies and objectives of the Mallow Development Plan 2010 - 2016 and each of these proposed amendments were incorporated into the Plan where possible before adoption. Overall it was considered that the final Plan as adopted would not have a negative impact on the environment.

Article 10 of the SEA Directive requires Member States to monitor the significant environmental effects of the implementation of plans *'in order, inter alia, to identify at an early stage unforeseen adverse effects and to be able to undertake appropriate remedial action'*. Chapter 10 of the Environmental report sets out the monitoring proposals that will be undertaken following implementation of the policies and objectives of the Mallow Development Plan (these are also linked with significant effects and mitigation measures as set out in Table 1 of this statement).

4.0 Summary of how submissions/consultations were taken into account:

This section details how the submissions and observations made to the Planning Authority with regard to the Environmental Report have been taken into account during the preparation of the plan process. In particular, the Manager's Reports on the Development Plan under Section 12(4) and 12(8) required under the Planning and Development Act 2000 and prepared after the formal public display periods, demonstrate how particular submissions/consultations were considered. The general manner in which submissions were taken into account is outlined below.

4.1 SEA Scoping Consultations

RPS, on behalf of Mallow Town Council, undertook formal scoping with the three statutory Consultees. Strategic Environmental Assessment scoping letters and reports were sent to the Department of the Environment, Heritage and Local Government (DoEHLG), the Department of Communications, Marine and Natural Resources (DCMNR) and the Environmental Protection Agency (EPA) in early September 2008.

Responses from the parties consulted were received by RPS between October and November 2008. The EPA responded on the 5th of November 2008. The DoEHLG responded in terms of Architectural Heritage and Ecology on the 31st of October 2008 and on Archaeology on the 11th of November 2008. The DCMNR responded to the consultation on the 20th October 2008, however they did not have any comments.

Each of these scoping responses were taken into account during the carrying out of the Strategic Environmental Assessment and the preparation of the Environmental Report of the draft Mallow Town Development Plan.

The scoping exercise for this SEA determined the potential key environmental impacts and outlined how they should be addressed as part of the Environmental Report (this is documented in Table 2.1 of the Environmental Report).

4.2 Public Consultation Periods

The draft Mallow Town Development Plan and Environmental Report went on public display between February 14th and April 29th 2009 and again between the 21st October 2009 and 18th November 2009. At each period submissions were invited from the public, from the relevant statutory bodies and the Environmental Authorities. Consultation responses were received by Mallow Town Council from the DoEHLG and the EPA and suggestions and recommendations were included within the draft Plan, Environmental Report and Appropriate Assessment where possible.

Additional Amendments were also made to the Plan at the s.12 (8) stage of the plan making process. The proposed amendments at the s.12 (8) were not subject to the public consultation process, however the proposed amendments were assessed in terms of SEA and were presented to the members of the Council to inform their decision in the adoption of the Plan.

In order to document the SEA process, the SEA assessment of each set of amendments arising from the consultation process have been documented in chronological order in section 8 of the environmental report.

4.3 Consultation of Habitats Directive Assessment

A Habitats Directive Assessment of the draft Plan was also undertaken by RPS Group and this report is attached as Appendix 2 of the environmental report. This document went on public display during the consultation period for the proposed amendments in October 2009. The National Parks and Wildlife Service (NPWS) were also consulted in the preparation of this assessment.

4.4 Assessment of Material Amendments

As a result of the initial consultation submissions made to the draft plan a number of amendments were recommended by the Manager as set out in the Section 12 (4) Manager's Report. The proposed s.12 (4) amendments were assessed in terms of SEA to inform the members' decision and the final amendments went on public consultation between the 21st October 2009 and 18th November 2009 (see Table 8.3 of the environmental report).

After the consultation period of the initial proposed amendments as per the Section 12(7) Managers Report, the Manager drafted the s.12 (8) Manager's Report setting out the Manager's Response and Recommendations to the issues raised in the submissions received during the statutory public consultation period for the second stage of amendments. The s.12 (8) Managers Report was presented to the members in December 2009. Material changes to the Plan were made at this stage to incorporate changes as per the recently published '*The Planning System and Flood Management Guidelines for Planning Authorities*'. The s. 12 (8) amendments were assessed in terms of SEA and the Habitats Directive Assessment. The SEA assessment of the s. 12 (8) amendments are documented in table 8.4 of the environmental report.

4.5 Adoption of the Plan

The Plan was formally adopted at a Mallow Town Council formal meeting on 14th January 2010.

5.0 Reasons for choosing the plan as adopted, in the light of other reasonable alternatives considered

Article 5 of the SEA Directive requires the environmental report to consider "*reasonable alternatives taking into account the objectives and the geographical scope of the plan or programme*" and the significant effects of the alternatives selected.

Therefore as part of this process three development strategies for the Plan area were assessed in order to determine the preferred development strategy for the Plan area with the least environmental effects. The three alternatives considered include a 'Minimalist Approach', an alternative to 'Densification of the town'; and an alternative to 'Promote development in a market led approach'.

Based on the policy context, issues and needs facing the town it was considered that the preferred alternative as set out in the SEA was the option for the densification of the town centre which would allow the town to develop in a compact and sustainable manner in order to restrict the need to develop lands outside the town boundary. It was considered that this development strategy would promote increased density of development in the existing Town Centre and expansion of the town centre westwards, and allow the redevelopment of brownfield sites and Greenfield sites only where there is a natural extension to existing zoning. Accordingly this alternative is reflected in the basis for the Vision of the Mallow Plan as set out in section 3.1 of the Plan, which is: to retain the compact pattern of development that has occurred to date, preserving and enhancing the town centre as the economic service provider to the urban area and wider rural hinterland, and enabling Mallow to achieve its strategic 'Hub' status utilising the inherent physical and natural characteristics of the town. Furthermore, it was considered that under this scenario, new town expansion areas would be developed / redeveloped to accommodate new urban development and deliver the maximum quantitative efficiency of new population density and commercial floorspace in line with the Town's Hub designation.

6.0 Monitoring measures

The SEA Directive requires that significant environmental effects of the implementation of a plan is monitored in order to identify, at an early stage, unforeseen adverse effects and to be able to undertake appropriate remedial action. Monitoring can also be used to analyse whether the Development Plan is achieving its Environmental Protection Objectives and targets, whether such objectives need to be re-examined and whether the proposed mitigation measures are being implemented.

The primary purpose of monitoring is to cross check significant environmental impacts which arise during the implementation stage against those predicted during the plans' preparation stage.

Chapter 10 of the Environmental Report sets out the monitoring proposals to monitor significant effects and implementation of mitigation measures to be undertaken following implementation of the policies and objectives of the Mallow Town Development Plan (these are also linked with significant effects and mitigation measures in Table 1 below). Table 10.1 of the environmental report sets out specific potential environmental impacts and indicators and targets to allow monitoring of the quantitative trends and progress over time relating to the significant impacts.

Mallow Town Council is responsible for monitoring the significant environmental effects arising from the implementation of the Mallow Development Plan 2010 - 2016. However, as set out in the Cork County Development Plan 2009, potential impacts are also considered in a national, regional and local context, which can be referred to where possible. Furthermore the Cork County Planning Policy Unit are carrying out survey work in terms of the review of the Local Area Plans for the entire County, which can be referred to in terms of future monitoring for the Mallow Town Development Plan.

Table 1: Significant Effects, Proposed Mitigation Measures and Proposed Monitoring

Significant Effects	Mitigation Measures (and reference to where addressed in the draft Plan highlighted)	Monitoring (Refer to relevant indicators, targets and responsibilities as indicated in table 10.1)
<p>Biodiversity</p> <p>Overall it is considered that the draft Plan is extremely positive in terms of the provision of protective environmental Policies and Objectives within the Plan. However given the 'hub' town status for Mallow and associated growth projections in addition to the environmental cSAC designation of the Blackwater cSAC which runs through the centre of the Town it is considered that a number of additional mitigatory policies and objectives should be included within the Plan in terms of biodiversity, flora and fauna;</p>	<p>SEA Recommends the inclusion of a policy setting out the need to undertake an Appropriate Assessments in areas within or likely to affect cSAC's and SPAs in consultation with the NPWS in accordance with Article 6 of The EU Habitats Directive; i.e. new roads and other infrastructure, other major developments, etc.</p> <p>Adequately dealt with under Policy EH1 – 5</p> <p>The SEA Recommends the modification of the following Objective TAC-1 to read: "in consultation with NPWS and SWRFB, provide a slipway and fishing stands"</p> <p>Adequately dealt with under Policy EH1 - 5</p> <p>SEA Recommends the following amendments to Text of Plan:</p> <p>Section 3.4: Under 'Environmental Parameters', the first sentence describes Natura 2000 designation as an 'amenity' designation; this is considered inaccurate and the word 'amenity' should be replaced with 'biodiversity conservation'.</p> <p>Adequately dealt with in section 3.4 of the Plan</p>	<p>Refer to Monitoring Programme As Indicated In Table 10.1: B1, B2</p> <p>Refer to Monitoring Programme As Indicated In Table 10.1: B1, B2, W2</p> <p>Refer to Monitoring Programme As Indicated In Table 10.1: B1, B2, W2</p>

Table 1: Significant Effects, Proposed Mitigation Measures and Proposed Monitoring

Significant Effects	Mitigation Measures (and reference to where addressed in the draft Plan highlighted)	Monitoring (Refer to relevant Indicators, targets and responsibilities as indicated in table 10.1)
<p>Widespread development on floodplains and the associated infilling of wetlands, is a potential environmental problem within this Plan area that has been highlighted in correspondence between RPS and the EPA.</p> <p>The Development Applications Unit of the DoEHLG have commented in correspondence with RPS (letter received 31st October 2008) that developments in flood plain areas that might affect flooding and require subsequent flood prevention measures and downstream hydrological impacts is an issue that may potentially impact negatively on biodiversity, and should therefore be addressed in the plan.</p> <p>The Development Applications Unit of the DoEHLG have commented in correspondence with RPS (letter received 31st October 2008) that the potential for discharges from surface water run-off, old subsurface drainage and construction site drainage may carry hydrocarbons, sediment, nutrients and potentially toxic substances to the River Blackwater is an issue that may potentially impact negatively on biodiversity, and should therefore be addressed in the plan.</p> <p>All developments which take place on greenfield sites are likely cause some degree of negative impact on biodiversity. Where developments such as roads, housing and other infrastructural developments occur on greenfield sites they often replace semi-natural and natural areas with artificial surfaces causing a gradual loss of biodiversity.</p>	<p>Section 9.2.3 'statutory and amenity designations' in the last sentence add the words 'and ecological corridor' as follows:</p> <p>... the Spa Glen is considered to be a significant landscape feature and ecological corridor within the town...."</p> <p>Section 9.23 has been amended to include the above text.</p> <p>SEA Recommends the following modification to Policy TAC1-1 to read: "...the risk of flooding and the designation of the river and the banks within The River Blackwater (Cork / Waterford) cSAC imposes additional restrictions on development."</p> <p>Adequately addressed under Policy EH1 – 5 and Policy IU4</p> <p>Objective IU1, IU4, IU10 and Policy EH1 and EH2 adequately deals with this matter.</p> <p>Due to the hub status and population projections for the area it is accepted that there will be development on greenfield lands. Sufficient policies to mitigate against any long-term negative impacts resulting from proposed development.</p>	<p>Refer to Monitoring Programme As Indicated In Table 10.1: B1, B2, W2</p> <p>Refer to Monitoring Programme As Indicated In Table 10.1: B1, B2</p> <p>Refer to Monitoring Programme As Indicated In Table 10.1: B1, S1, S2, S3</p> <p>Refer to Monitoring Programme As Indicated In Table 10.1: B1, B2, PH1, PH2, S1, S2, W1 – W3, E1, M1, M2, L</p>

Table 1: Significant Effects, Proposed Mitigation Measures and Proposed Monitoring

Significant Effects	Mitigation Measures (and reference to where addressed in the draft Plan highlighted)	Monitoring (Refer to relevant Indicators, targets and responsibilities as indicated in table 10.1)
<p>Introduction of Invasive species and Potential Loss of native species.</p>	<p>SEA Recommends new policy under EH Natural Environment as follows: "Mallow Town Council will, in consultation with NPWS and SWRFB, develop an 'Invasive Species and Ecologically Appropriate Planting' policy which will be used in development and planning decisions to protect the River Blackwater and other ecologically sensitive sites within the town from negative impacts that might result from the introduction of invasive alien species such as dace, grey squirrel, and Japanese knotweed, and noxious weeds." Policy EH 1 refers to protection from invasive species.</p>	<p>Refer to Monitoring Programme As Indicated In Table 10.1: B1, B2</p>
<p>Severance of ecological corridors - The removal of ecological networks / increase in hedgerow removal throughout Ireland in recent years. The Development Applications Unit of the DoEHLG have commented in correspondence with RPS (letter received 31st October 2008) that riverside or flood plain (riparian) development without the planting of native trees and other plants is an issue that potentially impact negatively on biodiversity, and should therefore be addressed in the plan.</p>	<p>SEA Recommends new policy under EH Natural Environment as follows: "It is a policy of Mallow Town Council to enhance biodiversity and to cooperate with other local authorities to facilitate the maintenance and development of ecological networks." Policy EH1 of the draft Plan proposes to protect, conserve and enhance biodiversity, however no reference to 'cooperate with other local authorities to facilitate the maintenance and development of ecological networks.'</p>	<p>Refer to Monitoring Programme As Indicated In Table 10.1: B1, B2</p>
<p>Population and Human Health</p>		
<p>Mallow Town faces the threat of dispersed growth outwards of the town within the environs area of Mallow.</p>	<p>The SEA recommends the inclusion of text or objective within the Plan to ensure the co-ordinated</p>	<p>Refer to Monitoring Programme As Indicated In Table 10.1:</p>

Table 1: Significant Effects, Proposed Mitigation Measures and Proposed Monitoring

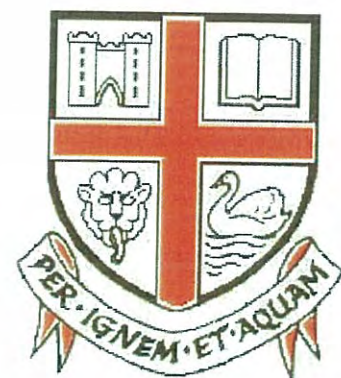
Significant Effects	Mitigation Measures (and reference to where addressed in the draft Plan highlighted)	Monitoring (Refer to relevant Indicators, targets and responsibilities as indicated in table 10.1)
	development of Mallow Town and its environs through enhanced and on-going co-operation and consultation with Cork County Council.	PH2, PH1
Soils	Dealt with in Part 1 of the Plan	
Where development does take place best practice should be implemented to prevent soil erosion and prevent escape of suspended solids into nearby watercourses (watercourses particularly where there is proposed developments along the riverside.	SEA Recommends the inclusion of a policy for implementation of the policies and objectives of the Soils Directive; No Policy included within the Plan	Refer to Monitoring Programme As Indicated In Table 10.1: S1, S2,
Water		
The Wastewater Treatment Plant for Mallow Town is on the EPA Remedial Action List, where further investigation or improvement maybe required. As a result the majority of the study area is "possibly at risk of not achieving good status" for groundwater and under the WFD the River Blackwater is classified as being "At Risk of Not Achieving Good Status".	SEA Recommends the inclusion of a policy to promote the implementation of Management Plans for the South Western region for the protection of groundwater and surface waters. Policy and Objective IU1 and IU2 adequately address this issue.	Refer to Monitoring Programme As Indicated In Table 10.1: B2, W1, W2, M2
	SEA Recommends the inclusion of a policy to monitor the performance of wastewater treatment plants and the sewerage network to capture leakages to Ground water and surface water. No policy or reference in Plan, however is proposed in monitoring programme as proposed in table 10.1 of this report.	Refer to Monitoring Programme As Indicated In Table 10.1: W1, W2, M1, M2
	SEA Recommends the inclusion of a policy to ensure that development in areas of extreme GW vulnerability should employ best practice to ensure that the underlying GW resource is protected. No policy or reference in Plan	Refer to Monitoring Programme As Indicated In Table 10.1: W1, W2, B1, B2

Table 1: Significant Effects, Proposed Mitigation Measures and Proposed Monitoring

Significant Effects	Mitigation Measures (and reference to where addressed in the draft Plan highlighted)	Monitoring (Refer to relevant Indicators, targets and responsibilities as indicated in table 10.1)
<p>Air and Climate</p> <p>As the population of Mallow continues to grow in the future, there is a need to ensure that growth is planned for and that there are sufficient and appropriate lands zoned to accommodate such growth. A sustainable transport system is required to reduce car dependence and reduce GHG emissions. Sustainable construction and design in addition to clean and energy efficient technologies should be encouraged at design stage. It is acknowledged that the Plan provides for a wide range of objective to encourage reduction in energy consumption and emissions.</p>	<p>Consideration could also be given in the Plan to examining the feasibility of district energy systems for public buildings and the Mallow urban area in general, such as combined heat and power and district heating, particularly for new developments. The main advantages of district heat systems include:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Fewer emissions in densely populated areas; <input type="checkbox"/> Less individual boilers; <input type="checkbox"/> Higher energy efficiency and lower CO₂ emissions; and <input type="checkbox"/> Reaching Higher Building Energy Rating Targets. <p>Adequately addressed in Section 14 of the draft Plan refers to the implementation of sustainability within the Plan. There are also a number of objectives within th Plan promoting sustainable energy, renewables and public transport, walking and cycling in the draft Plan. Also refer to Development Management section 15.8 revering to energy within the Plan.</p>	<p>Refer to Monitoring Programme As Indicated In Table 10.1: A1, PH1, PH2, E1</p>
<p>Material Assets</p> <p>The existing water supply source and treatment facilities have adequate capacity to cater for the existing situation within the Town, however the Mallow Water Supply and treatment facilities will require upgrading to allow for ample capacity for the town to expand in line with projected growth associated with the Town's 'Hub' designation.</p>	<p>Recommend Policy to ensure sufficient water supply source and treatment facilities town to expand in line with projected growth associated with the Town's 'Hub' designation.</p> <p>Policy and Objective IU2 sufficiently deals with this matter</p>	<p>Refer to Monitoring Programme As Indicated in Table 10.1: M1, M2</p>
<p>Cultural Heritage</p> <p>In addition to the Record of Protected Structures, structures of architectural heritage merit, although not put forward for inclusion in the Record of Protected Structures (RPS) may continue to contribute to the identity of a locality and should be taken into account in the preparation of the Development Plan. The Mallow area is unique in form and character. The contribution of any features,</p>	<p>Recommend Policy or text within the Plan for recognition of structures of architectural heritage merit, although not put forward for inclusion in the Record of Protected Structures (RPS) and any features, which give identity to and enhance that</p>	<p>Refer to Monitoring Programme As Indicated in Table 10.1: CH2</p>

Table 1: Significant Effects, Proposed Mitigation Measures and Proposed Monitoring

Significant Effects	Mitigation Measures (and reference to where addressed in the draft Plan highlighted)	Monitoring (Refer to relevant Indicators, targets and responsibilities as indicated in table 10.1)
<p>which give identity to and enhance that uniqueness, should be given recognition in the preparation of the Development Plan.</p>	<p>uniqueness of the area should be given recognition in the preparation of the Development Plan. Adequately addressed in Policy EH6</p>	
<p>At present there is no protection for Mallow's Zone of Archaeological Potential as detailed on the statutory Recorded Monuments and Places Map.</p>	<p>Recommend inclusion of the Zone of Archaeological Potential (ZAPs) map within the in Mallow Town Plan and include a policy setting out its protection. Adequately addressed in section 9.3.4 of the Plan</p>	<p>Refer to Monitoring Programme As Indicated In Table 10.1: CH1,</p>
<p>Map 2 of the draft Plan indicates archaeological sites on the 'Sites and Monuments Record' (SMR), which are archaeological monuments awaiting statutory protection, however are not currently protected and therefore could be destroyed or impacted upon by development.</p>	<p>Recommend inclusion of a policy within the plan outlining that Mallow Town Council will take due regard for the protection of SMRs even through they are not statutory protected monuments and places. Adequately addressed in Chapter 9 of the Plan</p>	<p>Refer to Monitoring Programme As Indicated In Table 10.1: CH1,</p>
<p>Landscape Reduction in hedgerows and field patterns and associated impact on character of the landscape</p>	<p>Hedgerows where possible, should be retained in order to reflect field patterns and further planting of deciduous trees should be encouraged as their continuation is important in retaining the character of this landscape. Policy EH 1 – 4 within the draft Plan adequately addresses this issue</p>	<p>Refer to Monitoring Programme As Indicated In Table 10.1: L1</p>



Mallow

Town Development Plan 2010-2016

Parts 6 & 7

SEA and Appropriate Assessment

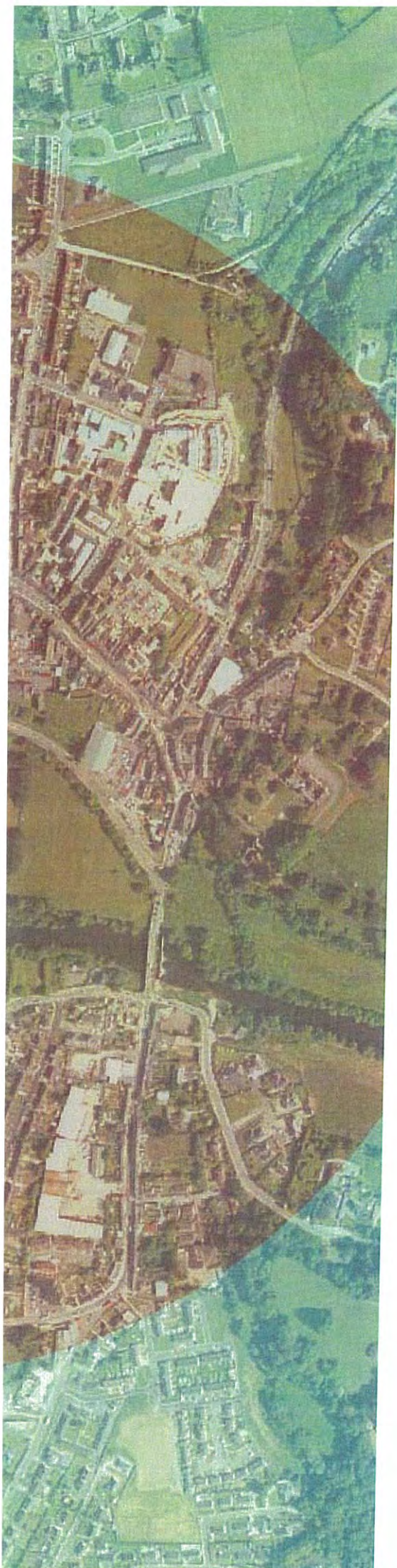


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Appendix 2 Appropriate Assessment of Mallow Town Development Plan

NON-TECHNICAL SUMMARY

Background

The Mallow Town Plan sets out the overall strategy for the development of Mallow town. The existing Town Development Plan was adopted in 2004 and remains in force until 2010.

Mallow Town Council is currently preparing a new Town Development Plan under The Planning and Development Acts (2000-2006) which requires the Planning Authority to prepare a “Development Plan” every six years for its jurisdiction.

As part of this development plan process, RPS are undertaking a Strategic Environmental Assessment (SEA) which is intended to identify and assess the issues facing the Mallow Town Council area going forward. This Environmental Report will be made available to the public along with the Mallow Development Plan 2010 - 2016. The Environmental Report has guided the preparation of objectives, policies and development scenarios for the Development Plan with an ultimate goal of achieving sustainable development within the Mallow Town Council area.

Project Objectives and Methodology

This Environmental Report provides a Strategic Environmental Assessment (SEA) of the Mallow Development Plan, including its objectives and policies.

The SEA process as illustrated in **Figure 1.2** aims to:

- Integrate environmental factors into the decision making process;
- Improve the updated Plan and enhance environmental protection; and
- Facilitate openness and transparency in the decision making process.

Strategic Environmental Assessment Stages

- **Screening** of Plans and Programmes establishes whether the relevant plan or programmes must undergo an SEA, in this case Mallow Town Council determined during their screening process in March 2008 that an SEA was warranted.
- **Scoping** of the Environmental Report: The competent authority, in this case Mallow Town Council, must give notice to the environmental authorities that they are preparing an environmental report on the significant effects of implementing the Plan. A scoping request was sent out to the three statutory consultees in September 2008.

- An **Environmental Report** – Mallow Town Council commissioned RPS in May 2008 to continue the SEA process and prepare an Environmental Report. The Environmental Report investigates, describes and evaluates the likely significant effects on the environment of implementing the Town Plan.

Specifically, the aim of this Environmental Report is to identify:

- Existing environmental issues in Mallow Town;
 - The likely significant effects on the environment when the new Town Plan is implemented;
 - How the impact on the environment can be reduced or prevented; and
 - How to monitor environmental impacts over the lifetime of the Town Development Plan.
- A **Consultation period** on the Draft Plan and associated Environmental Report will be carried out in early **2009** when the Plan and environmental report will be available for public viewing at Mallow Town Council's office. The public will have the opportunity to submit their written observations/comments on the documents during this time and all submissions must be submitted to the Town Manager, Mallow Town Council.
 - An **SEA Statement** – when the new Town Plan is adopted, an Environmental Statement identifying how environmental considerations and consultations were integrated into the Final Plan will be made available to the public and to view and purchase at Mallow Town Council's office.
 - The **SEA process was undertaken in parallel with each stage of the Plan-making process** and involved close consultation and meetings with the SEA Consultation Authorities, members of HRA Planning Consultancy (who Drafted the Mallow Town Development Plan 2010 – 2016), the SEA team and a number of specialists who focussed on the significant environmental issues of the plan as identified during the screening and scoping phases and assessment of baseline information for the area.

Environmental Baseline

The following sections describe the baseline, or existing environmental conditions collected and assessed for each of the topics required under the SEA Directive i.e. biodiversity, population and human health, flora and fauna, water, soil, air and climate, material assets, cultural heritage, transportation and landscape. It was considered necessary to combine some topics in order to avoid unnecessary duplication.

As required by the SEA Directive, the environmental report also comments on the likely evolution of the various indicators in the absence of the implementation of the preparation of the Mallow Development Plan 2010 - 2016.

The key findings of the baseline survey are described below and full details can be found in Chapter 5 of the Environmental report.

Biodiversity, Flora and Fauna

There is one designated site, the *Blackwater River (Cork/Waterford)* candidate Special Area of Conservation (cSAC), within the Mallow town boundary. There are also a number of sites designated for biodiversity conservation within 10km of Mallow town, including the Blackwater River (Killavullen) proposed Natural Heritage Area (pNHA) which is 7.5 km east of the Mallow, the Awbeg Valley above Doneraile pNHA which is 8.5 km north east of Mallow, the Blackwater Valley (Ballincurrig Wood) which is 9.5 km east of Mallow and the Eagle Lough pNHA which is 10km north of Mallow. Furthermore the *Kilcolman Bog* Special Protection Area (SPA) lies 10.5km to the north of Mallow.

The Ivy Broomrape (*Orbanche hederæ*) was the only protected species found under the Flora (Protection) Order of 1999 within the Mallow Town Council boundary. Ivy Broomrape is a woodland species that grows parasitically in Ivy.

In terms of fauna, Mallow's location on the River Blackwater and the large area of riverside and flood plain habitat that is present within the town make it a potentially high quality area for a number of mammal species, particularly otter and various species of bat.

The most important freshwater habitat in Mallow is the River Blackwater, which holds populations of the Habitats Directive Annex II species: sea lamprey, river lamprey, brook lamprey, twaite shad, Atlantic salmon and freshwater pearl-mussel. The River Blackwater is also considered to be an important ecological corridor, which allows wildlife, flora and fauna to migrate, disperse and genetically exchange within this area.

Population and Human Health

The 2006 Census of Population identified a population of 7,864 within the Mallow Town Council boundary area and the Mallow Environs had a population of 2,377 people. During the most recent intercensal period of 2002-2006, Cork County recorded another increase in its population (11.4%). Mallow Urban had a population increase of 10.6%, while Mallow Environs had an increase of 28.8%. It is evident that the most significant increase in population between 2002 and 2006 was in the Mallow Rural area. It is considered that this significant increase in population is a result of the rezoning of lands outside Mallow town, the development of one-off housing in rural areas and also potentially a national immigration flux.

Based on the fact that a substantial area of the Mallow Town Council urban area has been developed to date and new urban generated development including residential, industrial and commercial enterprises have extended beyond the town boundary and into the 'environs', development options within the town are relatively limited. Therefore the development strategy of the Plan is to extend the existing Town Centre westwards to accommodate new urban development and deliver the maximum quantitative efficiency of new population density and commercial floorspace in line with the Town's Hub designation. In addition to the key expansion area to the west of the town centre, some greenfield land has also been zoned in Quartertown for residential development and a number of opportunity sites are also identified

It is considered that there are sufficient lands zoned within the town and a substantial landbank available for new enterprises to support Mallow and its environs in its designation as 'hub'.

Soil

Mallow is situated within a sedimentary geological setting. The town of Mallow itself lies mostly on pure unbedded limestone. The majority of Mallow is lying on Locally Important Aquifer, which is moderately productive in local zones and capable of yielding water.

Mallow town centre generally consists of man-made ground extending over the urban and residential areas of the town. The area generally consists of glacial tills laid down during the last glaciation period. There are however extensive alluvium soils deposited across the town centre, following the direction of the Blackwater River, which most likely originated from floodwater and tributary migration and development of the river during the Quaternary Period and the land, making the area very fertile.

Water

The town of Mallow lies north of Cork City on the banks of the River Blackwater. The River Blackwater is one of Ireland's largest rivers flowing through five counties including Kerry, Limerick, Cork, Tipperary and Waterford. Additional rivers and streams in the greater Mallow area include the Clyda River which joins the Blackwater River just east of Mallow Racecourse, some 2.5km southwest of Mallow town centre. The Finnow stream flows into the Blackwater River west of Mallow at Lombardstown.

In order to manage and assess water quality, a River Basin Management Plan was put in place in the south west of Ireland. Mallow lies within the South Western River Basin District (SWRBD) the plan for which is due to be adopted in 2009.

Most rivers/streams within the Mallow area have received an EPA Q-value rating of 4 (depicted in green) indicating "Good Status", despite this the SWRBD has characterised the water in this area as "At Risk of Not Achieving Good Status".

Groundwater forms an integral part of all ecosystems and within the Mallow area it is a significant resource, as the oldest warm springs in Ireland are used to geo-thermally heat the local public swimming pool, and was the first geothermal energy project in Ireland. A number of private drinking water supplies are taken from groundwater reserves. Groundwater is subject to contamination from agriculture, poorly designed/constructed and maintained domestic wastewater treatment infrastructure, industrial sources etc. Groundwater also contributes to surface water quality providing residual flows from rivers and streams. It is also integral to the support of wetlands. The Water Framework Directive classifies a large proportion of the Mallow urban area groundwater as "Possibly at Risk of Not Achieving Good Status" there is however a small area that is classified as "At Risk of Not Achieving Good Status".

Mallow is located approximately 80km upstream of the mouth of the River Blackwater at Youghal and is therefore not affected by tides. Flooding occurs quite regularly in Mallow and a number of flood events have occurred in Mallow in 2008. Flood relief proposals were developed and put on public display in June 2005 as part of the Munster Blackwater (Mallow) Drainage Scheme. The scheme was broken into three separate phases, comprising Mallow North, Mallow South and Mallow West. Cork County Council/Mallow Town Council carried out extra works on the Spa Stream area in 2005 and these works were funded by the OPW. Any new developments, which do not drain surface water directly to the River Blackwater, are required to provide on site surface water retention

tanks to prevent flooding in storm conditions. The scheme will give the standard level of protection, i.e. Protection against a flood with a 1% probability of occurring in any given year. At present not all phases of the €30 million flood relief scheme are complete which means that Mallow is still susceptible to flooding

Air and Climate

In general the air quality in Ireland is considered to be good and this is primarily as a result of the prevailing Atlantic southwesterly winds crossing the country. The EPA monitors the air quality across the country, dividing the country into regions or zones. Air quality monitoring and assessments are undertaken at 5 locations in Cork, of which 3 are located within Cork City Council area and 2 locations are within the administrative area of Cork County Council. Air quality is monitored and assessed in Cork County at Glashaboy and Cork Harbour at Passage West. There appears to be a small decreasing trend in concentrations in recent years.

The dominant influence on Ireland's climate is the Atlantic Ocean. Consequently, Ireland does not suffer from the extremes of temperature experienced by many other countries at similar latitudes. The climate is becoming ever more variable and we can no longer safely refer to past climate when planning for the future, this is known as 'Climate Change'. The release of greenhouse gases into the atmosphere as a result of human activities add to natural climate variability by increasing the naturally occurring greenhouse effect. As a result Greenhouse gas emissions from 1990 to 2007 have consistently increased therefore there is a national push for more sustainable use of fuels and sustainable living.

Material Assets

Water Supply - The Mallow Water Supply Scheme is supplied with water from an impounding reservoir on the Fiddane Stream 3.5km southeast of the town and an abstraction from the Clyda River 2 km upstream of its confluence with the River Blackwater at Dromore (3km to the southwest of the town). Raw water is pumped from the Clyda intake at Dromore to the Ballyellis treatment plant. The Mallow Water Supply requires an upgrading and an application is currently awaiting approval from the Department of Environment Heritage and Local Government under the Mallow/Ballyvinitier Regional Water Supply Scheme in order to develop the new ground water source identified close to Doneraile Box Cross Roads. This new source will enhance the existing river source to the Ballyvinitier and the St. Joesph's Road areas and provide capacity in excess of 20,000 PE (Population Equivalent).

Drinking Water Quality - According to the Environmental Protection Agency, the River Blackwater and most of its tributaries are described as being 'at risk of not achieving good status' in terms of water quality under the Water Framework Directive. There are a variety of activities both within and outside the study area, which have the potential to impact on water quality. These include sewerage treatment works, flooding, domestic water treatment systems, housing, construction work, industry, landfill at Bottlehill, spillages, increased road runoff and agriculture.

Waste Water Treatment - Currently there is a secondary treatment plant serving the town. This plant at Ballyellis has a design capacity for 18,000 PE (Population Equivalent) and is estimated to be currently running at 66% capacity. There is adequate capacity to cater for zoned lands within the Town; however this will need to be monitored. The modular design of the Ballyellis plant allows for an expansion of the plant to accommodate additional growth within the Town.

The 'Mallow Sewerage Collection System Preliminary Report' has set out a phased programme for the extension to, and upgrade of the existing sewerage infrastructure network throughout the town and into the surrounding environs. The implementation of this programme, which is currently proposed subject to funding, could commence in early 2010 and could take between 2-3.5 years to implement.

Waste Disposal/Landfill – The Cork MRF, which is the cornerstone of Waste Management Strategy, is yet to be constructed. A new landfill for the County is proposed at Bottlehill on a greenfield site in a commercial forestry, south of Mallow. The Bottlehill facility has not opened as yet and Landfill capacity in the Cork region, prior to the opening of Bottlehill, is limited to that at Youghal (300,000), which is running below licensed capacity.

Transport – Mallow experiences significant congestion on its road network arising from traffic passing through the town centre and demand for on-street car parking, particularly along Davis Street. Therefore proposals within the Plan include a new relief road to the north of the town that would remove existing N72 traffic from the town centre. Furthermore as part of the national road improvement programme, the N20 will be upgraded to motorway standard.

It is the aim of Mallow Town Council to provide for effective circulation and movement of strategic and local traffic through and around the town and; to reduce traffic congestion in the town centre in order to create a vibrant town centre and improve the environmental quality and character of the town; and, to facilitate greater connectivity through the town and with other centres.

Cultural Heritage

Cultural heritage includes artifacts and intangible attributes that are inherited from past generations, maintained and bestowed for the benefit of future generations. Mallow town possesses a wealth of historical buildings and archaeological remains.

Mallow Town has a diverse range of monuments ranging from a number of historic eras. Monuments within the area include holy wells, churches, ring forts, fulacht fiadh country houses and limekilns. A number of recorded monuments (RMPs) are located within the town boundary and there are 2 National Monuments located within the Mallow Town Council boundary including Castlelands House and the Town Walls.

There are currently 138 protected structures within the Mallow Town Council Boundary. These buildings and structures are irreplaceable records of the past, of the local and national heritage, and therefore require protection. It is considered that their presence enhances the character of Mallow and adds to its local distinctiveness.

The built heritage of County Cork and Mallow town is also offered protection through the designation of Architectural Conservation Areas (ACAs). Three areas within the Town are designated as ACA's, including the Main Street that runs from West End through Davis Street and down to the Clock Tower. Spa Glen and Bearforest Demesne have also been designated as ACA's.

In Mallow there are four Tree Preservation Orders (TPO's) relating to trees in Castlelands, Castlelands and Ballyellis, Spa Glen and Spa Glens and Castlelands. A TPO enables the planning authority to preserve trees and brings them under planning control.

Landscape

The town of Mallow is particularly attractive enjoying a fine townscape and complex topography, within the Blackwater Valley. This attractive scenic setting is framed by surrounded by prominent hills and ridges to the northwest and the low-lying valley region to the south of the town. This gives the town its rich and diverse natural setting. The River Blackwater is the main natural amenity feature and has had a strong influence on the historic development of the town. The physical pattern of the town centre has been directly influenced by the extent of the flood plain of the River Blackwater, which in turn influences the existing and potential land uses along the river corridor including the Town Park. Other natural characteristics features influencing the development of Mallow include the Spa Glen landscape amenity area along the N72 (Fermoy Road) and the location of Mallow Castle at the eastern edge of the town centre.

According to the Draft Cork County Council Landscape Strategy, the landscape type of Mallow town is of very high value and is highly sensitive. Mallow and its surrounding landscape is comprised mostly of a fertile plain area, which forms part of the 'Golden Vale' but also includes other landscape types such as the Fissured Marginal and Forested Rolling Upland areas and Fissured Fertile Middleground.

The landscape high landscape sensitivity of the area means that the landscape is particularly vulnerable. Scenic routes act as indicators of high value landscapes and identify more visually sensitive locations where higher standards of design, siting and landscape are required. The N72 national secondary route between Mallow and Roskeen Bridge is designated as scenic route S14 by the Cork County Plan, for the views it affords of the Blackwater Valley. The elevated lands to the east and west of the town are designated as scenic landscape.

Consideration of Alternatives

Article 5 of the SEA Directive requires the environmental report to consider "*reasonable alternatives taking into account the objectives and the geographical scope of the plan or programme*" and the significant effects of the alternatives selected. As part of this process three development strategies for the Plan area were assessed in order to determine the preferred development strategy for the Plan area with the least environmental effects. The three alternatives considered include a 'Minimalist Approach', an alternative to 'Densification of the town'; and an alternative to 'Promote development in a market led approach'.

Based on the policy context, issues and needs facing the town it was considered that the preferred alternative as set out in the SEA was the option for the densification of the town centre which would allow the town to develop in a compact and sustainable manner in order to restrict the need to develop lands outside the town boundary. It was considered that this development strategy would promote increased density of development in the existing Town Centre and expansion of the town centre westwards and allow the redevelopment of brownfield sites and Greenfield sites only where there is a natural extension to existing zoning. Accordingly this alternative is reflected in basis for the Vision of the Mallow Plan as set out in section 3.1 of the Plan which is to retain the compact pattern of development that has occurred to date, preserving and enhancing the town centre as the economic

service provider to the urban area and wider rural hinterland, and enabling Mallow to achieve its strategic 'Hub' status utilising the inherent physical and natural characteristics of the town. Furthermore it was considered that under this scenario, new town expansion areas would be developed / redeveloped to accommodate new urban development and deliver the maximum quantitative efficiency of new population density and commercial floorspace in line with the Town's Hub designation.

Significant Effects Mitigation and Monitoring

As part of the SEA Environmental Report, a matrix was developed and used to assess significant environmental effects of the key policies and objectives of the Mallow Town Development Plan. This process enabled an overview of where potential environmental problems may arise from implementation of the Plan and allowed for additional policies/objectives to be generated and included in the Plan. As a result of this process it was considered that the key environmental issues of the Mallow Town Development Plan as identified by the Environmental Report were as follows:

Biodiversity: given the 'hub' town status for Mallow and associated growth projections in addition to the environmental cSAC designation of the Blackwater cSAC which runs through the centre of the Town additional precaution needs to be taken to ensure there will not be significant effects on the Town;

All developments which take place on greenfield sites are likely cause some degree of negative impact on biodiversity. Where developments such as roads, housing and other infrastructural developments occur on greenfield sites they often replace semi-natural and natural areas with artificial surfaces causing a gradual loss of biodiversity.

Introduction of Invasive species and Potential Loss of native species.

Wastewater (WW): The Wastewater Treatment Plant for Mallow Town is on the EPA Remedial Action List, where further investigation or improvement maybe required. As a result the majority of the study area is "possibly at risk of not achieving good status" for groundwater and under the WFD the River Blackwater is classified as being "At Risk of Not Achieving Good Status";

WW and Water Supply: Mallow Water Supply and treatment facilities will require upgrading to allow for ample capacity for the town to expand in line with projected growth associated with the Town's 'Hub' designation.

Where significant effects were identified as part of the SEA process, additional mitigation measures have been recommended and have been incorporated into the Plan where possible. Table 9.1 of the Environmental Report documents all significant effects as identified in the environmental report and links these to the proposed

mitigation measures as set out in the adopted Plan. Overall it was considered that the proposed Plan would not have a negative impact on the environment.

A Monitoring programme of the identified significant effects is set out in chapter 10 of the SEA, which aims to prevent against deterioration of the environmental quality of the area during the lifetime of the plan.

1 INTRODUCTION

1.1 BACKGROUND

The Mallow Development Plan sets out the overall strategy for the sustainable development of Mallow town. The previous Town Development Plan was adopted in 2004 and remained in force until 2010.

The Mallow Town Development plan 2010 – 2016 was prepared its Town Plan under The Planning and under the Planning and Development Act (2000), which requires the Planning Authority to prepare a “Development Plan” every six years for its jurisdiction. The Mallow Town Development Plan 2010 – 2016 covers the Mallow Town Council area, which is set out in Figure 1.1 below.

Figure 1.1 Mallow Town Council Area (outlined in red)



As part of the development plan review process, RPS have undertaken this Strategic Environmental Assessment (SEA) which is intended to identify and assess the issues facing the Mallow Town Council area going forward. This Environmental Report will be made available to the public along with the Mallow Development Plan. This Environmental Report has guided the preparation of objectives, policies and development scenarios for the Development Plan with an ultimate goal of achieving sustainable development within the Mallow Town Council area.

1.2 STRATEGIC ENVIRONMENTAL ASSESSMENT (SEA)

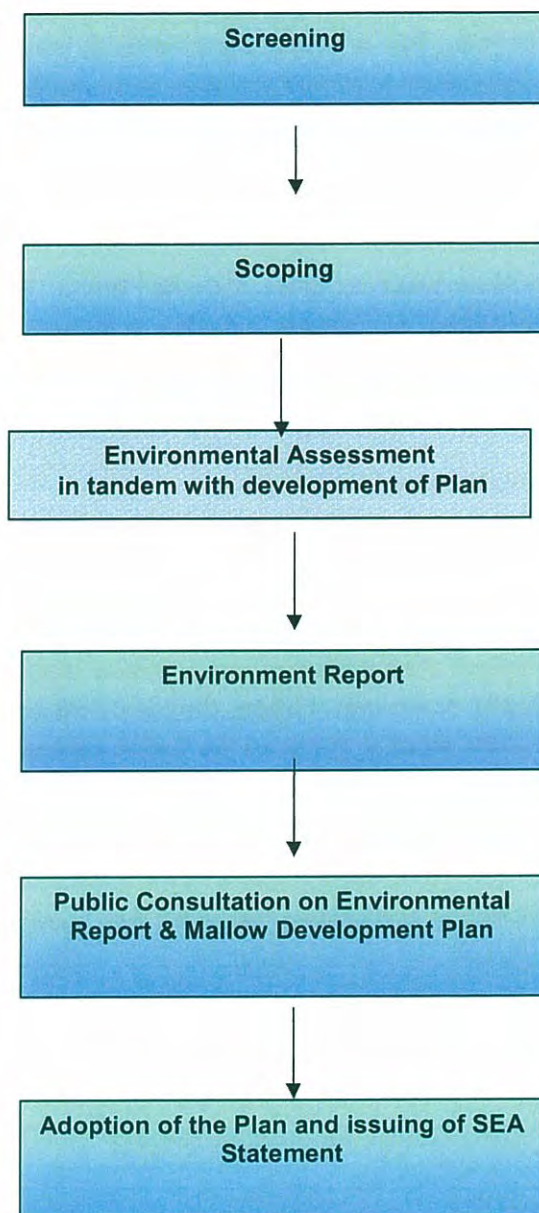
Strategic Environmental Assessment (SEA) is a process for evaluating, at the earliest appropriate stage, the environmental quality and consequences of Policy, Plan or Programme initiatives by statutory bodies. The purpose is to ensure that the environmental consequences of plans and programmes are assessed both during their preparation and prior to adoption. The SEA process also gives interested parties an opportunity to comment on the environmental impacts of the proposed plan or programme and to be kept informed during the decision making process.

The European Directive (2001/42/EC) on the Assessment of the Effects of Certain Plans and Programmes on the Environment (the SEA Directive), was transposed into national legislation in Ireland by the European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations 2004 (S.I. 435/2004) and the Planning and Development (Strategic Environmental Assessment) Regulations 2004 (S.I. 436/2004).

The stages of the SEA can be seen in Figure 1.2 and comprise the following:

- Screening of Plans and Programmes to establish whether the relevant plan or programmes must undergo an SEA;
- Scoping Report - This Scoping Report forms part of the statutory scoping process as required by Article 11(1) of the European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations 2004, S.I. 435 of 2004. The purpose of this report is to present the current understanding of the key environmental issues relating to the Mallow Development Plan Study Area and to inform the identification and assessment of possible options at a strategic level. It also aims to generate comments from stakeholders on the scope and SEA approach adopted for the Mallow Development Plan
- An Environmental Report - containing the findings of the Assessment on the likely significant effects on the environment of the Plan;
- Consultation on the Draft Plan and associated Environmental Report; and
- An SEA Statement - identifying how environmental considerations and consultations have been integrated into the Final Plan.

Figure 1.2: Stages of the SEA Process



1.3 PREPARATION OF THE ENVIRONMENTAL REPORT AND THE MALLOW DEVELOPMENT PLAN

In accordance with the provisions of Article 13A of The Planning and Development (Strategic Environmental Assessment) Regulations 2004, it was determined that the Mallow Development Plan would be required to be subject to a Strategic Environmental Assessment in tandem with the preparation of the Mallow Development Plan 2010 - 2016. The proposed plan was screened in terms of the provisions of Article 13A of The Planning and Development (Strategic Environmental Assessment) Regulations 2004. Taking account of the relevant criteria set out in schedule 2A of the Regulations, it was considered that Mallow Town Council is required to prepare an Environmental Report in respect of the preparation of the Mallow Development Plan for the following reasons:

- The plan would set a framework for projects and other activities, with regard to the location, nature, size and operating conditions or by allocating resources to the projects or activities.
- The plan influences non - statutory plans, guidelines and strategies within Mallow Town Council area. It also influences the special Mallow Local Area Plan 2005 in terms of provision of development within the Mallow environs.
- The plan would be relevant in terms of the integration of environmental considerations in particular with a view to promoting sustainable development,
- It is likely that proposals (i.e. new roads) could create environmental problems within the plan area,
- The Blackwater River (Cork / Waterford) located partly within the town boundary is a candidate Special Area of Conservation and therefore European Communities (Natural Habitats) Regulations 1997 which is European Union legislation on the environment would need to be implemented within the plan area.

The Planning and Development Act (2000) as amended requires the Planning Authority to prepare a "Development Plan" every six years for its jurisdiction. The Mallow Development Plan was adopted in 2004. The Statutory preparation of the Plan began in 1st March 2008 (4 years later), whereby a notice of intention to prepare the Mallow Town Development Plan 2010 – 2016 was issued. Submissions and observations were invited from the public. The closing date for submissions was the 28th April 2008. The Town Manager's Report and the s.11 Managers Report was adopted on the 2nd October 2008. Table 1.3.1 below summarises the timetable for release of documents.

Table 1.3.1 Timetable of Draft Plan and Strategic Environment Assessment

Date	Development Plan	Strategic Environmental Assessment
1 st March 2008 14 th April 2008	Strategic Issues Paper for Public Consultation	Scoping Report (Statutory consultation)
2 nd October 2008	s. 11 Manager's Report on submissions to the Issues Paper Adopted	
October - December 2008	Preparation of Draft Mallow Development Plan	Preparation of Draft Environmental Report
22 nd December 2008	Presentation of Draft Town Development Plan to Members	Presentation of Draft Environmental Report to Members
February to April 2009	Public Consultation of Draft Mallow Development Plan	Public Consultation of Environmental Report
July 2009	Presentation of Draft s. 12 Managers Report to Members	
October to November 2009	Public consultation of Draft s. 12 Managers Report	
December 2009	Presentation of Draft s. 12(8)a Managers Report on submissions to Members	
January 2010	Final Adopted Mallow Development Plan	SEA Statement

SEA Interaction with Mallow Town Development Plan Preparation Process

The SEA Guidelines indicate that there should be complete integration between the preparation of the environmental report and of the Draft Plan. This is to ensure that the Draft Plan is informed by environmental considerations from the outset.

In carrying out the Strategic Environmental Assessment of the Mallow Town Development Plan, the SEA Team were involved in the Plan preparation process. The SEA Team were fully involved in the analysis of development options and were in a position to make suggestions throughout the process of plan preparation to ensure that environmental considerations and environmental effects were considered in the formulation of strategic aims and development objectives. Furthermore all environmental scoping responses and migratory measures against potential environmental impacts were incorporated into the Policies and Objective at an early stage of the Development Plan process where possible.

2 SEA METHODOLOGY

The SEA methodology used to carry out the SEA of the Mallow Development Plan reflects the requirements of the SEA Directive (2001/42/EC) as transposed into Irish law (S.I. No. 436 2004) and also experience drawn from other SEA's carried out in Ireland and the UK. The following documents, in particular, have also been used as guidance:-

- *Development of Strategic Environmental Assessment (SEA) Methodologies for Plans and Programmes in Ireland, Synthesis Report, EPA (2003);*
- *Draft Scoping Checklist as issued by the EPA in Jan 2008;*
- *Implementation of SEA Directive (2001/42/EC): Assessment of the Effects of Certain Plans and Programmes on the Environment. Guidelines for Regional Authorities and Planning Authorities (DoEHLG, 2004);*
- *Draft Strategic Environmental Assessment (SEA) Checklist. Expected publication date(s) Jan - Mar 2008. Environmental Protection Agency;*
- *Guidelines on SEA. Department of Communications, Energy and Natural Resources. Available at: <http://www.dcmnr.gov.ie/Marine/Environmental+Assessment/Environmental+Assessment.htm>;*
- *A Practical Guide to the Strategic Environmental Assessment Directive. September 2005. Office of the Deputy Prime Minister;*
- *Strategic Environmental Assessment. Services and Standards for Responsible Authorities. Environment and Heritage Service;*
- *Strategic Environmental Assessment Toolkit (Version 1). September 2006. Scottish Executive; and*
- *Strategic Environmental Assessment and Biodiversity: Guidance for Practitioners. June 2004. Countryside Council for Wales, English Nature, the Environment Agency and the RSPB.*

Under consideration is the Mallow Development Plan, which if implemented has the potential to impact on the receiving environment. The main steps taken in this SEA process involved screening, scoping, baseline study, consideration of alternatives, environmental assessment of the objectives and policies of the proposed variation and the formulation of mitigation and monitoring measures.

2.1 SCREENING

In accordance with the provisions of Article 13A of The Planning and Development (Strategic Environmental Assessment) Regulations 2004, it was determined that the Mallow Development Plan would be subject to a Strategic Environmental Assessment in tandem with the preparation of the Plan. The proposed plan was screened in terms of the provisions of Article 13A of the Planning and Development (Strategic Environmental Assessment) Regulations 2004. Taking account of the relevant criteria set out in schedule 2A of the Regulations, it was considered that Mallow Town Council is required to prepare an Environmental Report in respect of the preparation of the Mallow Development Plan for the following reasons:

- The plan would set a framework for projects and other activities, with regard to the location, nature, size and operating conditions or by allocating resources to the projects or activities.
- The plan influences non - statutory plans, guidelines and strategies within Mallow Town Council area. It also influences the special Mallow Local Area Plan 2005 in terms of provision of development within the Mallow environs.
- The plan would be relevant in terms of the integration of environmental considerations in particular with a view to promoting sustainable development,
- It is likely that proposals (i.e. new roads) could create environmental problems within the plan area,
- The Blackwater River (Cork / Waterford) located partly within the town boundary is a candidate Special Area of Conservation and therefore European Communities (Natural Habitats) Regulations 1997 which is European Union legislation on the environment would need to be implemented within the plan area.

Therefore, following a screening exercise, Mallow Town Council determined that a strategic environmental assessment would be warranted in this case. This decision is available in the public file in Mallow Town Council.

2.2 SCOPING

The content and scope of the environmental report is determined with input from Strategic Environmental Assessment Statutory Consultees, including the:

- The Environmental Protection Agency (EPA);
- The Department of the Environment, Heritage and Local Government (DoEHLG); and

- The Department of Communications, Marine and Natural Resources (DCMNR).

RPS, on behalf of Mallow Town Council, undertook formal scoping of the SEA Environmental Report with the three statutory Consultees in early September 2008. Responses from the parties consulted were received by RPS between October and November 2008. The EPA responded to the consultation on the 5th of November 2008. The DoEHLG responded in terms of Architectural Heritage and Ecology on the 31st of October 2008 and on Archeology on the 11th of November 2008. The DCMNR responded to the consultation on the 20th October 2008, however they did not have any comments.

The scoping exercise for this SEA determined the potential key environmental impacts and outlined how they should be addressed as part of the Environmental Report (Table 2.1)

During the Scoping Stage Mallow Town Council also issued an Issues Paper in order to stimulate public consultation/opinion on the planning issues that the 2010 - 2016 Development Plan should address. Public interest at the start of the plan process is important so that the Development Plan reflects public aspirations and concerns as well as government policy, strategies and guidelines.

Table 2.1: Key Environmental Impacts and Mitigation Measures Determined from Screening and Scoping Phases

Environmental Topic	Issues	Mitigation/Recommendations
Biodiversity	<p>Proximity to designated sites, plan may need an Appropriate Assessment</p> <p>Protection of non-designated habitats and species</p> <p>Maintaining the quality of sensitive buffers</p> <p>Protection of local biodiversity features – including rivers, wetlands, hedgerows, individual trees, streams, grasslands, etc.</p>	<p>Consult with NPWS with regard to screening of the plan for Appropriate Assessment, if required should commence in parallel with the SEA.</p> <p>Consideration given to the inclusion of a plan objective for the conservation of non-designated habitats and species.</p> <p>Provision of appropriate buffers between sensitive areas and areas zoned for development (designated ecological sites), consult with NPWS.</p> <p>Promotion of linkages between local biodiversity features and ecological networks e.g. stone walls, hedgerows, watercourses etc. and sufficient buffer zones from areas zoned for development.</p> <p>Enhancement of local features of biodiversity where opportunities arise (possible policy).</p> <p>The plan should have regard to the EU Protected Habitats and Species in Ireland and Alien species and</p>

Environmental Topic	Issues	Mitigation/Recommendations
		<p>Noxious Weeds. Ensure that the threatened habitats and species are not placed under further risk of deterioration (habitats) or reduction in population size (species).</p> <p>Objective in the Plan to protect wetlands, and associated surface and groundwater systems within the Town Plan area.</p> <p>Consider supporting the development of a habitat map of Mallow to tie in with the County Habitat Mapping Project</p>
Flooding	Town is prone to severe and regular flooding.	<p>The OPW flood maps and Flood Studies conducted on the area should be referenced as part of the SEA baseline.</p> <p>The new Draft Planning System and Flood Risk Management Guidelines should also be referred to.</p> <p>Policy/Objective that OPW and Flood Study maps should be referred to in planning applications</p> <p>A specific objective should be included to provide for appropriate flood risk assessments to be undertaken, where proposed development(s) and proposed zoning in areas within the floodplain or on lands liable to flooding.</p> <p>Provision and promotion of Sustainable Urban Drainage Systems.</p> <p>The Flood Risk Management approach as adopted by the Office of Public Works (OPW) should be considered, as appropriate, in consultation with the OPW.</p> <p>Provisions should be made in the Plan for adaptation to Climate Change and likely increased risk of flooding arising from associated severe weather conditions.</p> <p>Appropriate zoning of lands and restriction of use should apply in areas liable to flooding to avoid increased risk of flooding of the lands either within or adjoining the zoned areas. This should take into account the need to ensure properties, critical infrastructure (water treatment plants, waste water treatment, electricity and gas supply infrastructure, emergency services etc.) and agricultural land etc. are adequately protected from flood events.</p>
Water	According to the WFD the River Blackwater Risk Category for the	Inclusion of Objectives and measures that will be set out in River Basin District (RBD) – River Basin Management Plans (RBMP's) and associated Programmes of

Environmental Topic	Issues	Mitigation/Recommendations
	<p>groundwater in the Plan area is classified as "at risk of failing to meet good status by 2015".</p> <p>Drinking Water Supply Capacity</p> <p>Water Conservation</p> <p>Extreme groundwater vulnerability</p>	<p>Measures (POMs) for the South Western River Basin District.</p> <p>Refer to the relevant Objectives, in accordance with the significant water management issues identified in the Water Matters Consultation publications for the South Western River Basin District.</p> <p>Zoning for development should be linked to availability of infrastructure and capacity. Priority should be given to provision of adequate and appropriate infrastructure in advance of any development.</p> <p>Plan should include specific objectives for the Mallow Drinking Water Supply. See http://www.epa.ie/downloads/data/water/name,24319,en.html</p> <p>The Plan should implement and include, as appropriate, the relevant recommendations set out in The Provision and Quality of Drinking Water in Ireland –A Report for the Years 2006-2007, (Office of Environment Enforcement-EPA, 2007) as included below in Section 4 of the SEA Pack. You are referred to this Report at: http://www.epa.ie/downloads/pubs/water/drinking/</p> <p>Develop an appropriate solution that will involve abandoning or replacing the source, upgrading the treatment facilities or improving management and operational practices.</p> <p>Include specific objective for the preparation of a Water Conservation Strategy for Mallow town and surrounding area as appropriate.</p> <p>Objective for a Groundwater Protection Scheme for groundwater resources in the Mallow area in accordance with the Groundwater Protection Scheme for Cork County.</p>
Waste Water Treatment	Waste water treatment provision in relation to the proposed growth	Where zoning/rezoning of lands and the introduction of new development is being proposed in the Plan area, consideration should be given to the examination of the adequacy of the existing wastewater treatment facility/ies. This should address both capacity and performance and the potential risk to human health and water quality as well as the potential impact on habitats and species of ecological importance. Priority should be given to provision of adequate infrastructure in advance of any development.

Environmental Topic	Issues	Mitigation/Recommendations
	<p>✶</p>	<p>Specific provisions for the implementation of the relevant recommendations set out in Urban Waste Water Discharges in Ireland for Population Equivalents Greater than 500 Persons – A Report for the Years 2004 and 2005 (Office of Environment Enforcement- EPA, 2007) as included below in Appendix 2. You are referred to this Report at: http://www.epa.ie/downloads/pubs/water/wastewater/name,13978,en.html</p>
<p>Population and Health</p>	<p>Population Growth in area</p> <p>Human Health - The following should be assessed in the town plan; Provision of adequate and appropriate amenity to serve both existing community and likely future increases in population; Provision of education and health services; Provision of adequate and appropriate cycleway and footpath networks along with adequate relevant signage; Promotion of the protection of existing natural and cultural heritage resources in the area as a local amenity and an educational resource; Protection of the air quality in the Mallow area; Provision of broadband (for work at home); Provision of childcare facilities near work places; Localised campaigns to encourage exercise and healthy living for all ages.</p>	<p>Review population figures giving new percentages from NSS and CDP 2003 and CDP 2009.</p> <p>Ensure adequate services and infrastructure to cater for population growth</p> <p>Ensure the mentioned issues are referred to in the plan.</p> <p>(Many of the other issues i.e. WWTP are also relevant to population and Human Health, however these will be dealt with under their particular remit in order to avoid overlapping).</p>
<p>Material Assets</p>	<p>New buildings should consider use of renewable material</p>	<p>Sustainable building practice policy</p> <p>Consideration should be given to the implementation of an integrated approach to waste management for any proposed development(s) within the Town.</p>
<p>Landscape</p>	<p>Protection of scenic landscapes, scenic views, scenic routes and landscape in the vicinity of the town</p> <p>Landscape Character</p>	<p>Ensure appropriate density and height restrictions to ensure no adverse impacts on adjacent mentioned features within the vicinity of the town</p> <p>Recommend detailed landscape and visual impact</p>

Environmental Topic	Issues	Mitigation/Recommendations
	<p>Assessment and/or Landscape Management Plan for the Plan area</p> <p>Key views, vistas, prospects, sensitive landscapes, river corridors etc all need to be addressed.</p> <p>Natural and historic landscapes</p>	<p>assessments where appropriate.</p> <p>Objective with relevant timescale for the preparation of a Landscape Character Assessment and/or Landscape Management Plan for the Plan area. This should be prepared as appropriate in accordance with relevant Guidance from the Department of the Environment, Heritage and Local Government and the Heritage Council.</p> <p>Promotion and where possible enhancement of key linkages between established land marks and landscape features and views, including recognition of these features when zoning land and when considering individual planning applications.</p> <p>Objective: to protect valued natural and historic landscapes, and features within them, should be conserved and enhanced</p>
Cultural Heritage	Cultural Heritage protection	<p>Objective to promote the protection and conservation of the cultural, including architectural and archaeological, heritage</p> <p>Ensure to distinguish between National Monuments, Recorded Monuments and Places (RMPs) in Mallow and Record of Protected Structures (RPS). Refer to www.archaeology.ie</p> <p>The archaeological potential of the coastal and inter-tidal zone, where relevant, should be carefully considered.</p> <p>Any potential impacts on archaeological heritage should be subject to full archaeological assessment.</p> <p>Industrial Heritage should be addressed.</p> <p>Promotion of linkages between significant features of archaeological/architectural significance.</p> <p>Protection of important trees in the town.</p>

Environmental Topic	Issues	Mitigation/Recommendations
Soil	Soil and groundwater contamination and the risks associated with site development work, where Brownfield development is proposed in Mallow.	A policy/objective should be included in the Plan to ensure adequate and appropriate investigation of the nature and extent of any soil and groundwater contamination and the risks associated with site development work, where Brownfield development is proposed in Mallow.
Transport	Traffic congestion, public transport, cycleways and pedestrian facilities all need to be addressed in the Draft plan.	<p>Development of traffic management measures to reduce the potential for traffic congestion and associated vehicular emissions should be considered for Mallow Town.</p> <p>Improved pedestrian and cycle facilities</p> <p>Good quality public transport</p> <p>Pedestrian facilities, public transport and cycle lanes will need to be addressed in the plan in a balanced and sustainable manner.</p> <p>Considerations should be given in including specific objectives in the Plan in relation to the protection and improvement, as appropriate, of air quality in Mallow, particularly in areas zoned for increased urban development and transport related development.</p> <p>Consider inclusion of recommendations arising from the new traffic and transportation study for Mallow</p> <p>Department of Transport 2020 Vision –Sustainable Travel and Transport Public Consultation Document (Feb 2008) should be reviewed in the context of possible initiatives which could be included as Objectives within the Plan.</p>
Climate and Energy	Energy Conservation	<p>The Plan should include relevant policies and objectives for the Promotion of energy conservation measures in buildings and Promotion, where appropriate, of the use of renewable energy systems (e.g. solar, wind, geothermal etc.) within the community.</p> <p>Refer to 'EPA Ireland's Environment 2008 - Main Environmental Challenges'.</p>
Other	Objectives, Indicators and Targets	<p>Use similar indicators, and targets as used within the CDP 2009. Provide for consistency in monitoring across the county.</p> <p>EPA have requested that the plan should be</p>

Environmental Topic	Issues	Mitigation/Recommendations
	Implementation	implemented in a strategic sustainable manner in terms of appropriate zoning of land while taking in account the requirements of for drinking water supply, waste water treatment, flood risk and biodiversity protection.

2.3 ENVIRONMENTAL REPORT

In this Environmental Report, which is placed on public display alongside the Mallow Town Development Plan, the likely environmental effects of the Draft Plan and alternative development strategies are analysed and their significance evaluated with regard to the environmental baseline. This Environmental Report has provided the decision-makers, the Elected Members of Mallow Town Council, who decide whether or not to adopt the Draft Plan, as well as the public, with a clear understanding of the likely environmental consequences of decisions regarding the future accommodation of growth in Mallow Town.

Mitigation measures to prevent or reduce significant adverse effects posed by the Plan, or to maximise any benefits arising, have been proposed. The alternatives are also presented in this report, as are measures concerning monitoring. This Environmental Report has been altered to take account of amendments made to the Mallow Town Development throughout the Development Plan process.

This Environmental Report contains an assessment of the likely significant effects (on biodiversity, population, human health, fauna, flora, soil, water, air, climatic factors, material assets, cultural heritage including architectural and archaeological heritage, landscape and the interrelationship between the above factors) of implementing the proposed plan.

The content of the Environmental Report is broadly defined in Article 12 (1) of the Regulations.

Chapter Title	Reference to Table 4A of the PG (Planning Guidelines)
Non-Tech summary	Ref. J
Introduction	
SEA Background and Methodology	
Key Objectives of the Plan	Ref. A
Planning and Policy Context	Ref. A and Ref. E
Baseline Environment	Ref. B, C and D
Objectives Targets and Indicators	Ref. C and Red. D
Assessment of Alternatives	Ref. J and H
Assessment of Policies/Objectives	Ref. B
Significant Effects and Mitigation Measures	Ref. D, F, I and G
Monitoring	Ref. I

2.4 PUBLIC CONSULTATION PERIODS

The draft Mallow Town Development Plan and Environmental Report went on public display between February 14th and April 29th 2009 and again between the 21st October 2009 and 18th November 2009. At each period submissions were invited from the public, from the relevant statutory bodies and the Environmental Authorities. Consultation responses were received by Mallow Town Council from the Department of the Environment, Heritage and Local Government (DoEHLG) and the Environmental Protection Agency (EPA) and suggestions and recommendations were included within the draft Plan, Environmental Report and Appropriate Assessment where possible.

Additional Amendments were also made to the Plan at the s.12 (8) stage of the plan making process. The proposed amendments at the s.12 (8) were not subject to the public consultation process, However these proposed amendments were assessed in terms of SEA and were presented to the members of the Council to inform their decision in the adoption of the Plan.

In order to document the SEA process, the SEA assessment of each set of amendments arising from the consultation process have been documented in chronological order in section 8 of the environmental report.

2.4.1 Consultation of Habitats Directive Assessment

A Habitats Directive Assessment of the draft Plan was also undertaken by RPS Group and this report is attached as Appendix 2 of the environmental report. This document went on public display during the consultation period of the proposed amendments in October 2009. The NPWS were also consulted in the preparation of this assessment.

2.4.2 Assessment of Material Amendments

As a result of the initial consultation submissions made to the draft plan a number of amendments were recommended by the Manager as set out in the Section 12 (4) Manager's Report. The proposed s.12 (4) amendments were assessed in terms of SEA to inform the members' decision and the final amendments under the s.12 (7) and associated environmental assessment went on public consultation between the 21st October 2009 and 18th November 2009 (see table 8.3 of the environmental report).

After the consultation period of the initial proposed amendments as per the Section 12 (7) Managers Report, the Manager drafted the S. 12(8) Manager's Report setting out the Manager's Response and Recommendations to the issues raised in the submissions received during the statutory public consultation period for the second stage of amendments. The s.12 (8) Managers Report was presented to the members in December 2009. Material changes to the Plan were made at this stage to incorporate changes as per the recently published 'The Planning System and Flood Management Guidelines for Planning Authorities' The s. 12 (8) amendments were assessed in terms of SEA and the Habitats Directive Assessment. The SEA assessment of the s. 12 (8) amendments are documented in table 8.4 of the environmental report.

2.5 ADOPTION OF THE PLAN

The Plan was formally 'made' at a formal meeting on 14th January 2010.

3 THE MALLOW DEVELOPMENT PLAN 2010 - 2016 OVERALL STRATEGY

The Mallow Development Plan 2010 outlines the Council's policies for the development of Mallow Town to 2016. The plan has been prepared and developed against a backdrop of consultations by means of public meeting, individual meetings, and written submissions. The purpose of the Development Plan is to take a long-term view of the future development of Mallow in order to manage change in the physical environment and provide for new development that contributes to, and enhances, the existing qualities of the town thereby ensuring that development is planned in a comprehensive and coordinated manner.

The Vision for the Mallow Plan is therefore based upon; retaining the compact pattern of development that has occurred to date, preserving and enhancing the town centre as the economic service provider to the urban area and wider rural hinterland, and enabling Mallow to achieve its strategic 'Hub' status utilising the inherent physical and natural characteristics of the town.

This 'Vision' seeks to capitalise upon the existing and ongoing infrastructural investment (roads, water and flood remedial infrastructure), Mallow's strategic position on the national road and rail corridors and, the inherent cultural and amenity characteristics of the town.

The Main objectives of the Plan are as follows:

- Clearly define the role and function of the Mallow Town Council area within it's strategic context;
- Outline the importance of the town centre as the administrative, commercial, social, and community 'engine';
- Identify unique features and opportunities of Mallow to enhance its strategic role that could contribute to future physical, social and/or cultural development of the wider area;
- Facilitate and encourage public and private investment in the town, by providing supportive development policies and encouraging rather than restricting development;
- Direct new development to those areas best served to accommodate development and that will enhance the character of the town;
- To encourage and control development positively.

4 RELATED PLANS

The SEA Directive requires that the SEA process include the review of other Plans/Programmes, which are related to the Plan/Programme being assessed i.e. the Mallow Development Plan. Any identified actions from this study will need to comply with relevant international and national legislation such as the Water Framework Directive (WFD) and the Habitats and Bird's Directives that stringently protect Special Areas of Conservation (SACs) and Special Protection Areas (SPAs) within the catchment. The requirements will be expressed in the environmental objectives.

Tables 4.1 to 4.3 below provide an overview of the relevant legislation, plans, policies that apply to the various environmental topics to be addressed in this Environmental Report. In addition a review of the relevant national, regional and local planning policy has been undertaken for both the Plan and the SEA and is included in Appendix 1 of the Plan.

Table 4.1: Overview of International Legislation, Plans, Policies and Programmes

Topic	Title	Summary of Objectives
Biodiversity	UN Convention on Biological Diversity (1992)	Objectives include the maintenance and enhancement of Biodiversity.
	The Ramsar Convention: The Convention on Wetlands of International Importance (1971 and amendments)	Objectives include protection and conservation of wetlands, particularly those of importance to waterfowl as Waterfowl Habitat.
Climate	UN Kyoto Protocol The United Nations Framework Convention on Climate Change (UNFCCC) Kyoto Protocol 1997	Objectives seek to alleviate the impacts of climate change and reduce global emissions of GHGs.
Environment	Agenda 21	Local Agenda 21 is a process which facilitates sustainable development at community level. It is an approach based on participation which respects social, cultural, economic and environmental needs of the present and future citizens of a community in all its diversity and how the community relates to the future of the regional, national and international community of which it is part.
	The 6 th EU Environmental Action Programme 1998.	The Environment Action Programme takes a broad look at the challenges of environmental policy and provides a strategic framework for the Commission's environmental policy up to 2012. It identified four environmental areas for priority actions: <ul style="list-style-type: none"> • Climate Change • Nature and Biodiversity • Environment and Health and Quality of Life • Natural Resources and Waste
	The MARPOL Convention International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto (MARPOL 73/78).	Objectives to protect the marine environment.

Topic	Title	Summary of Objectives
	The OSPAR Convention The Convention for the Protection of the Marine Environment of the North-East Atlantic (22 September 1992).	Objectives to protect the marine environment.
	COMAH (Seveso II) Directive- European Communities (Control of Major Accident Hazards involving dangerous Substances) Regulations 2000	Requirements for the storage of relatively large quantities of substances classified as dangerous.
Human Health / Air	World Health Organisation (WHO) Air Quality Guidelines (1999) and Guidelines for Europe (1987)	Objectives seek the elimination or minimisation of certain airborne pollutants for the protection of human health.

Table 4.2: Overview of EU Legislation, Plans, Policies and Programmes

Topic	Title	Summary of Objectives
Air	The Air Framework Directive Directive on Air Quality Assessment and Management (Framework Directive) (1996/62/EC)	Objectives include the prevention and/or reduction of airborne pollutants for the protection of human health and environment.
	Directive on National Emission Ceilings for Certain Atmospheric Pollutants (2001/81/EC)	Objectives seek to limit the national emissions of certain airborne pollutants for the protection of human health and the environment.
Biodiversity	The EU Biodiversity Strategy Communication on a European Community Biodiversity Strategy	Objectives seek to prevent and eliminate the causes of biodiversity loss and maintain and enhance current levels of biodiversity.
	The EU Habitats Directive (92/43/EEC)	Objectives seek to prevent and eliminate the causes of habitat loss and maintain and enhance current levels of biodiversity.
	The EU Birds Directive (as modified) (EC/79/409)	Objectives seek to prevent and eliminate the causes of bird species loss and maintain and enhance current levels of biodiversity.
	The EU Freshwater Fish Directive (78/659/EEC)	Objectives seek to protect those fresh water bodies identified by Member States as waters suitable for sustaining fish populations. For those waters it sets physical and chemical water quality objectives for salmonid waters and cyprinid waters
Climate	Second European Climate Change Programme (ECCP II) 2005.	Objectives seek to develop the necessary elements of a strategy to implement the Kyoto protocol.
Human Health	The EU Environment and Health Strategy 2004-2009 (first period)	Objectives seek to prevent and reduce the impacts of pollution on human health.
	The EU REACH Initiative Registration, Evaluation and Authorisation of Chemicals (REACH)	Objectives seek to limit the harmful effects to the environment and human health from certain chemicals through improved analysis and data collection.
	Laying down the Health Conditions for the production and placement on the market of live bi-valve molluscs (91/492/EEC)	Objectives seek to ensure a suitable environment for shellfish growth and protect consumers of shellfish. It classifies shellfish harvesting areas according to the quality of shellfish populations. The classification determines the conditions under which shellfish harvested from those waters can be offered for sale.

Topic	Title	Summary of Objectives
Sustainable Development	The Gothenburg Strategy (2001) Communication from the Commission on "a Sustainable Europe for a Better World"	Objectives seek to make the future development of the EU more sustainable.
	The Sixth Environmental Action Programme (EAP) of the European Community 2002- 2012	Objectives seek to make the future development of the EU more sustainable.
	The SEA Directive (2001/42/EC)	Under the SEA Directive, the RBDMP requires an SEA.
Water	The Water Framework Directive EU Water Framework Directive (2000/60/EC)	Objectives seek to maintain and enhance the quality of all surface waters in the EU. The RBMPs are a requirement of this directive.
	The Groundwater Directive (1980/68/EC)	Objectives seek to maintain and enhance the quality of all groundwater in the EU.
	EU Floods Directive (2007/60/EC)	The Floods Directive applies to river basins and coastal areas at risk of flooding. With trends such as climate change and increased domestic and economic development in flood risk zones, this poses a threat of flooding in coastal and river basin areas.
	Bathing Water Directive 2006/7/EC	The overall objective of the revised Directive remains the protection of public health whilst bathing, but it also offers an opportunity to improve management practices at bathing waters and to standardise the information provided to bathers across Europe.
	Nitrates Directive 91/676/EEC	This Directive has the objective of reducing water pollution caused or induced by nitrates from agricultural sources and preventing further such pollution.
	Urban Wastewater Treatment Directive 91/271/EEC. Amended under Directive 98/15/EEC	The primary aim is to protect the environment from the adverse effects of discharges of urban wastewater, by the provision of urban wastewater collecting systems (sewerage) and treatment plants for urban centres. The Directive also provides general rules for the sustainable disposal of sludge arising from wastewater treatment.
	Natura 2000 sites designated under Directive 92/43/EC and 79/409/EEC	The purpose is to enable Habitats Directive Annex I habitats or Annex II species to be maintained, or restored to a favourable conservation status over their natural range. Also, to conserve habitats for bird species under the Birds Directive Annex I.
	Groundwater Directive (2006/118/EC)	This new directive establishes a regime that sets underground water quality standards and introduces measures to prevent or limit inputs of pollutants into groundwater.
	Drinking Water Directive (DWD) Council Directive 98/83/EC	The primary objective is to protect the health of the consumers in the European Union and to make sure the water is wholesome and clean.
Cultural Heritage	The European Convention on Protection of the Archaeological Heritage (The Valletta Convention of 1992)	Requires that appropriate consideration is given to archaeological issues at all stages of the planning and development process.
Landscape	European Landscape Convention 2000	Requires a commitment from Ireland to introduce policies to effect landscape protection and management.

Table 4.3: Overview of Irish Legislation, Plans, Policies and Programmes

Topic	Title	Summary of Objectives
Air	Air Quality Standards Regulations 2002 (S.I. No. 271 of 2002)	Objectives include the reduction of certain airborne pollutants for the protection of human health and the environment.
	Ozone in Ambient Air Regulations 2004 (S.I. No. 53 of 2004).	Objectives include the reduction of certain airborne pollutants for the protection of human health and the environment.
	The Environmental Protection Agency Act 1992 (Ambient Air Quality Assessment and Management) Regulations 1999	Objectives include the reduction of certain airborne pollutants for the protection of human health and the environment.
Biodiversity	The National Biodiversity Plan (2002)	Objectives include the enhancement and conservation of biodiversity.
	The Wildlife Act 1976. The Wildlife (Amendment) act 2000	The Wildlife Act, 1976 and the Wildlife Amendment Act, 2000 are the principal statutory provisions providing for the protection of Wildlife (both Flora and Fauna) and the control of activities, which may impact adversely on the conservation of Wildlife.
	National Heritage Plan 2002-2007	The purpose of the National Heritage Plan is to set out a clear and coherent strategy and framework for the protection and enhancement of Irish heritage over the five-year period.
	European Communities (Natural Habitats) Regulations, SI 94/1997, as amended SI 233/1998 and SI 378/2005	These Regulations give effect to Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (Habitats Directive) and the Minister to designate special areas of conservation (endangered species and habitats of endangered species) as a contribution to an EU Community network to be known as NATURA 2000.
	Flora Protection Order 1999	Objectives include it being illegal to alter, damage or interfere in any way with their habitats. This protection applies wherever the plants are found and is not confined to sites designated for nature conservation.
	Quality of Salmonid Waters Regulations 1988 (SI 293 of 1988)	Prescribe quality standards for salmonid waters and designate the waters to which they apply, together with the sampling programmes and the methods of analysis and inspection to be used by local authorities to determine compliance with the standards. Also, give effect to Council Directive No. 78/659/EEC on the quality of fresh waters needing protection or improvement in order to support fish life
Climate	National Climate Change Strategy (2000) and National Climate Change Strategy 2007-2012	Objectives include the reduction of national GHG emissions (including those from the water sector)
Human Health	Quality of Bathing Waters Regulations 1988 (SI 84 of 1988) and amendments	Prescribe bathing water quality standards and the bathing areas to which they apply, together with the sampling programmes and the methods of analysis and inspection to be used by local authorities to determine compliance with the standards. Give effect to Council Directive No. 76/160/EEC concerning the quality of bathing water.
Energy	Green Paper on Sustainable Energy (1999)	Objectives include the increased utilisation and development of renewable energies to meet EU targets
	Wind Energy Development Guidelines 2006	Objectives to promote wind energy where relevant
	Delivering a Sustainable Energy Future for Ireland The Energy Policy Framework 2007-2020 (White Paper)	This White Paper sets out the Government's Energy Policy Framework 2007-2020 to deliver a sustainable energy future for Ireland. It is set firmly in the global and European context, which has put energy security and climate change among the most urgent international challenges. The White Paper sets out the actions to be taken in response to the energy challenges facing Ireland. The objective is to deliver a sustainable energy future, starting now, with a time horizon of 2020 but also looking beyond that.

Topic	Title	Summary of Objectives
Planning	National Spatial Strategy 2002-2020 (2002)	Objectives of the NSS are to achieve a better balance of social, economic and physical development across Ireland, supported by more effective planning.
	National Development Plan from 2007 to 2013	Objectives of the NDP are to promote more balanced spatial and economic development.
	Planning and Development Acts 2000-2006	Revised and consolidated the law relating to planning and development by repealing and re-enacting with amendments the Local Government (Planning and Development) Acts, 1963 to 1999; to provide, in the interests of the common good, for proper planning and sustainable development including the provision of housing; to provide for the licensing of events and control of funfairs; to amend the Environmental Protection Agency Act 1992, the Roads Act 1993, the Waste Management Act 1996, and certain other enactments.
	National Anti-Poverty Strategy (NAPS)	The National Anti-Poverty Strategy (NAPS) is the government strategic initiative to place the needs of the poor and the socially excluded at the top of the national policy agenda. The NAPS recognises the unacceptable scale of poverty and its impact on those directly affected and on the wider society and it particularly notes the distinct spatial aspects of poverty in urban and rural areas. The strategy emphasis the importance of a cross-departmental policy response in dealing with the problem.
	Retail Planning Guidelines 2005	The Retail Planning Guidelines provide a comprehensive framework to guide local authorities in preparing development plans, assessing applications for planning permission, and guiding retailers and developers in formulating development proposals. Retail functions reflect four broad tiers of urban development. Mallow Town is defined in the third tier of towns. Third tier centres are described as providing urban anchors for a rural economy which is undergoing rapid change
	Residential Guidelines for Density Planning Authorities	These Guidelines are aimed at addressing the high levels of suburban housing development at low densities on Green field sites over the last few decades. This has led to an increase in the demand for travel, greater traffic congestion and high infrastructure costs. The Guidelines recognise that higher densities should not be achieved at an unacceptable amenity cost to the surrounding dwellings and the residents of the proposed development. A high quality of design and layout and a good quality living environment, including the availability of adequate shopping, social, transport and leisure infrastructure, are essential if increased residential densities are to be acceptable.
Sustainable Development	Sustainable Development: A Strategy for Ireland (1997) (DoEHLG)	Objectives are to ensure that future development in Ireland occurs in a sustainable manner.
	European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations 2004 (S.I. 435 of 2004)	The EU SEA Directive was transposed into Irish Law under S.I. 435 in 2004.

Topic	Title	Summary of Objectives
	Sustainable Rural Housing Guidelines 2005	<p>These guidelines set out in detail how the Government's policies on rural housing are to be implemented by Planning Authorities in making their development plans and in the operation of the development control system to ensure a vibrant future for all rural areas. In supporting housing development patterns in rural areas that are sustainable, policies and practices of planning authorities should seek to:</p> <ul style="list-style-type: none"> • Ensure that the needs of rural communities are identified in the development plan process and that policies are put in place to ensure that the type and scale of residential and other development in rural areas, at appropriate locations, necessary to sustain rural communities is accommodated. • Manage pressure for overspill development from urban areas in the rural areas closest to the main cities and towns such as the gateways, hubs, and other large towns. <p>A strong theme in the Sustainable Rural Housing Guidelines is the need to strengthen villages and towns. Planning authorities need to ensure that cities, towns and villages offer attractive and affordable housing options to meet the housing needs of urban communities and persons wishing to live in urban areas.</p>
	Making Ireland's Development Sustainable	<p>This document focuses on the link between economic activity and pressures on the environment. Sustainable development emerged as an idea in the late 1980s and led to the Earth Summit in Rio de Janeiro in 1992. At the Summit, world leaders agreed to implement an action programme for sustainable development called, Agenda 21. The Irish Government published <i>Sustainable Development: A Strategy for Ireland</i> in 1997, which applies Agenda 21 in Irish circumstances. <i>Making Ireland's Development Sustainable</i> reviews the progress made in terms of sustainable development in Ireland since Rio, assesses the challenge we now face and sets out policies and actions to meet that challenge.</p>
Transport	Transport 21	<p>Transport 21 is a strategy that will see €34.4 billion invested over the next 10 years in Irish transport. Connecting communities and promoting prosperity is the core aim of this strategy. The programme seeks to meet the transport needs of the country's citizens and also underpin our competitiveness into the future. A comprehensive and efficient transport network is essential if we are to continue to improve our living standards while remaining competitive in the global market place. Transport 21 recognises that quality integrated transport is critical for competitiveness, return on investment and regional development.</p>
Environment	The Environmental Protection Agency Act 1992	<p>Objectives include the better protection of the environment and the control of pollution through improved licensing and monitoring.</p>
	The Protection of the Environment Act 2003	<p>Objectives include for better protection of the environment and the control of pollution through improved licensing and monitoring.</p>
Water	Drinking Water Regulations SI 439 of 2000	<p>Prescribe quality standards to be applied in relation to certain supplies of drinking water, including requirements as to sampling frequency, methods of analysis, the provision of information to consumers and related matters. Give effect to provisions of EU Council Directive 98/83/EC on the quality of water intended for human consumption.</p>
	Local Government (Water Pollution) Act, 1977 (Water Quality Standards for Phosphorus) Regulations 1998 (SI 258 of 1998)	<p>Provide for specified improvements in water quality conditions in rivers and lakes based on phosphorus concentrations or related water quality classifications and give effect to certain requirements arising under Council Directive 76/46/EC on pollution caused by certain dangerous substances discharged into the aquatic environment of the Community.</p>
	Water Quality in Ireland 2001-2003	<p>This document assesses the quality of Ireland's aquatic ecosystems concentrating on ambient water quality indicators.</p>

Topic	Title	Summary of Objectives
	Water Quality in Ireland 2005: Key indicators of the Aquatic Environment	The quality of rivers, lakes, estuaries, coastal waters, ground waters and canals is discussed in this report.
	Towards setting guideline values for the protection of groundwater in Ireland (2003)	Proposals for setting environmental quality objectives and standards for groundwater through use of guideline values.
	Groundwater Monitoring Programme	The information on which a national groundwater quality programme is based.
	European Communities (Water Policy) Regulations (SI 722 of 2003)	Provide for the transposition into Irish national law of the provisions of the EU Water Framework Directive.
	European Communities (Good Agricultural Practice for Protection of Waters) Regulations 2005 (S.I. No. 378 of 2006)	Provide statutory support for good agricultural practice to protect waters against pollution from agricultural sources. Give further effect to several EU Directives including Directives in relation to protection of waters against pollution from agricultural sources ("the Nitrates Directive"), dangerous substances in water, waste management, protection of groundwater, public participation in policy development and water policy (the Water Framework Directive).
	Arterial Drainage Act, 1945	Makes provision for the drainage and improvement of land by the execution of works of arterial drainage, to provide for the maintenance of those works and make further and better provision for the maintenance of existing drainage works, and to provide for matters incidental to or connected with the matters aforesaid or relating generally to the drainage of land.
	OPW Guidelines on Flood Risk 2005	The OPW provide guidance on Planning Policy in relation to flooding. The policy, which the Planning Authority should adopt, is "Development should not itself be subject to an appropriate risk of flooding nor should it cause or exacerbate such a risk at other locations". This provides for run-off areas and the provision of appropriate drains. There should be set-back zones from the edge of watercourses. Minimum design standards should be applied, flood impact assessments to be required in certain developments and certification from a competent person that a development will not contribute to flooding within the relevant catchment.
Material Assets	Quarries and Ancillary Activities Guidelines 2004	Aggregates are a significant natural resource. The extractive industries make an important contribution to economic development in Ireland. However, the operation of quarries can give rise to land use and environmental issues that should be mitigated and controlled through the planning system. These Guidelines seek to identify those issues and to suggest best practice in dealing with them. It is important that Planning Authorities recognise that quarries (including sand-and-gravel pits) vary greatly in size, with varying environmental impacts, and that the planning response to proposed developments should be tailored accordingly.
	EPA Wastewater Treatment Manual 2000	The Waste Water Treatment Manual for single houses details the basic mechanism of the wastewater treatment system, various types of systems, suitable site characteristics and treatment options. This document will be referred to by the Planning Authority, though may be replaced by updated versions.

Topic	Title	Summary of Objectives
	Irish National Forest Standard 2000	In 1996, the Irish Government published Growing for the Future: A Strategic Plan for the Development of the Forestry Sector in Ireland. The aim of this strategy is to develop forestry to a scale and in a manner which maximises its contribution to national economic and social well-being on a sustainable basis and which is compatible with the protection of the environment. In Growing for the Future, a commitment was made to promote quality in all aspects of Irish forestry and to provide the instruments to achieve this. The Irish National Forest Standard is the result of a consultative process initiated in 1999. Working parties were set up to consider environmental, economic, social and legal aspects of forestry and sustainable forest management. The groups were charged with developing indicators for Sustainable Forest Management.
Waste	The Waste Management Act 1996 and amendments	Objectives include (amongst others) the more effective and environmentally sensitive management of wastes in Ireland.
Cultural Heritage	National Heritage Plan 2002	Core objective is to protect our heritage. In this regard the "polluter pays" principle and the precautionary principles are operable.
	Framework and Principles for the protection of the archaeological heritage	Sets out archaeological policies and principles that should be applied by all bodies when undertaking or authorising development.
	Architectural Heritage Protection, Guidelines for Planning Authorities, 2004	Outlines policies for protection of Architectural Conservation Areas.

4.1.1 EU Environmental Plans and Other Guidance

EU Habitats Directive (92/43/EEC): The provisions of the Directive requires Member States to introduce a range of measures including the protection of species listed in the Annexes; and to undertake surveillance of habitats and species and produce a report every six years on the implementation of the Directive. The habitats listed in Annex 1 of the Directive and the species listed in Annex II, are to be protected by means of a network of sites and are afforded protection as Special Areas of Conservation (SACs). Special Areas of Conservation and Special Protection Areas (SPAs) classified under the EC Birds Directive, form a network of protected areas known as Natura 2000.

The EU Water Framework Directive (2000/60/EC) came into force in December 2000 and was written into Irish Law in 2003. The Directive clarifies, collects and updates previous pieces of water legislation and provides for water management on the basis of River Basin Districts. The Water Framework Directive (WFD) sets a framework for comprehensive management of water resources in the European Community, within a common approach and with common objectives, principles and basic measures. The WFD addresses inland surface waters, estuarine and coastal waters and groundwater. The fundamental objective of the WFD aims at maintaining "high status" of waters where it exists, preventing any deterioration in the existing status of waters and achieving at least "good status" in relation to all waters by 2015.

The main objectives of the WFD are to protect and enhance the status of all our waters, encourage sustainable water use, provide for sufficient supply of good quality surface water and groundwater, reduce or

phase out discharges of dangerous substances to water, protect territorial and marine waters and to establish and maintain a register of “protected areas”.

EU Birds Directive (79/409/EEC) 1979 seeks to protect, manage and regulate all bird species naturally living in the wild within the European territory of the Member States, including the eggs of these birds, their nests and their habitats and to regulate the exploitation of these species. Special Protection Areas (SPAs) for the protection of birds were established following the Birds Directive.

EU Urban Waste-Water Treatment Directive (91/271/EEC) 1991 seeks to protect the environment from the adverse effects of urban waste water discharges and discharges from certain industrial sectors and concerns the collection, treatment and discharge of domestic waste-water, the mixture of waste-water, and waste-water from certain industrial sectors.

EU Floods Directive was adopted on the 18th January 2006 when the European Commission proposed a directive on the assessment and management of floods. Its aim is to reduce and manage the risks that floods pose to human health, the environment, infrastructure and property.

The **Groundwater Directive 80/68/EEC** requires Member States to apply a system of investigation and authorisation to waste disposal and other activities in order to ensure that groundwater is not polluted by dangerous substances.

The **Surface Water Directive 75/440/EEC** aims to protect public health by ensuring that surface water abstracted for use as drinking water reaches certain standards before it is supplied to the public. The directive lays down nonbinding “guide” values and binding “imperative” values and requires Member States to monitor the quality of surface waters from which drinking water is abstracted and to take measures to ensure that it complies with the minimum quality standards. The Directive has been integrated into the proposed Water Framework Directive.

The **Environmental Impact Assessment Directive 85/337/EEC** (amended as Directive 97/11/EC), requires Member States to carry out environmental impact assessments (EIA) on certain public or private projects, before they are authorised, where it is believed that the projects are likely to have a significant impact on the environment. The EIA procedure is an integral part of the planning process and the public can provide input and express environmental concerns with regard to the project. The results of this consultation must be taken into account during the authorisation process.

The aim of the **European Convention on Protection of the Archaeological Heritage 1992** is to “protect the archaeological heritage as a source of the European collective memory and as an instrument for historical and scientific study”. The Convention provides the basic framework for policy on the protection of the archaeological heritage in Ireland. The obligations on the State under the Convention have been summarised by the Department of Arts, Heritage, Gaeltacht and the Islands and included the following:

- Providing for statutory protection measures, including the maintenance of an inventory of the archaeological heritage and the designation of protected monuments and areas;
- The authorisation and supervision of excavations and other archaeological activities;
- Providing measures for the physical protection of the archaeological heritage including acquisition or protection by other means;
- Providing for consultation between archaeologists and planners in relation to the drawing up of development plans and development schemes so as to ensure that full consideration is given to archaeological requirements.
- Facilitating the study of archaeological discoveries by making and bringing up to date surveys, inventories and maps of archaeological sites and taking practical measures to ensure the drafting, following archaeological operations, of a publishable scientific record before the publication of comprehensive studies;
- Educating the public in relation to the value of the archaeological heritage and the threats to it, promoting public access to important elements of this heritage, and encouraging public display of selected archaeological objects.

5 EXISTING ENVIRONMENT

5.1 INTRODUCTION

This section of the report describes the current state of the environment in the Mallow Development Plan area as an entire site. Sections 5.2 to 5.10 below describe the baseline conditions for each topic. As set out in the SEA guidelines (e.g. Population, Material Assets etc) are fully addressed in accordance with the SEA Guidelines. Figure 1.1 in section 1 of this report presents the boundary of the study area subject to this SEA. In accordance with the SEA guidelines no primary research was carried out in the collection of data. Existing and available information sources were used. These include the following: -

- Central Statistics Office
- National Parks and Wildlife Service data base
- Planning and Policy documents
- Geological Survey of Ireland
- South Western Regional Fisheries Board
- Office of Public Works (OPW)
- The Department of the Environment Heritage and Local Government
- National Road Authority
- The Environmental Protection Agency
- Ordnance Survey of Ireland.

Baseline data was collected relating to the environmental topics and their relevant indicators described in the SEA directive: biodiversity, flora & fauna, population & human health, soil, water, air & climatic factors, material assets, cultural heritage and landscape and the interrelationship between these factors. These have been assessed in the following section.

Each baseline environmental topic is set out in terms of the existing environment relevant to that particular matter. Within each environmental topic section, the existing environment and the proposed Plan is analysed and any potential impacts as a result of existing environmental problems and constraints/threats are documented. An analysis of the likely evolution of the area in the absence of the Plan is also presented under each topic. This section of the environmental report should be read in conjunction with Table 9.1 of this report which documents the significant effects as set out under each environmental topic and links them with proposed mitigation measures and a monitoring programme (Table 10.1).

5.2 BIODIVERSITY, FLORA AND FAUNA

5.2.1 Existing Policies

It is considered that the current objectives of the Mallow Development Plan 2010 - 2016 with regard to the protection of the natural environment (biodiversity, flora and fauna) need to concentrate on the protection of habitats, flora and fauna. Therefore it is recommended that a number of additional policies should be included in the plan in the interest of sustainability of Mallow Town.

5.2.2 Baseline

The term 'biological diversity', often abbreviated to 'biodiversity' refers to the variety of living things. In the same way as a rich diversity of cultures enhances the quality of our lives, so does a rich diversity of plants and animals. Biological diversity is known to be important to the proper functioning of the planet's life support system. Conservation of biological diversity has, therefore, become one of the key aims of governments throughout the world.

5.2.2.1 Designated Sites

There is one designated site, the *Blackwater River (Cork/Waterford)* cSAC (Site Code 002170), within the Mallow town boundary. There are also a number of sites designated for biodiversity conservation within 10km of Mallow town and these are also described in this Section.

The Natura 2000 Network is a network of important ecological sites across the European Union. It is comprised of areas known as Special Protection Areas (SPAs) and Special Areas of Conservations (SACs). The total land and freshwater area within the Natura 2000 network in Ireland is some 11,644km²: this includes some 2,300km² of designated marine areas. Whilst the designation of an area as a Natura 2000 site greatly restricts development, the designation does not necessarily mean limitation of activities within the site or surrounding area, provided these activities are environmentally sensitive and do not impact negatively upon the habitats or species for the protection of which the site has been designated.

Table 5.2.1: Designated sites within 10km of Mallow town Boundary and the key ecological features of the sites

Name	Site Code	Key Features	Approximate distance and direction from the Mallow
Blackwater River (Cork/Waterford) cSAC	002170	The River Blackwater is of very high conservation importance as it supports strong populations of a number of EU Habitats Directive Annex II species and a number of Annex I habitats. Additionally, the importance of the site is enhanced by the presence of a suite of uncommon plant species. This site is discussed in detail in the 'Aquatic Biodiversity' Section below.	Partially within Mallow town boundary and extending eastwards and westwards from Mallow along the River Blackwater.
Blackwater River (Killavullen) pNHA	001080	This site is situated just downstream (east) of Killavullen Village within an area of limestone. Large prominent outcrops of limestone and caves can be seen along this section. Other habitats included within this site are dry broadleaved woodland and scrub.	7.5km east of Mallow.
Awbeg Valley above Doneraile pNHA	000075	The site supports two scarce plant species associated with the woodlands, Toothwort (<i>Laturaea squamaria</i>) and Ivy Broomrape (<i>Orobanche hederarum</i>), the latter a species listed in the Irish Red Data Book as 'Rare'. Along the edges of the valley thin soils occur over limestone, these soils support an interesting plant community, including herbs such as Marjoram (<i>Origanum vulgare</i>) and Common Calamint (<i>Calamintha sylvatica</i> subsp. <i>axendens</i>), along with several grasses (<i>Koeleria cristata</i> , <i>Trisetum flavescens</i> and <i>Aira caryophyllea</i>). The site is of interest because the limestone substrate gives rise to plant communities that are unusual in the southwest.	8.5km north-northeast of Mallow.
Blackwater Valley (Ballincurrig Wood)	001793	Tree species within the woodland included Alder (<i>Alnus glutinosa</i>) and willows (<i>Salix</i> species),	9.5km east of Mallow.

		Elder (<i>Sambucus nigra</i>), Hawthorn (<i>Crataegus monogyna</i>) and Blackthorn (<i>Prunus spinosa</i>). Ballincurrig Wood supports the only known Irish population of the flora Protection Order species Starved Wood Sedge.	
Eagle Lough pNHA	001049	The lough is a fluctuating lake and thus displays many features of a turlough, the famous 'vanishing lakes' from the limestone country of Counties Clare and Galway. The Flora Protection Order species Orange Foxtail (<i>Alopecurus aegualis</i>) has been recorded in 1992 along the southern shore of the lake. It is believed that Eagle Lough is the only turlough-type lake in Cork, and this fact, along with the presence of a rare plant species, makes the site of at least regional importance.	10km north of Mallow.

Sites of European Importance

Candidate Special Areas of Conservation (cSACs)

Candidate Special Areas of Conservation (cSACs) are protected under the European Union (EU) 'Habitats Directive' (92/43/EEC), as implemented in Ireland by the European Communities (Natural Habitats) Regulations, 1997. There is one cSAC situated within 10km of Mallow, the *Blackwater River (Cork/Waterford)* cSAC, which includes the channel of the River Blackwater and much of its flood plain within the Mallow town boundary (Site code: 002170). See Table 5.2.1 for the key features of this designated site.

Special Protection Areas (SPAs)

Special Protection Areas (SPAs) were initially designated under Directive 79/409/EEC, The Directive on the Conservation of Wild Birds ('The Birds Directive'), and are now protected as Natura 2000 Sites under the EU 'Habitats Directive'. There are no SPAs within 10km of the town boundary.

The closest SPA to Mallow is *Kilcolman Bog* SPA (site code: 004095) which lies 10.5km to the north. This is a small wetland of importance to wildfowl during the winter months, which will not be affected by any element of Mallow Town Plan.

Ramsar sites

The full title of the Ramsar convention is *The Convention on Wetlands of International Importance, especially as Waterfowl Habitat*. The convention was developed and adopted by participating nations at a meeting in Ramsar, Iran on February 2, 1971 and came into force on December 21, 1975. Ramsar sites are internationally important wetlands where water is the primary controlling environmental factor. Wetlands form a very important function at both at local and a global scale. Under the Ramsar Convention Wetlands are defined as “areas of marsh, fen, peatland, or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including marine waters, the depth of which at low tide does not exceed six metres.” There are no Ramsar sites within 10km of the town boundary.

Sites of National Importance

Proposed Natural Heritage Areas (pNHA)

Sites of national importance in the Republic of Ireland are termed, proposed Natural Heritage Areas (pNHAs). While the Wildlife (Amendment) Act (2000) has been passed into law, pNHAs will not have legal backing until consultative process with landowners has been completed; this process is currently underway and designation for many of the NHAs has now been completed. There are four pNHAs within 10km of Mallow town boundary including *Blackwater River (Killavullen)* (Site Code: 001080), *Awbeg Valley above Doneraile* (Site Code: 000075), *Blackwater Valley (Ballincurrig Wood)* (Site Code: 001793) and *Eagle Lough* (Site Code: 001049). Table 5.2.1 gives details of the key ecological features of these sites, and also gives their distances and directions from Mallow town.

Table 5.2.1 presents details of the key ecological features of the cSACs, SPAs and pNHAs within 10km of Mallow; it also gives their distances and directions from Mallow, and provides a summary of the key ecological features for which the sites have been designated.

Shadow Sites

There are no sites within 10km of the town boundary that are included on the *NGO Special Areas of Conservation Shadow List* (Dwyer, 2000). The Shadow List has been compiled by a grouping of Irish conservation Non-Government Organisations (NGOs), and includes sites, which, according to the NGOs, fulfil the ecological requirements for SAC designation.

Other Designated sites

There are no Important Bird Areas (IBAs), Statutory Nature Reserves or Wildlife Sanctuaries within 10km of Mallow and the consultants are not aware of any other ‘informal’ biodiversity designations.

5.2.2.2 Flora of Mallow

Mallow lies within Ordnance Survey National Grid 10km square W59. In the *New Atlas of British and Irish Flora* (Preston *et. al.*, 2002), maps are presented showing the distribution of plant species in Ireland based on these 10km squares. A plant species list for 10km square W59 was generated from the CD-Rom version of this book. This list was then compared to the lists of species protected under the Flora (Protection) Order of 1999; and those included in the Irish Red Data Book (Curtis and McGough, 1988). Only one species, Ivy Broomrape (*Orbanche hederæ*), was found as a result of this search.

Ivy Broomrape is listed by Curtis and McGough in the Irish Red Data Book (1988). They describe it as occurring occasionally in the southern half of Ireland, becoming scarcer further north. It is a woodland species that grows parasitically in Ivy. It is not known from Mallow town and it is considered unlikely that it occurs within the town boundary, or close enough to the town that it is likely to be affected by any aspect of the Town Plan.

5.2.2.3 Fauna of Mallow

Mammals

In *Exploring Irish Mammals*, Hayden and Harrington (2000) present the distribution of mammal species by 20km x 20km squares, each of which is composed of four Ordnance Survey 10km National Grid squares. Mallow lies within the 20km square composed of the 10km squares, W59, W49, W48 and W58. Table 5.2.C presents details of the legally protected mammal species recorded by Hayden and Harrington (2000) in this 20km square.

Table 5.2.2 Legally protected mammal species recorded by Hayden and Harrington as being present in the 20km x 20km square comprising 10km National Grid Squares W59, W49, W48 and W58.

Species	Indication of National Distribution	Level of Protection	Likelihood of the species occurring in Mallow
Badger	Throughout Ireland	Irish Red Data Book 'Internationally Important' Wildlife (Amendment) Act (2000).	Likely to occur within Mallow town boundary
Daubenton's bat	Throughout Ireland	Irish Red Data Book: 'Internationally Important' Bern Convention Appendix II.	Highly likely to occur as a breeding species within Mallow town boundary

		Habitats Directive Annex IV.	
Hedgehog	Throughout Ireland	Berne Convention Appendix III.	Likely to occur within Mallow town boundary
Irish (mountain) hare	Throughout Ireland	Wildlife (Amendment) Act (2000). Irish Red Data Book 'Internationally important'. Annex V Habitats Directive. Annex V. Berne Convention Appendix III.	May occur within Mallow town boundary
Irish stoat	Throughout Ireland	Wildlife (Amendment) Act (2000). Berne Convention Appendix III.	May occur within Mallow town boundary
Leisler's bat	Widespread distribution although not abundant	Irish Red Data Book 'Internationally Important'. Habitats Directive Annex IV. Berne Convention Annex II.	Highly likely to occur within Mallow town boundary
Otter	Throughout Ireland	Irish Red Data Book 'Internationally important'. Habitats Directive Annex II and IV. Berne Convention Appendix III. Wildlife (Amendment) Act (2000).	Highly likely to occur as a breeding species within Mallow town boundary
Pygmy shrew	Throughout Ireland	Berne Convention Appendix III.	Highly likely to occur as a breeding species within Mallow town boundary
Red squirrel	Scattered throughout Ireland, but with evidence of a recent decline	Wildlife (Amendment) Act (2000)	May occur within Mallow town boundary

Whiskered bat	Scattered throughout Ireland	Irish Red Data Book 'Internationally Important'. Habitats Directive Annex IV. Berne Convention Annex II.	May occur within Mallow town boundary
Sika deer	Scattered throughout Ireland	Wildlife (Amendment) Act (2000)	Unlikely to occur within Mallow town boundary other than on an occasional, casual basis

Mallow's location on the River Blackwater and the large area of riverside and flood plain habitat that is present within the town make it a potentially high quality area for a number of mammal species, particularly otter and various species of bat.

Birds

Table 5.2.3 presents details of bird species of conservation concern recorded by Gibbons *et. al.* (1993) as breeding within OS 10km grid squares W59 within which Mallow is located. Species considered here to be of high conservation concern are those listed either on the 'Red List' by Lynas *et. al.* (2007), as being of high conservation concern in Ireland; those listed in the Irish Red Data Book (RDB) (Whilde, 1993) or those listed under Appendix I of the EU 'Birds Directive'.

Table 5.2.3 Bird species of high conservation concern recorded from 10km National Grid Squares W59 during the 'New Atlas Survey' 1988-91 (Gibbons *et. al.*, 1993).

Species	Breeding status within 10km square W59	Notes
Kingfisher <i>Alcedo atthis</i>	Confirmed Breeding	Annex I Birds Directive
Yellowhammer <i>Emberiza citrinella</i>	Probable/Possible Breeding	Red List (Lynas <i>et al.</i> , 2007)

Kingfisher requires relatively shallow and slow moving freshwater, with thriving populations of small fish on which to feed, and vertical banks of fairly soft material where they can excavate their nesting burrows (Gibbons *et. al.*, 1993). There is potential for Kingfishers to occur as a breeding species on the River Blackwater River within Mallow town boundary, and it is highly likely that the species is present in the vicinity of Mallow throughout the year.

Gillmore (1979) found that Yellowhammers had disappeared from agricultural areas in which tillage comprises the lowest proportion (<10%) of agricultural land use. Outside the breeding season, the Yellowhammer is

heavily dependant for food on cereals and other large grass seeds (see Gibbons *et al.*, 1993). Yellowhammers were recorded within the 10 km Square W59. There is little to no agricultural land within Mallow town boundary. It is considered highly unlikely that Yellowhammers breed within the town boundary, however the species is likely to occur in the vicinity of Mallow throughout the year in areas where cereal crops are grown.

Reptiles and Amphibians

It is highly likely that common frog *Rana temporaria* and probable that smooth newt *Triturus vulgaris* may utilise wet areas such as drains, ponds, etc. within the town boundary. Viviparous lizard *Lacerta vivipara* may also be present within Mallow town boundary. It is unlikely however that there are any sites in Mallow that are of any importance to these species in a broader context.

Terrestrial Invertebrates

There are no recent records of the Habitats Directive Annex II butterfly species marsh fritillary *Euphydryas aurinia* in OS 10km National Grid squares W59 (Asher *et. al.* 2001). It is considered unlikely that this species occurs within the town boundary.

None of the three species of *Vertigo* snails (*V. geyeri*, *V. angustior* and *V. moulinsiana*) that are listed under Annex II of the EU Habitats Directive are known to occur within National Grid Squares W59 (NPWS, 2008). The Kerry slug *Geomalacus maculosus* has not been recorded within National Grid Squares W59 (NPWS, 2008).

5.2.2.4 Aquatic biodiversity

The most important freshwater habitat in Mallow is the River Blackwater, the channel and banks of which are designated as part of the River Blackwater (Cork / Waterford) cSAC (see the 'Designated Sites' Section above). The Blackwater rises in east Kerry where it flows west through Kanturk in Co. Cork, and turns eastwards along the northern slopes of the Boggeragh Mountains before entering the narrow limestone valley at Mallow. The valley deepens as the Nagle Mountains and then the Knockmealdown Mountains impinge upon it. The river continues west where it bisects the town of Mallow and flows south of the Araglin valley. At Cappoquin the river turns sharply south and enters the sea at Youghal.

The Blackwater River holds populations of the Habitats Directive Annex II species: sea lamprey, river lamprey, brook lamprey, twaite shad, Atlantic salmon and freshwater pearl-mussel.

The EPA continually monitors the water quality of the River Blackwater. The most recent water quality survey carried out within Mallow town boundary was in 2003 at two sampling stations within 10m of each other. 'Q value' ratings of 3-4 (meaning that it is of 'Moderate' status) were recorded for both. The next station downstream, which is located 4km downstream of Mallow, has a 'Q-value' rating of 4 (meaning that it is of 'Good' status).

5.2.2.5 Ecological Networks

An ecological network is a network that consists of core areas of high biodiversity value and corridors or 'stepping stones' which are linkages between them. Ecological networks are important in connecting areas of local biodiversity with each other and with nearby designated sites so as to prevent islands of habitat from being isolated. They also provide important linkages for wildlife, flora and fauna and are important for mammals, including bats, and for birds and invertebrates. Treelines and hedgerows are likely to be important components of Mallow's ecological networks, allowing for linkages between and within areas of high biodiversity such as woodlands and wetlands in the surrounding countryside. The ecological network approach supports management of linkages between areas of biodiversity value, between areas used by species for different functions and between local populations of different species.

The importance of ecological networks is the subject of Article 10 of the EU Habitats Directive, which recognises that ecological networks are corridors and 'stepping stones' for wildlife, flora and fauna allowing for migration, dispersal and genetic exchange. The Habitats Directive requires that ecological connectivity and areas of ecological value outside the network of designated ecological sites (cSACs and SPAs) are maintained and it recognises the need for the management of these through land-use planning and development policies.

The River Blackwater in Mallow comprises an important ecological corridor through the town. The DoEHLG, in correspondence with RPS (letter received 31st October 2008), have highlighted the importance of the retention of a corridor of native trees and other species along the banks of the river. Spa Glen also forms a potentially important wildlife corridor, linking the River Blackwater with rural areas to the north of the town.

5.2.3 Impact Assessment –existing environmental problems and constraints/Threats

The most significant features of importance to biodiversity that have been identified in Mallow are the River Blackwater and its associated aquatic habitats and species, its riverbank / riparian corridor and flood plain. Other features of biodiversity importance include other ecological corridors and networks, including the Spa Glen corridor; and potentially important habitat for mammal species including bats and otter. This Section discusses the environmental problems and constraints that constitute threats to these and other biodiversity features in Mallow.

Water Quality

There is potential for impacts on the aquatic environment, and in particular on the River Blackwater, in the form of residential, industrial and agricultural run-off; waste water discharge and other municipal sources of pollution; fragmentation of river corridors and soil erosion.

Under the Water Framework Directive the River Blackwater is currently classified as “At Risk of Not Achieving Good Status” Under the Directive, water quality must achieve “good status” by 2015. Habitats Directive Annex II species such as Freshwater Pearl-mussel (*Margaritifera margaritifera*) and Atlantic salmon (*Salmo salar*) are particularly sensitive to pollution. Freshwater Pearl-mussel in particular requires extremely oligotrophic conditions, preferably rivers with a biotic quality index of Q5 (Ireland). The EPA uses Q5 values to indicate the highest quality status categories. Salmon also need very good water quality typical of that found in upland streams. The species also needs pool, glide and riffle so there is a requirement for rivers where dredging is not on-going and there are no abrupt changes to the current patterns as might occur through physical modifications.

The Wastewater Treatment Plant for Mallow Town is on the EPA Remedial Action List, where further investigation or improvement maybe required.

Widespread development on floodplains and the associated infilling of wetlands, is a potential environmental problem within this Plan area that has been highlighted in correspondence between RPS and the EPA.

The Development Applications Unit of the DoEHLG have commented in correspondence with RPS (letter received 31st October 2008) that developments in flood plain areas that might affect flooding and require subsequent flood prevention measures and downstream hydrological impacts is an issue that may potentially impact negatively on biodiversity, and should therefore be addressed in the plan.

The Development Applications Unit of the DoEHLG have also commented in correspondence with RPS (letter received 31st October 2008) that the potential for discharges from surface water run-off, old subsurface drainage and construction site drainage may carry hydrocarbons, sediment, nutrients and potentially toxic

substances to the River Blackwater is an issue that may potentially impact negatively on biodiversity, and should therefore be addressed in the plan.

Land take

All developments which take place on greenfield sites are likely cause some degree of negative impact on biodiversity. Where developments such as roads, housing and other infrastructural developments occur on greenfield sites they often replace semi-natural and natural areas with artificial surfaces causing a gradual loss of biodiversity.

Invasive species and landscape planting

Invasive species is the term used to describe a non-native species which becomes established in natural, or semi natural ecosystems or habitats, is an agent of change, and threatens native biological diversity (or has the potential to do so).

There is potential for invasive species to enter surface waters and marine systems from a number of sources including runoff from garden centres, from boats, by dumping of waste from fish tanks and garden ponds, which may bring seeds or fragments of living plants into natural systems; and from aquaculture facilities. Dace (*Leuciscus leuciscus*) has been found in the Blackwater River and is an introduced freshwater (or brackish water) fish, which is exceedingly prolific, and competes for space and resources with native species. American Mink, a semi-aquatic introduced predator which can severely impact upon a variety of native species such as ground nesting birds and small mammals by predateding on them, are also present in the River Blackwater.

Another potential source for invasive plant species results from their being planted in parks and residential gardens, from which may 'escape' and spread into natural habitats. The Development Applications Unit of the DoEHLG have commented in correspondence with RPS (letter received 31st October 2008) that the introduction of non-native river-bank species; is an issue that may potentially impact negatively on biodiversity, and should therefore be addressed in the plan. Such species may include Canadian Pondweed (*Elodea canadensis*) and other *Elodea* species, Himalyan Balsam, Giant Hogweed, Japanese Knotweed and other *Fallopia* species. In terrestrial habitats, Rhododendron and Cherry Laurel are amongst the most likely invasive plant species that might be introduced. In addition, there is also the potential for noxious weeds to become established within the town boundary (e.g. Ragwort, thistles, docks, etc).

Ireland's red squirrel population is under treat from the rapid expansion into its range of the introduced grey squirrel (*Sciurus carolinensis*). Red squirrel abundance declines with the arrival of grey squirrel and red squirrel generally disappear from woodlands that have been invaded by grey squirrel. Factors favouring grey squirrel include their larger size, which allows them to out compete red squirrel for food resources; their wider dietary range, which allows them to utilise foods such as unripe acorns, which are toxic to red squirrels (NPWS and EHS, 2008).

The River Blackwater may potentially act as a barrier to the southward expansion of grey squirrel and suitable habitat for this species occurs along the northern bank of the River Blackwater within Mallow town, particularly in the Town Park area. It is important that the policies and objectives of the town plan do not encourage the spread of grey squirrels across the river, and this should be a consideration in the proposal in the Plan to construct a new footbridge across the river at this location.

There is a need to include a policy in the Plan to prevent the introduction or further spread of invasive alien species that threaten ecosystems, habitats or species. In addition, the utilisation of native species in amenity planting and stocking along with change in community actions to reduce the introduction and spread of non-native species should be encouraged.

Potential Loss of native species.

Throughout the island of Ireland there has been a decline in many of the native species through habitat loss, competition, development and agriculture. Irish legislation protects some of these species. In Ireland there are 18 species of plant and animal identified as endangered and a further 52 recorded as vulnerable.

Severance of ecological corridors

The removal of ecological networks / corridors is a significant issue. It is recognised that there has been a significant increase in hedgerow removal throughout Ireland in recent years. The Development Applications Unit of the DoEHLG have commented in correspondence with RPS (letter received 31st October 2008) that riverside or flood plain (riparian) development without the planting of native trees and other plants is an issue that potentially impact negatively on biodiversity, and should therefore be addressed in the plan.

Climate Change

Until recently biodiversity losses have been attributed to the spread and increased environmental impact of people, however, it seems likely that future losses will increasingly result from human induced global climate change. Climate change considerations must therefore be seen as central to the protection of the natural environment. Policies must be implemented to reduce our GHG emissions to meet the targets set in the Kyoto Agreement. One of the key issues for Ireland identified in the EPA's State of the Environment Report 2008, is to reduce emission of the acidifying (four transboundary) air pollutants.

5.2.4 Evolution without implementation of the plan

In Mallow, biodiversity, flora and fauna are offered protection through the County Development Plan and the Town Plan. Without implementation of the new Plan it is expected that there would be a continual loss of greenfield sites and semi-natural habitats, potential for pollution of surface waters and of the aquatic environment and spread of invasive species.

In general terms, there would be no long-term guidance and each planning application would be dealt with on an individual basis, resulting in potential for long terms individual and cumulative impacts on habitats (including fragmentation), water and other natural resources

5.3 POPULATION AND HUMAN HEALTH

This section of the report outlines the policies relevant to population in the Mallow Town Council area and population, employment and household data primarily retrieved from the Census of Population 2006. The 2006 Census of Population identified a population of 7,864 within the Mallow Town Council boundary area and the Mallow Environs had a population of 2,377 people.

This section of the report outlines the policies relevant to population in the Mallow Town Council area and population, employment and household data primarily retrieved from the Census of Population 2006 and assesses progress made in these areas compared with the Mallow Town Development Plan 2004.

5.3.1 Policy

Relevant National plans outlined in Chapter 4 including the National Spatial Strategy, the National Development Plan, the Retail Planning Guidelines, the Residential Planning Guidelines and the Planning and Development Act are all considered key plans/acts to reference in relation to population and human health. At a regional level the Regional Planning Guidelines for the Southwest Region will inform the policies and objectives for population and human health. While at a local level the Cork Strategic Retail Study (CSRS) 2008, Cork County Development Plan 2003, Cork County Development Plan 2009, North and West Cork Strategic Plan 2002 to 2020, Mallow Development Plan 2004 and the Mallow Special Local Area Plan 2007 will inform mitigation, policies and objectives in relation to the human environment (refer to Chapter 4 Related Plans).

5.3.2 Baseline

This section describes the evaluation as set out in the SEA regulations of the environmental topic of population. For the purposes of evaluation, the impacts on population are divided into population impacts in terms of job creation and impacts on population in terms of residential population. The initial section presents a synopsis of the baseline conditions followed by a background to the Plans and policies, which influence the population of Mallow.

Census Data Analysis

Table 5.3.1 indicates trends in population during the intercensal period between 1996-2002, Cork County recorded an increase (10.7%) in population, while Mallow Urban District saw an increase of 10.5% and Mallow Environs saw a significant increased of 38.4%. Therefore during this period it was evident that the population of Mallow Urban was growing at a comparable rate to the county, with Mallow Rural increasing 3.5 times faster than Cork County.

During the most recent intercensal period of 2002-2006, Cork County recorded another increase in its population (11.4%). Mallow Urban had a population increase of 10.6%, while Mallow Environs had an increase of 28.8%. It is evident that the most significant increase in population between 2002 and 2006 was in the

Mallow Rural area. It is considered that this significant increase in population is a result of the rezoning of lands outside Mallow town, the development of one-off housing and potentially due to a national immigration flux.

Table 5.3.1: Trends in Population between the Censal Periods of 1996-2002 and 2002-2006 for County Cork, Mallow Urban and Mallow Environs

Area	1996	2002	% Change 96-02	2006 ¹	% Change 02-06
Mallow Urban	6,434	7,109	10.5%	7,864	10.6%
Mallow Environs	1,334	1,846	38.4%	2,377	28.8%
Co. Cork	293,323	324,767	10.7%	361,877	11.4%

Source: Census of Population 1996, 2002 and 2006.

The age structure of the population of Mallow is important to examine, as this will have implications for future housing demand, schools and health care services. It must be noted that the figures in Table 5.3.2 below are based on the Mallow town Council area, which comprises of Mallow Urban area only; the total population figure for this area is 7,864. Three categories of the population structure are examined:

- the young age dependant population (i.e. those persons within the 0-14 age cohort);
- the old age dependent population (i.e. those persons in the 65+ age cohort); and
- the working/independent age population (i.e. those persons within the 15-64 age cohort).

Table 5.3.2 Mallow Urban Age Cohort of the population 2002 - 2006

Area	0-14	15-64	65+	Total
Mallow Urban 2006	1,531 (19.5%)	5,385 (68.5%)	948 (12.1%)	7,864
County Cork	78,863 (22%)	245,103 (68%)	37,911 (10%)	361,877

In 2006, Mallow Urban had 19.5% of its population within the young age dependant population. This is notably below that for the County, which has a young age dependant population of approximately 22%. This has negative implications for the future working/independent age cohort as there is expected to be a natural decline in the future housing and employment demand in the area, as there is likely to be less young adults moving into the labour market and setting up independent households in the future.

In 2006, 12.1% of the population in Mallow Urban were within the old age dependent population of people approximately 948 people. Mallow had a greater number of persons aged 65 and over than the County which only recorded 10% of its population within the 65+ age cohort in 2006, this is indicative of an ageing population in Mallow Urban. This increase in the percentage of an elderly population has long-term implications relating to health and social service needs.

Reflecting the national economic growth of recent years and increased participation in employment, a total of 92.2% of the labour force¹ in Mallow Town were engaged in employment in 2006, which is slightly below the County average of 94%. In 2006, 7.8% of the labour force in Mallow was unemployed while the county average was slightly lower at 5%. The largest percentage of persons at work in Mallow in 2006 was within the Professional Sector (14.4%), the second largest employer was the Service sector accounting for 14% of all people at work in the town, while 13.8% of people were employed in the Manufacturing Industry.

¹ Labour Force= those at work + unemployed + seeking regular work for the first time.

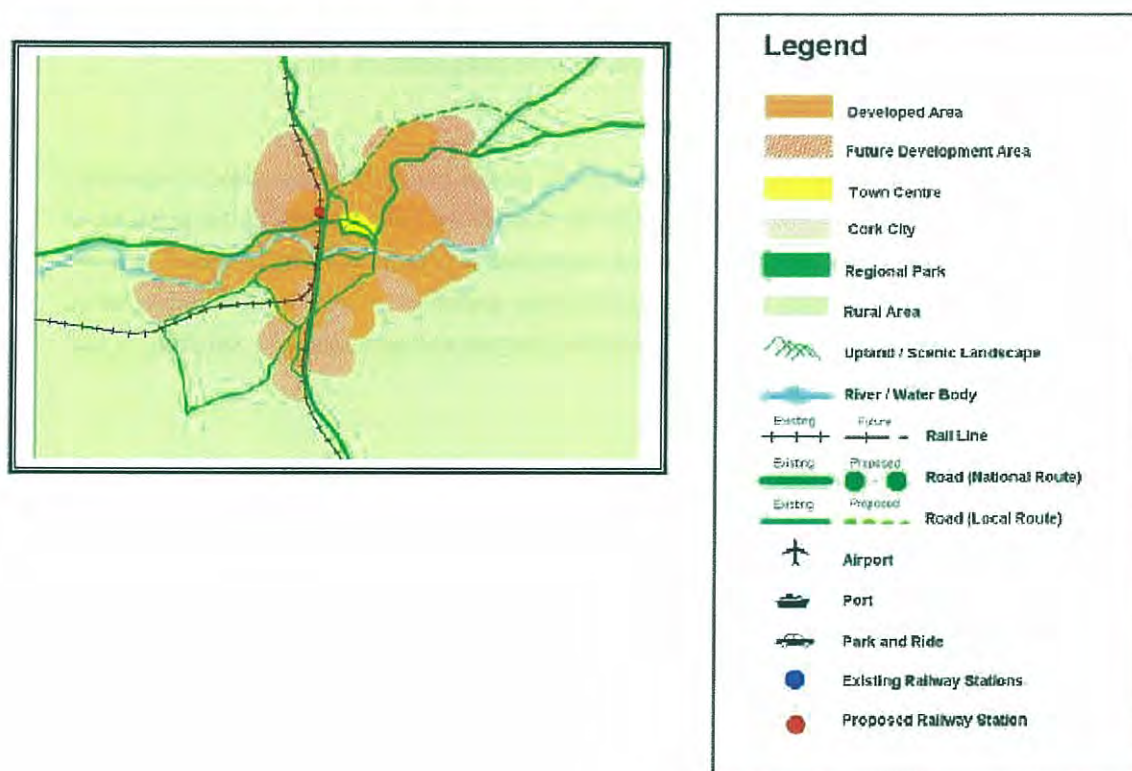
Policy Background

According to the *Cork County Development Plan 2009* Mallow is located in the CASP Ring Strategic Planning Area. The *Cork County Development Plan 2009 (CDP 2009)* projects the population of the Mallow area (including urban and environs area) to increase from 10,241 persons in 2006 to 20,000 people by 2020 (p.66).

Section 5.2.22 of the *CDP 2009* outlines that in relation to the CASP Ring Strategic Planning Area, Mallow will be designated as an Integrated Employment Centre, where additional jobs and houses can be provided to sustain the estimated population levels anticipated for this town on the Atlantic Gateway Corridor.

Policy/Objective SET 3 - 1 as set out in the *CDP* in relation to Mallow 'Hub' Town, aims to maximise the economic potential of Mallow as a 'Hub' town within the 'to maximise the economic potential of Mallow as a 'Hub' town within the 'Atlantic Corridor' and to develop it as a major integrated employment centre so that it fulfils its role within the NSS structure at the regional or county level. This Plan also includes an indicative layout for future development to the northeast, northwest and south of the town on page 66.

Figure 5.3.1: Development Strategy for future development of Mallow



Source: Cork County Development Plan 2009, fig. 3.14, p.66

Zoning Provision

The vision of the Mallow Town Development Plan 2010 – 2016 is based on the objective of facilitating the strategic 'Hub' role of Mallow as a key service and economic centre serving a large urban area and rural hinterland. It is also based on the objective of making the town accessible and legible, and to create a positive physical and natural environment as well as creating a vibrant and balanced community.

Based on the fact that a substantial area of the Mallow Town Council urban area has been developed to date and new urban generated development including residential, industrial and commercial enterprises have extended beyond the town boundary and into the 'environs', development options within the town are limited. However, a number of development opportunities have been identified within the town boundary. There are large tracts of under-developed areas under a range of different zonings. The development strategy of the Plan is to extend the existing Town Centre westwards, to accommodate new urban development and deliver the maximum quantitative efficiency of new population density and commercial floorspace in line with the Town's Hub designation. In addition to the key expansion area to the west of the town centre, some greenfield land has also been zoned in Quartertown for residential development and a number of opportunity sites are also identified.

It is considered that there are sufficient lands zoned within the town and there is a substantial landbank available for new enterprises to support Mallow and its environs in its designation as 'hub'.

It is clear that the development of Mallow and its environs would greatly benefit from increased co-operation and co-ordination between the Town Council and the County Council not just in terms of the provision of necessary infrastructure but in the development of lands for residential and Industrial/Enterprise uses. In terms of this Strategic Environmental Assessment it is clear that the further growth of the town should be directed as much as possible to the Town Council area to realise a more compact and sustainable urban area. A new policy for inclusion in the Plan is proposed in this regard.

5.3.3 Impact assessment – existing environmental problems and constraints

No environmental problems or constraints were identified. Sufficient lands will be rezoned for residential, employment and community uses within the town boundary in line with national, regional and local population projections, which will contribute to the generation of critical mass within the town of Mallow. The proposed plan should help to facilitate the growing population of Mallow in a sustainable manner and in accordance with various policies and objectives of both national and local plans.

5.3.4 Evolution without implementation of the plan

The provision of planned residential, employment, improved infrastructure and community uses within the Mallow Town Council area will result in a better quality of life than would arise from an unstructured/unplanned approach. If the plan were not implemented, the redevelopment and renewal of the

area would take place in a haphazard approach, possibly allowing growth in the form of pockets of populations developing in an ad hoc fashion throughout the Mallow Town Council area. Moreover the positive regulatory policies and objectives being introduced by the Mallow Development Plan and aimed at improving the town's vitality, character and overall environment would not be implemented through the planning and development process.

5.4 SOIL

5.4.1 Policy

Soils are offered protection through the proposed EC Directive 2004/35/EC of the European Parliament and of the Council for establishing a framework for the protection of soil and amending Directive 2004/35/EC. This Directive provides a common strategy for the protection and sustainable use of soil based on the principles of integration of soil concerns into other policies, preservation of soil functions within the context of sustainable use, prevention of threats to soil and migration of their effects, as well as restoration of degraded soils to a level of functionality consistent with the current and approved future use.

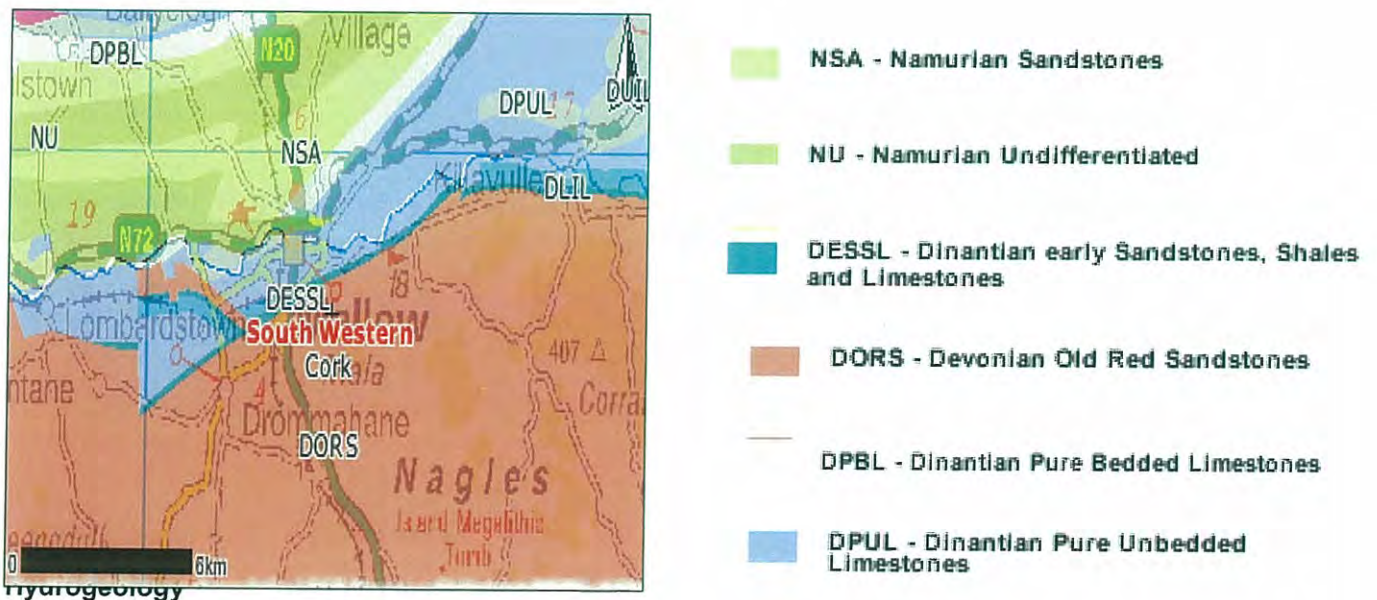
5.4.2 Baseline

Bedrock Geology

The North Cork region of Mallow is situated within a sedimentary geological setting. The underlying rock comprises of Namurian Sandstone and bedded & unbedded Limestones. However the town of Mallow itself lies mostly on pure unbedded limestone.

The Devonian lithologies lie to the south of the town of Mallow in the form of Devonian Old Red Sandstones which make up a large proportion of the underlying bedrock of the area. Early shales, sandstones and limestones are present and make the remainder of the underlying bedrock.

Figure 5.4.1 – Formation Bedrock Geology



Within the study area there are four underlying aquifers. One Locally Important Aquifer – moderately productive in local zones (LI) can be found underlying the majority of the Mallow area especially to the South East. However interbedded within the moderately productive aquifer is a Poor Aquifer, which is generally unproductive except in local zones (PI). Such an aquifer is capable of yielding only enough water to springs and boreholes to supply single houses, small farms or small group water schemes. There is a Regionally Important Aquifer (RKD) that runs Northeast-Southwest and can be considered to be relatively thin but extends across the town boundary. At present the water supply for Mallow comes from the River Blackwater and a new water source is being investigated at Box Cross Roads

A ground water source located at Box Cross Roads in Doneraile some 9km northeast of Mallow will supply a network of reservoirs that are to be constructed between Box Cross and Mallow. This new source at Box Cross will have the capacity to serve a population equivalent of over 20,000. The water source at Box Cross Roads lies on the transition between RKD and LI, which are generally productive zones. The underlying bedrock geology consists of Dinantian pure unbedded Limestone and Dinantian upper impure Limestone.

An overview of Local Aquifers is depicted below in Figure 5.4.2 Draft Bedrock Aquifer Map.

Figure 5.4.2 – Bedrock Aquifer Potential in the Mallow



Sites of Geological Heritage/Interest

Within the Mallow area there are two Areas of Geological Interest as outlined in Table 5.4.1 below.

Table 5.4.1 – Areas of geological interest in Mallow

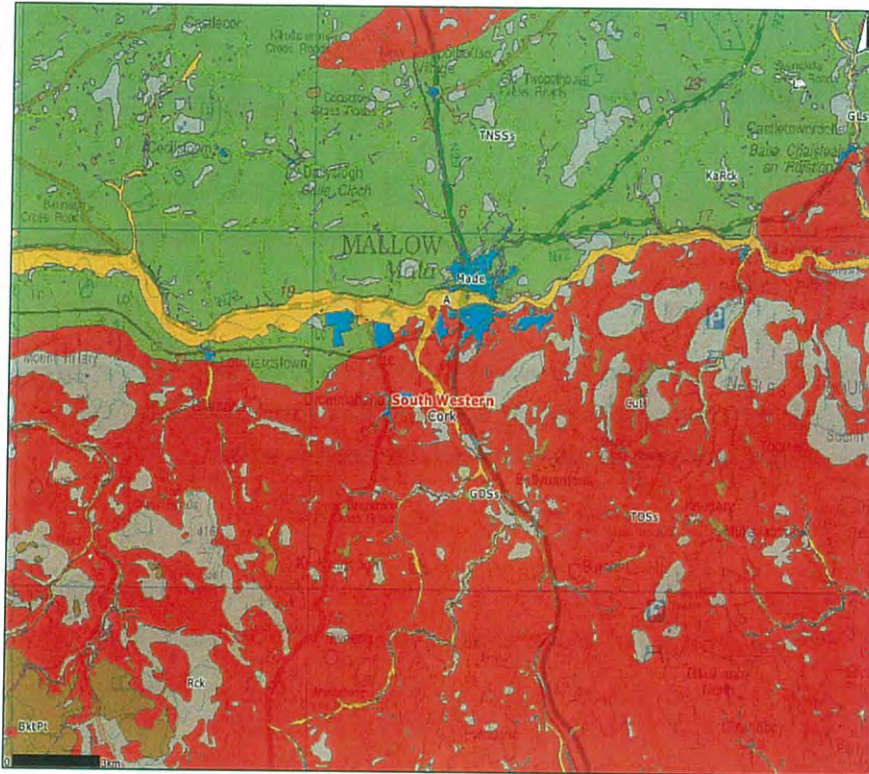
Site Name	Geological Interest	Location
Rock Forest, Mallow	Mineralogy - 'cotterite' mineral type locality	Mallow
Lady's Well	Mallow Warm Spring	Mallow

Soils and Subsoils

Mallow town centre generally consists of man-made ground extending over the urban and residential areas of the town. The area generally consists of glacial tills laid down during the last glaciation period. They are however extensive alluvium soils deposited across the town centre following the direction of the Blackwater River which most likely originated from floodwater and tributary migration and development of the river during the Quaternary Period.

Outside of the town boundary much of the underlying soils and subsoils consist of glacial till deposited from the migration and melt water of glaciers that passed over Mallow during the Quaternary ice ages. Much of the subsoils consist of till derived from Devonian sandstone, which is native to the North Cork area as well as Namurian rocks. The till reflects local deposits of glacially eroded country rock.

There are also some outcrops of the bedrock to be found along the River Blackwater and on higher ground towards the southeast of Mallow.

Figure 5.4.3 – Soils and deposits within the Mallow Area

Source – EPA Mapper

Quarrying and Mining

At present there no mining or quarrying activities being carried out in the immediate study area.

5.4.3 Impact assessment –existing environmental problems and constraints

Greenfield sites - any proposed developments on greenfield sites involves changing the character of the ground and soil. New developments have the potential to contaminate the soil and underlying groundwater, particularly in the case of septic tanks and poor wastewater treatment facilities. Existing activities such as agriculture and manufacturing may also pose a risk to soil and groundwater.

Soil erosion – construction, agriculture and forestry can lead to soil erosion, which has a negative affects on water quality and aquatic biodiversity. Soil erosion results in a loss of nutrients in the upper layers of the soils also leading to a reduced water-holding capacity. Soil erosion can also lead to sediment movement and agricultural pollution into watercourses. This can lead to increased solids in watercourses, disruption of ecosystems and contamination of drinking water.

5.4.4 Evolution without implementation of the Plan

The proposed Soil Directive suggests the encouragement of development on brownfield sites through sustainable redevelopment of existing sites. The reuse of urban brownfield sites in particular will reduce urban sprawl and the need to develop greenfield sites.

The Plan will provide policies and guidance for development of brownfield sites over Greenfield sites. In the absence of the Plan there is the potential for further development of Greenfield sites resulting in a loss of soil resource to development and soil erosion due to removal of materials due to construction works.

5.5 WATER

5.5.1 Policy

In the interest of maintaining good water quality in the Mallow area, the County Council set about fulfilling its obligation under the European Communities (Water Policy) Regulations, 2003 (SI No.722 of 2003) which transposed the Water Framework Directive (2000/60/EC) into Irish Law offers protection for water in Ireland. The Water Framework Directive (WFD) sets an objective of achieving at least good status for all water bodies and aims to ensure that no further deterioration in status of any waters will occur by 2015.

Good Status for surface water is a combination of the chemical quality, biological quality and microbiological quality that must be achieved. For groundwater "Good Status" refers to groundwater chemical water quality and quantity.

In addition to the Water Framework Directive, water in Ireland is also offered protection under European Community (Groundwater Directive, 80/68/EEC) and National Legislation (Local Government (Water Pollution) Act; The Waste Management Acts and the Planning and Development Act.

In addition the Drinking Water Regulations (S.I No 439 of 2000) ensure that the presence of a single faecal coliform in a water supply is unacceptable.

5.5.2 Baseline

Surface Water

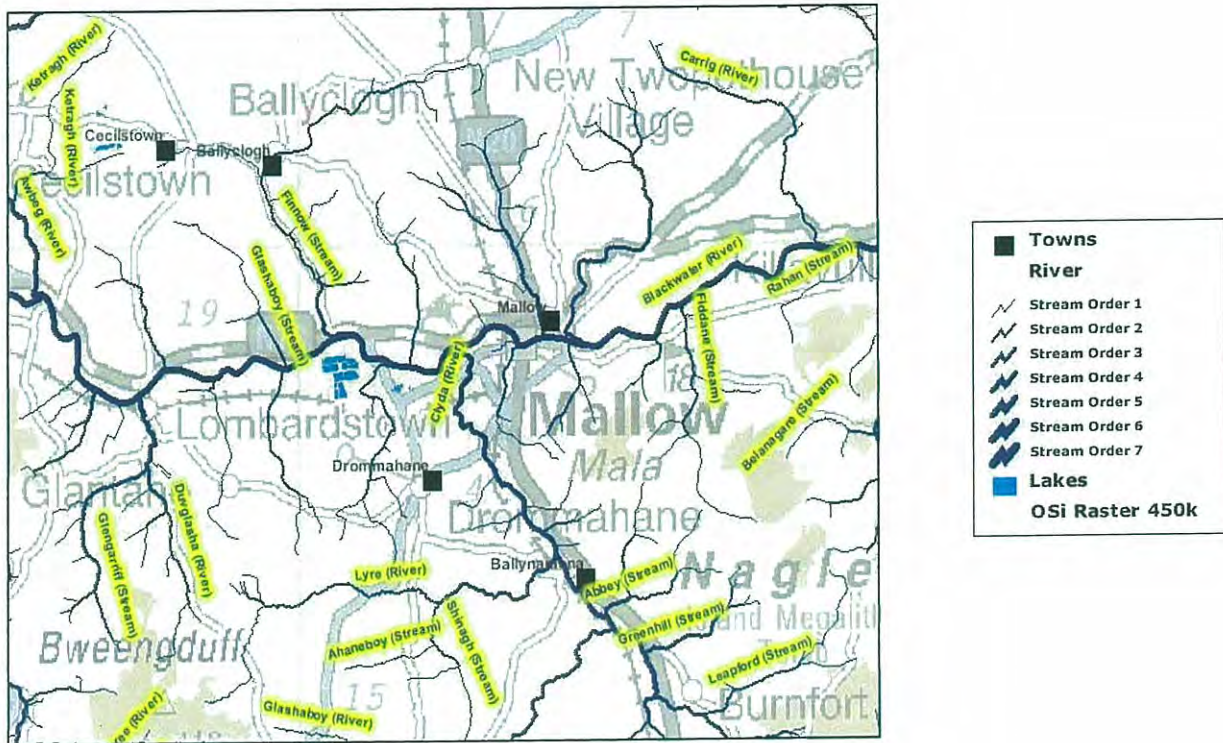
The town of Mallow lies north of Cork City on the banks of the River Blackwater. The River Blackwater is one of Ireland's largest rivers flowing through five counties including Kerry, Limerick, Cork, Tipperary and Waterford.

The River Blackwater rises in the peat bog terrain of east Kerry giving it a darker colour lending to its name the River Blackwater. From its source the River Blackwater turns eastwards along the northern slopes of the Boggeragh Mountains before entering the narrow limestone valley at Mallow. The river continues east where it bisects the town of Fermoy and flows south of the Araglin Valley. At Cappoquin the river turns sharply south and enters the sea at Youghal.

Additional rivers and streams in the greater Mallow area include the Clyda River which joins the Blackwater River just east of Mallow Race course, some 2.5km southwest of Mallow town centre). The Finnow stream flows into the Blackwater River west of Mallow at Lombardstown. Figure 5.5.1 shows the surface waters within the Mallow area its immediate surroundings.

In order to manage and assess water quality, a River Basin Management Plan was put in place in the south west of Ireland. Mallow lies within the South Western River Basin District (SWRBD) the plan for which is due to be adopted in 2009. Baseline data including the various risk assessments for surface water and groundwater in the Mallow area are outlined below.

Figure 5.2.1 – Streams and Rivers within the Mallow Area



Source – EPA ENvision Mapper

Surface Water Quality

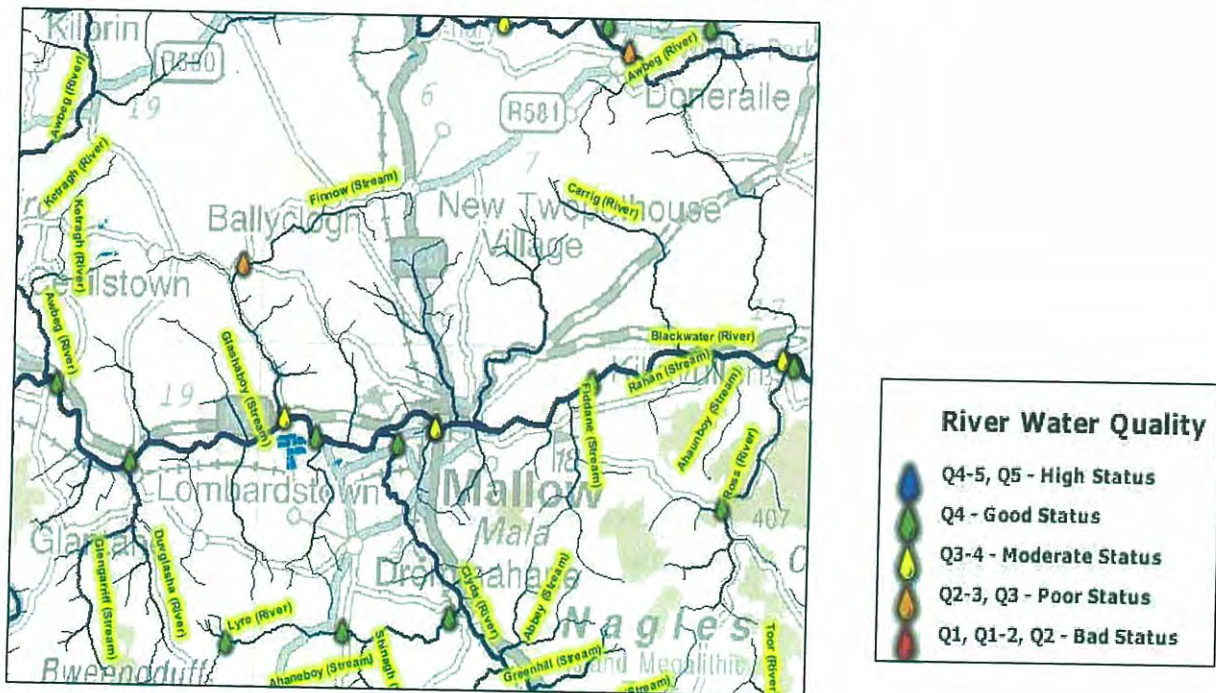
Most rivers/streams within the Mallow area have received an EPA Q-value rating of 4 (depicted in green) indicating “Good Status”, despite this the SWRBD has characterised the water in this area as “At Risk of Not Achieving Good Status”.

A Q-value of 3 was recorded on the Finnow stream upstream from Mallow town (Ball Lough). It then joins the River Blackwater at Lombardstown where a Q-Value rating of 3-4 has been recorded. Upstream from the confluence of the Finnow stream and the River Blackwater a Q-Value of 4 was recorded suggesting that as the water from the Finnow stream enters the Blackwater at Lombardstown it diminishes the quality of the water within the River Blackwater.

The Clyda River is sampled consistently along its length and at every station a Q-value of 4 has been recorded showing that the quality does not fluctuate as it flows towards the River Blackwater and joins it just outside of the town of Mallow.

The water quality of the River Blackwater is continually being monitored by the EPA, and a Q-value of 3-4 has been recorded near Mallow, however many stations on the Blackwater outside of Mallow have received Q-Value scores of 4. The most recent water quality survey was in 2003 at a sampling station in Mallow. The location of stations and their values can be seen in Figure 5.5.2. A list of sampling stations is given in Table 5.5.1.

Figure 5.2.2 Water Quality of Streams and Rivers within the Mallow area



[Source – EPA ENvision Mapper]

Table 5.5.1 - The Water Framework Directive and EPA ratings of Rivers, Streams and Bathing Waters within the Study Area

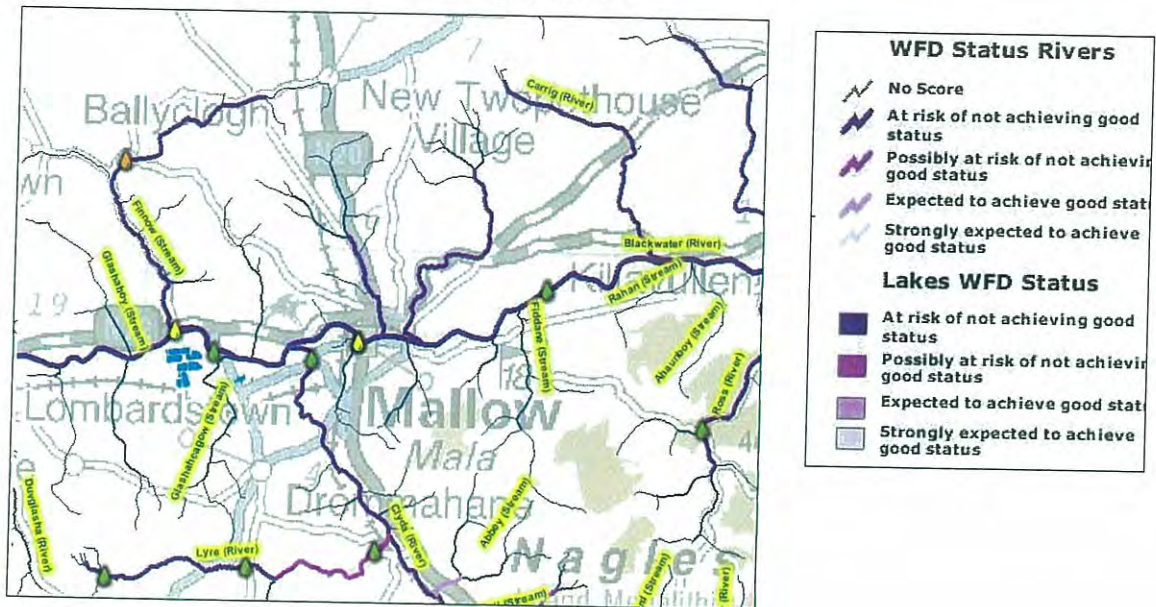
Stream/River	EPA Q-Rating	Status	Water Framework Directive Rating
Blackwater	3-4	Moderate	At Risk of Not achieving Good Status.
Clyda	4	Good	
Finnow	3	Poor	

Risk assessments have been carried out on all water bodies within the SWRBD and four risk categories were created.

1. Not at Risk;
2. Probably not at Risk;
3. Probably at Risk; and
4. At Risk.

Figure 5.5.3 shows a map of risk assessments undertaken by the SWRBD for Rivers and Lakes within Mallow. Table 5.5.1 above summarises the Figure and shows that all surface waters within the Mallow town Boundary are at "Risk of Not Achieving Good Status".

Figure 5.2.3 WFD Risk Assessment Rating for Rivers



Source – EPA ENvision Mapper

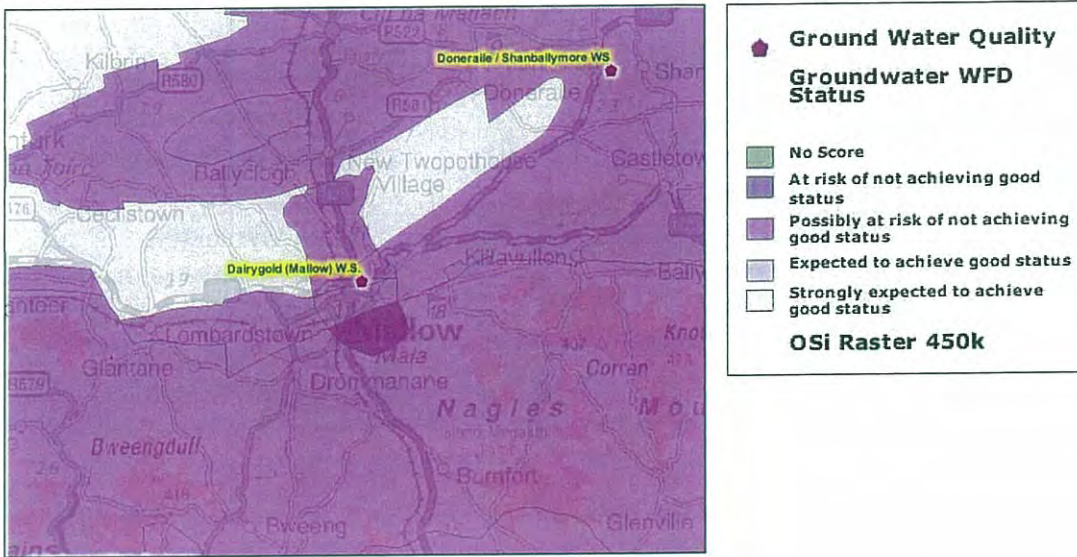
Groundwater

Groundwater forms an integral part of all ecosystems and within the Mallow area it is a significant resource, as the oldest warm springs in Ireland are used to geo-thermally heat the local public swimming pool, and was the first geothermal energy project in Ireland. A number of private drinking water supplies are taken from groundwater reserves.

Groundwater is subject to contamination from agriculture, poorly designed/constructed and maintained domestic wastewater treatment infrastructure, industrial sources etc. Groundwater also contributes to surface water quality providing residual flows from rivers and streams. It is also integral to the support of wetlands.

The Water Framework Directive classifies a large proportion of the Mallow urban area groundwater as “Possibly at Risk of Not Achieving Good Status” there is however a small area that is classified as “At Risk of Not Achieving Good Status”. Figure 5.2.4 shows a map of risk assessment for Groundwater throughout the Mallow area

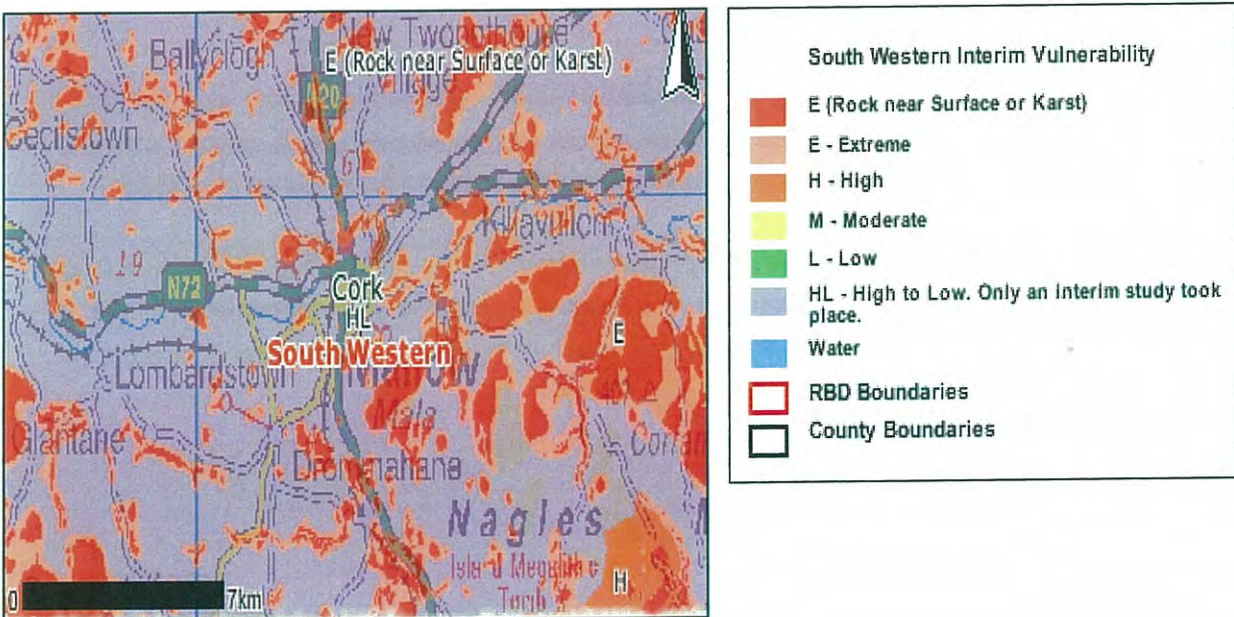
Figure 5.2.4 - WFD Risk Assessment Rating for GW



Source – EPA ENvision Mapper

Table 5.5.2 summarizes the groundwater throughout the Study Area. This information is presented in Figure 5.5.5

Figure 5.2.5 –Aquifer Vulnerability within the Study Area



Source – GSI GW Mapper

Table 5.2.2- Summary of GW Ratings Throughout Mallow

Location	Water Framework Directive Rating	Aquifer Classification	Aquifer Vulnerability
Town Area and Northwards	Possibly at Risk of Not Achieving Good Status	(RKD) Regionally Important Aquifer, Karstified (Diffuse)	HL High – Low (Interim study only) E (Rock near Surface or Karst)
South of the Town	At Risk of Not Achieving Good Status	(PI) Poor Aquifer Bedrock which is generally unproductive except for local zones/ (LI) Locally Important Aquifer-Bedrock which is moderately productive in local areas.	

Source – WFD - EPA ENvision Mapper, Aquifer Vulnerability - GSI

Aquifer Potential

Within the study area there are four underlying aquifers. One Locally Important Aquifer – moderately productive in local zones (LI) can be found underlying the majority of the Mallow area especially to the South East. However interbedded within this moderately productive aquifer is a Poor aquifer, which is generally unproductive except in local zones (PI). Such an aquifer is capable of yielding only enough water to springs and boreholes to supply single houses, small farms or small group water schemes. There is a Regionally Important Aquifer (RKD) that runs Northeast-Southwest and can be considered to be relatively thin but extends across the town boundary. At present the water supply to Mallow comes from the River Blackwater and is at full capacity as a result a new water source has been exploited at Box Cross Roads, (Mallow Special Local Area Plan, 2007).

A ground water source located at Box Cross Roads in Doneraile some 9km northeast of Mallow will supply a network of reservoirs that are to be constructed between Box Cross and Mallow. This new source at Box Cross will have the capacity to serve a population equivalent of over 20,000. The water source at Box Cross Roads lies on the transition between RKD and LI. The underlying bedrock geology consists of Dinantian pure unbedded Limestone and Dinantian upper impure Limestone.

An overview of Local Aquifers is depicted below in Figure 5.2.6 Draft Bedrock Aquifer Map.

Figure 5.2.6– Bedrock Aquifer Potential in the Mallow Area

Source - GSI GW Mapper

Flooding

Mallow is located approximately 80km upstream of the mouth of the river at Youghal and is therefore not effected by the tides. Flooding occurs quite regularly in Mallow and a number of flood events have occurred in Mallow in 2008.

Flood relief proposals were developed and put on public display in June 2005 as part of the Munster Blackwater (Mallow) Drainage Scheme. The scheme was broken into three separate phases, these comprise. Mallow North, Mallow South and Mallow West. Cork County Council/Mallow Town Council carried out extra works on the Spa Stream area in 2005 and these works were funded by the OPW. Any new developments, which do not drain surface water directly to the River Blackwater, are required to provide on site surface water retention tanks to prevent flooding in storm conditions. The scheme will give the standard level of protection, i.e. protection against a flood with a 1% probability of occurring in any given year.

At present not all phases of the €30 million flood relief scheme are complete which means that Mallow is still susceptible to flooding as can be seen in Figure 5.2.7(a) below which shows areas affected by flooding events. Figure 5.2.7(b) shows the extent of some floods in the area. According to Mallow Town Council the following works are to be undertaken:

“Works to be Undertaken

1. Provision of new walls and embankments to prevent flood waters from passing the line of defence
2. Provide new culverts
3. Lowering of ground levels at Mallow Bridge
4. Demountable defences i.e. Temporary flood defence structures stored in a secure place and erected at the required locations at times of flood risk “.

5.2.7(a) Recent flood events in the Mallow area



Source: OPW

5.2.7(b) Aerial photo of a flood in Mallow (2000)



5.5.3 Impact Assessment –existing environmental problems and constraints

There are a variety of activities both within and outside the study area, which have the potential to impact on water quality. These include sewerage treatment works, domestic water treatment systems, housing, construction work, industry, landfill at Bottlehill, spillages, increased road runoff and agriculture.

Existing problems within the Mallow area include:

- Surface Water Pollution -Under the WFD the River Blackwater is classified as being “At Risk of Not Achieving Good Status”;
- Groundwater Pollution - The majority of the study area is “possibly at risk of not achieving good status” for groundwater;

- Impacts to Angling - Direct impacts to water and water quality will have direct and indirect effects on angling;
- Flooding- Flooding has been identified as being important, particularly for buildings that are prone to flooding in Mallow as well as areas zoned for development near or adjacent to rivers or their floodplains. Strict control of planning will be required in these areas i.e. along the River Blackwater and the OPW's Guidelines on Flood Risk alleviation should be adhered to. The new Plan has included Flood risk management objectives these include:
 1. To minimise risk of inundation and reduce the risk of flooding elsewhere;
 2. To incorporated reasonable measures to improve the management of flood waters on and around the site to assist in the protection of properties within the vicinity;
 3. To incorporate building design measures and avail of more suitable materials to aid in the reduction of damage caused to property; and
 4. To provide for the maintenance of any approved privately funded flood defence measures to the satisfaction of the council, however applicants may be required to provide a hydrological survey and assessment information to support their proposals when the site is in a well known flood risk area and may also be required to make a contribution to flood defences.

The Plan also includes a provision for Flood Impact Assessments at planning application stage and to take cognisance on any future guidelines on flood risk management.

Municipal Wastewater Treatment and Domestic Wastewater Treatment – There is a possibility of unchecked increase in demand for wastewater treatment with potential for increased pollution to surface waters. Therefore correct treatment of wastewater is an important factor to consider in order to protect the quality of surface water. It is essential that the Wastewater Treatment Plant operates to highest standards and that monitoring of the performance of the WWTP and sewerage networks is undertaken to capture leakages to GW and SW. The new WWTP at Ballyellis has been expanded to serve a population equivalent of over 18,000. Despite this being quite large the new WWTP will eventually have to serve land that has been identified as suitable for future development, moreover the effluent produced by the new landfill at Bottlehill is to be treated at Ballyellis which will in turn effect its spare capacity, there is however room to further expand the WWTP at Ballyellis if it was required.

The Water Matters Report for the Southwestern River Basin District has identified impacts from forestry to water in particular to areas within the river that are sensitive salmon and trout spawning areas. A policy is therefore required to ensure compliance with the Code of Best Forest Practice, which covers all stages from seed selection through to the establishment and maintenance of timber harvesting

5.5.4 Evolution without implementation of the plan

A review of the existing baseline information shows that a number of water bodies in the study area are under pressure from various sources of pollution, which has resulted in reduced biodiversity, poor water quality and algal blooms. In the event that the Plan is not updated there is potential for increased pressure on these water bodies and most water bodies would be unlikely to reach the objectives of the WFD. If water quality were to deteriorate further or experience a reduction in its quality status, there would also be increased adverse impacts on biodiversity, flora and fauna, fisheries, drinking water, human health and soils. The new 2010 to 2016 Mallow Town Development Plan will steer development away from watercourses rather than along or within their floodplains.

Also, in the absence of the Plan there is a possibility of unchecked increase in demand for wastewater treatment with potential for increased pollution of surface water having knock on effects on flora and fauna thus impacting on a range of local economic resources e.g. angling (tourism).

5.6 AIR AND CLIMATE (ENERGY)

5.6.1 Policy

At international level the Air Quality Framework Directive 96/62/EC sets out standards for air quality. The Directive was transposed into Irish law by the Environmental Protection Agency Act 1992 (Ambient Air Quality Assessment and Management) Regulations 1999 (S.I No. 33 of 1999).

These standards have been established to protect human health, vegetation and ecosystems from a variety of pollutants, which are generated through fuel combustion, in space heating, traffic, electricity generation and industry.

Four daughter Directives lay down limits or thresholds for specific pollutants. The first two of these directives cover: sulphur dioxide, nitrogen dioxide and oxides of nitrogen, particulate matter and lead; and carbon monoxide and benzene. Two more daughter directives deal with: ozone; and polyaromatic hydrocarbons, arsenic, nickel, cadmium and mercury in ambient air.

In March 2007 the Government launched its Energy White Paper entitled '*Delivering a Sustainable Energy Future for Ireland*'. The paper was devised to be a practical action-based strategy for achieving a new energy future for Ireland and spans the timeframe 2007-2020. Key to the strategy are the three pillars of energy supply - security, sustainability, and economic competitiveness.

At a national level the National Climate Change Strategy 2007-2011 provides for the protection of air quality. The strategy for reducing emissions will be shared across all sectors but the main focus will be on transport, residential, industry, electricity production, the public sector and waste. The new Programme for Government outlines a 3% reduction in greenhouse gas emissions per annum. The programme will also require Ireland to join the top 5 countries in the world, as measured by the Environmental Performance Index (EPI). The National Climate Change Strategy will also be supported by other relevant government policy such as the National Development Plan, Transport 21, National Energy policy 2007 and the at a local level there are currently two objectives in relation to energy and climate change in the County Development Plan.

5.6.2 Baseline

Air Quality

In general the air quality in Ireland is considered to be good and this is primarily as a result of the prevailing Atlantic southwesterly winds crossing the country. The EPA monitors the air quality across the country, dividing the country into regions or zones. For Ireland, four zones, A, B, C and D are defined in the Air Quality Regulations (2002). The main areas defined in each zone are: Zone A (Dublin Conurbation), Zone B (Cork Conurbation), Zone C (other named cities and large towns) and Zone D (Rural Ireland, i.e. the remainder of the State excluding Zones A, B and C).

Air quality monitoring and assessments are undertaken at 5 locations in Cork, of which 3 are located within Cork City Council area and 2 locations are within the administrative area of Cork County Council. Air quality is monitored and assessed in Cork County at Glashaboy and Cork Harbour at Passage West.

There appears to be a small decreasing trend in concentrations in recent years.

- Suspended particulates reached about 90% of the EU limits in the past and have now reduced to about 10% of the limit due to the ban on the sale of coal. These particles arise from the inefficient combustion of solid fuels and diesel.
- New monitoring parameters called PM₁₀ and PM_{2.5} are now being used to monitor for particulates. These measure particulates less than 10 and 2.5 microns in diameter. Results from the gravimetric method indicate compliance at about 30 % of the EU annual mean limit.
- Sulphur dioxide levels were always quite low in Cork. The first smokeless fuels increased levels but levels have now fallen again to previous values. The old method for monitoring is compliant at about 7% of the standard. The new method is at about the same level of compliance with the new standard. Sulphur is a contaminant in most types of fuel.
- Nitrogen dioxide average values are about 40% of the mean limit. It arises from air being used as an oxidant in the high temperature combustion of fuel in space heating and traffic.
- Ozone levels are in compliance. There were 9 exceedances of the 8 hour running average while 25 are allowed. Ozone levels can be strongly influenced by imported pollution and/or natural sunshine events. Rural stations in Ireland have far higher levels than our urban station because nitric oxide reduces levels in cities. It is only in urban areas with extreme traffic densities and very high sunshine levels that a different series of reactions dominate to produce very high ozone levels. Ozone has always been present in ambient air but levels have increased due to pollution. It also arises due to diffusion downwards from the stratosphere
- Carbon monoxide levels are about 36% of the standard operative in 2005. It arises from poor oxidation of fuel.
- Lead levels are about 4 % of the standard. This is a major decrease from the 1980's. Unleaded petrol is now the only type available. It is a petrol additive to prevent "knock" and improve acceleration.
- The new continuous monitor, in operation since March 2000, indicates benzene levels to be about 10% of the standard. Benzene derives mainly from traffic fuels.

Source - Air Pollution in Cork City 2007 Report

Climate

The dominant influence on Ireland's climate is the Atlantic Ocean. Consequently, Ireland does not suffer from the extremes of temperature experienced by many other countries at similar latitudes. Met Eireann provides information on the various climatic conditions experienced across the country. The climate of the area is best described by meteorological measurements collected by the National Meteorological Service from the synoptic stations at Cork Airport. To characterise the prevailing conditions at the site, historical meteorological data compiled by Met Eireann (www.meteireann.ie) is presented for Cork Airport and is available at www.met.ie.

The climate is becoming ever more variable and we can no longer safely refer to past climate when planning for the future.

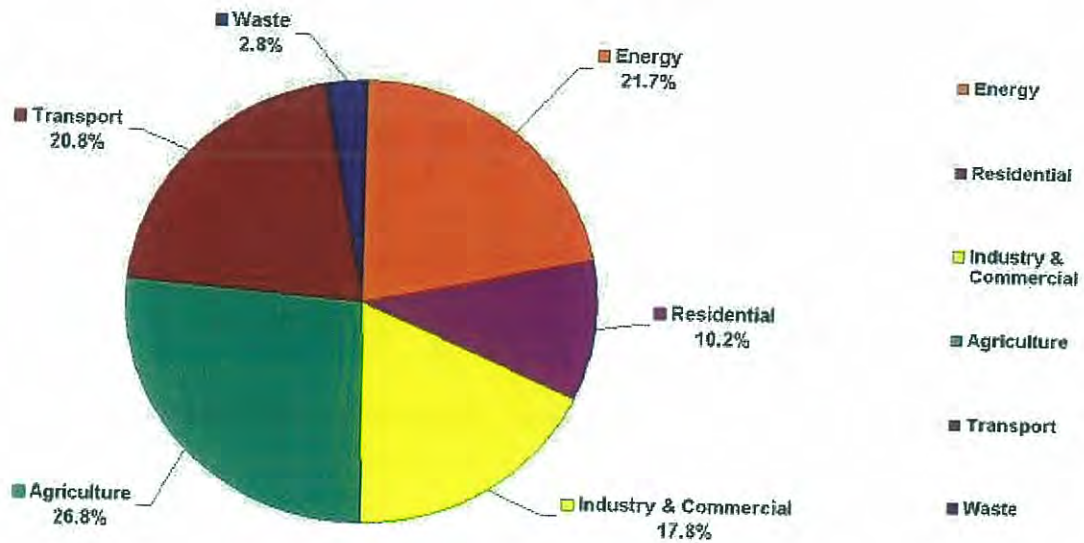
Climate Change

Climate change refers to any change in climate over time, whether due to natural variability or as a result of human activity. The release of greenhouse gases into the atmosphere as a result of human activities add to natural climate variability by increasing the naturally occurring greenhouse effect. Climate change is not limited to changes in temperature or weather- it can also mean changes in the occurrence of extreme and unstable weather conditions, storms and floods, droughts and coastal erosion.

Greenhouse Gas Emissions (GHG)

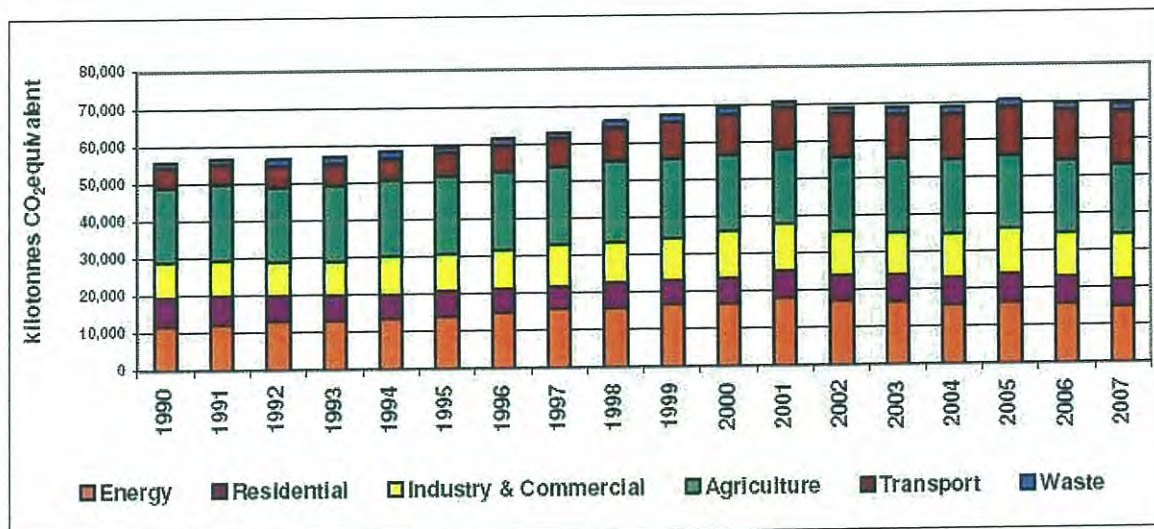
Ireland currently emits 1.7% of total GHG emissions in the EU-15. According to the most recent data (2007), the emissions of greenhouse gases in Ireland in 2007 were 69.28 Mt CO₂ eq. The contribution of various sectors to total energy related CO₂ emissions in 2007 is shown in Figure 5a. Agriculture is the single largest contributor to the overall emissions, at 26.8% of the total, followed by Energy at 21.7% and Transport at 20.8%. The remainder is made up by the Residential sector at 10.2%, Industry and Commercial at 17.8% and Waste at 2.8%.

Figure 5.6.1 Contribution of various sectors to total GHG emissions in 2007



Source: Ireland's National Greenhouse Gas Emissions Inventory for 2007, EPA 2007

The trend in emissions from 1990 to 2007 is shown in Figure 5.6.2. Emissions of carbon dioxide from fossil fuel combustion accounted for 64.7% of total greenhouse gas emissions in 2007 compared to 54.4% in 1990. The proportion from Agriculture, where methane and nitrous oxide are the relevant greenhouse gases, has fallen from 35.9% in 1990 to 26.8% in 2007. While not the greatest contributor, the sector of most concern is transport as it has shown the greatest growth in the corresponding period, where between 1990 and 2007, transport increase at a rate of 178%. This increase can be attributed to general economic prosperity and increasing population and consequent increasing vehicle numbers as well as the trend towards purchase of larger vehicles and the reliance on private car, particularly in relation to commuting to and from work. In addition, rapidly increasing road freight transport (i.e. light duty and heavy duty vehicles) has a significant increase on transport emissions and high construction activity has been a major influencing factor.

Figure 5.6.2: Trend in CO₂ emissions by Sector from 1990 to 2007.

Source: Ireland's National Greenhouse Gas Emissions Inventory for 2007, EPA 2007

Green House Gas Permitted Installations within the study area

The National Allocation Plan 2008 to 2011(extracted from Articles 9 and 10 and Annex III of the EU Emissions Trading Directive (as transposed into Irish law by the European Communities (Greenhouse Gas Emissions Trading) Regulations 2004 (S.I. 437 of 2004) and amendments) contains a list of all installations with GHG permits in Ireland. A GHG permit is issued in attempt to control the emissions of gases, which have the potential to change global climatic conditions. There have been no GHG permits issued to installations in the study area

Energy Overview

Energy is used in Ireland primarily for transportation, electricity generation and heat generation purposes. The contribution of each source to national energy demand has changed somewhat in the last number of decades, for example

- In 1990, thermal uses accounted for 44% of all primary energy used, electricity accounted for 34% and transport 22%; and
- In 2005 thermal uses accounted for 34% of all primary energy used, electricity accounted for 33% and transport 33%.

It is predicted that by 2020 the transport sector will increase its share in national energy demand to a value of 43%. Thermal and electricity uses, it is predicted, will together account for the remaining 57% of national energy demand.

In 2007 the Government produced a White Paper entitled “Delivering a Sustainable Energy Future for Ireland” which sets out a number of strategic goals and the Government’s ambitious target, which requires that by 2020, 33% of electricity consumption will come from renewable resources. In order to achieve this target, Cork County Council is committed to developing a more diverse range and combination of energy sources including:

- Wind Energy;
- Ocean Energy Technologies;
- Solar Energy; and
- Biofuels.

Energy Agency Office

In 1995, Cork County Council established the Energy Agency Office, which is located at Spa House, Mallow. The main role of the agency is to disseminate information on Energy Conservation and Renewable Energy to the public. In addition it is proposed to research and promote alternative forms of energy sources including renewable energy.

Cork County Council is committed to encouraging more sustainable development through energy end use efficiency, and increasing the use of renewable energy in all new building projects in accordance with the following principles:

- Encouraging responsible environmental management in construction;
- Promoting sustainable approaches to housing development by spatial planning, layout, design and detailed specification;
- Ensuring high standards of energy efficiency in all housing developments under its remit, and encouraging developers, owners and tenants to improve the environmental performance of the building stock, including the deployment of renewable energy; and
- For housing and other buildings, specifically encouraging compliance with the building regulations.

Current Situation

Total Primary Energy Requirements (TPER) have increased substantially in Ireland since the early 1990s. Under a 'business as usual approach' this trend would continue, however, significant national efforts are currently being made to curb energy requirements. These efforts are outlined in national energy policy documents.

Currently, national TPER is met largely by the combustion of fossil fuels and in particular oil, with natural gas, coal and peat supplying lesser amounts of energy. There has been a change in fuel mix used for energy generation in Ireland from 1990 to 2005. In general

- the use of gas and oil has increased substantially;
- the use of coal and peat has declined; and
- the use of renewables has also increased substantially, albeit from a very low base.

TPER are projected to increase up to 2010. After this time the effect of the implementation of current energy policy is expected to result in a stabilization of TPER.

The demand for electricity is predicted to grow in the future. Predictions are that electricity demand will increase by 4.5% per annum between 2005 and 2010. In the following decade, the rate of growth is expected to slow down considerably to 1.2% per annum.

Fossil Fuels

In 2005, fossil fuels supplied 98% of TPER requirements. By 2010 this value is expected to decrease to 94% and to 86% by 2020. The shortfall in supplying TPER is expected to be met through the use of renewables.

Oil and Coal

Ireland imports all coal and oil requirements.

Natural Gas

There is existing indigenous production at the Kinsale fields and satellite fields off the south coast of Ireland but this is expected to decline over the next few years. New indigenous production from the Seven Heads facility also came on shore in the last quarter of 2003, through the nearby Kinsale Head facility. Further indigenous gas supplies were discovered at the Corrib field, located off the West Coast of Ireland. Reserves

are believed to be of the order of 20-30bcm. The development of the field was substantially delayed by planning permission difficulties. Despite the more recent finds of indigenous gas fields at Seven Heads and Corrib, the Irish gas market is expected to continue to be heavily reliant on Interconnection with the UK market.

Renewables

According to Sustainable Energy Ireland, in 1990 renewable energy was responsible for 1.9% of the primary energy requirement for electricity (all from hydro power). By 2006, the share of renewables has increased to 4.5%, an increase of 287% in absolute terms (8.8% average annual growth).

Following the publication in January 2008 of the All Ireland Grid Study, the ESB have announced a massive new investment plan, which will see €22 billion invested in the country's electricity infrastructure in the next 12 years. The scale of the new capital spending programme is unprecedented and half of all the money is to be invested in renewable energy projects including wind, tidal, wave, and biomass energy generation.

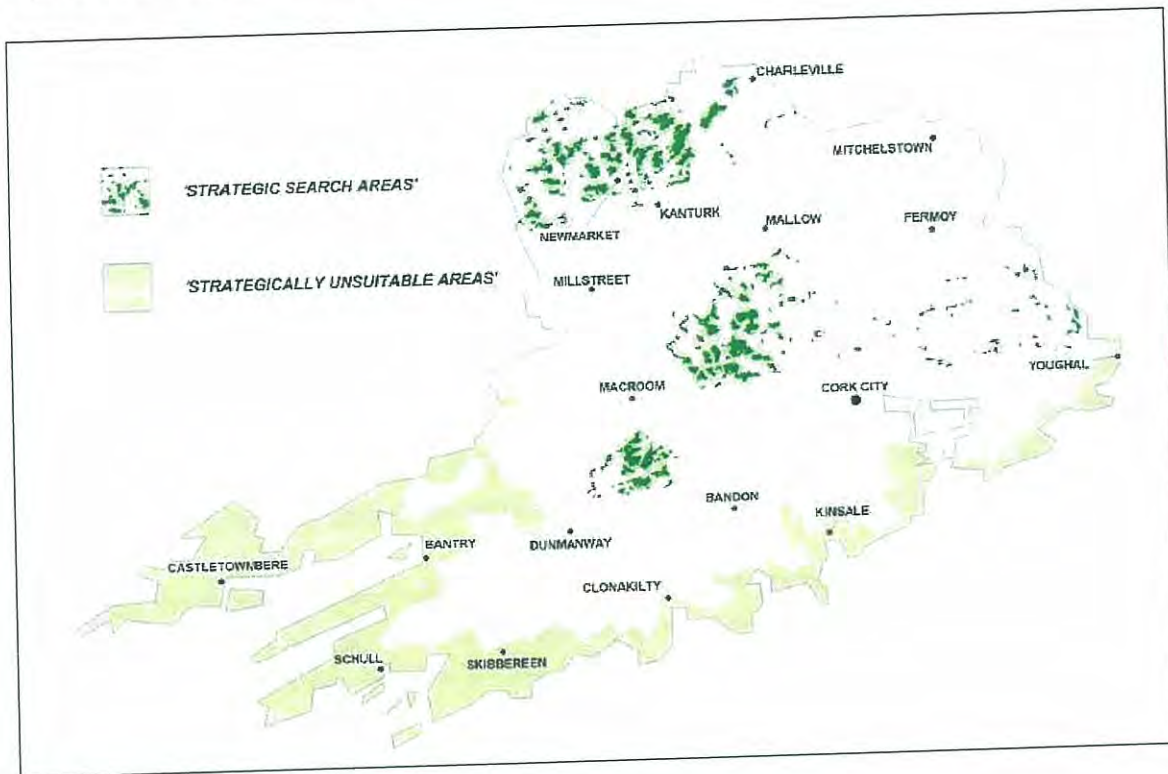
The increased use of renewables in supplying TPER will result in a decrease in energy related carbon dioxide (CO₂) emissions. The government policy document '*Delivering a Sustainable Energy Future for Ireland*' predicts that national CO₂ emissions will decrease by 6% as a result of the increased use of renewables in supplying future TPER.

Windfarms

Cork County Council has received in excess of 70 applications for wind farms in the County. However, while there have been a number of wind farms permitted in County Cork to date only approximately 6 wind farms have been or are in the process of being constructed. A number of existing permissions will have to be renewed over the lifetime of the CDP 2009-2015.

Cork County Council has identified Strategically Unsuitable Areas, which because of high landscape sensitivity, are generally considered to be unsuitable for wind energy projects. Except on a small scale and at particularly suitable locations, wind projects would normally be discouraged in these areas. Cork County Council has also identified "Strategic Search Areas" Areas which have both relatively high wind speeds and relatively low landscape sensitivity to wind projects. However, the identification of "Strategic Search Areas" and "Strategically Unsuitable Areas" does not give any certainty about the outcome of any particular wind energy proposal and even in strategic search areas there will be particular constraints at particular sites. Within Cork County most of the Strategically Unsuitable Areas are situated along the coast. There are no strategically unsuitable areas in the vicinity of Mallow. There is a "Strategic Search Area" to the south of Mallow in the area of the Boggeragh Mountains.

Figure 5.6.3: Windfarms in Cork



Strategic Wind Energy Areas in County Cork.

(Source: Cork County Development Plan 2007)

Solar

Solar energy can be used cost-effectively to meet Irish buildings' heating requirement. Contrary to the old belief that our climate is not suitable for solar, we enjoy as much solar radiation here as most northern European countries. Ireland's annual solar irradiation varies between 950 kWh/m² per year and 1,100 kWh/m² per year. Valentia experiences the greatest solar irradiation in the country. Each square meter horizontal area therefore receives the equivalent of 100 litres of oil in free energy from the sun.

Hydro

At present there is single hydropower plant in operation at Inniscara on the River Lee (12km from the city centre). The hydroelectric plant has a capacity of 27 MW of electricity. One other pilot scheme is in place, at Carrigrohane a micro-renewable turbine house has been supplying green electricity to 132 of Cork City Council's electricity accounts since 2004 and delivers a maximum of 1,130 MWh/yr electricity. There is no hydro electricity generating plants in the Mallow area. It is generally accepted that all the significant hydropower potential in the country has been exploited.

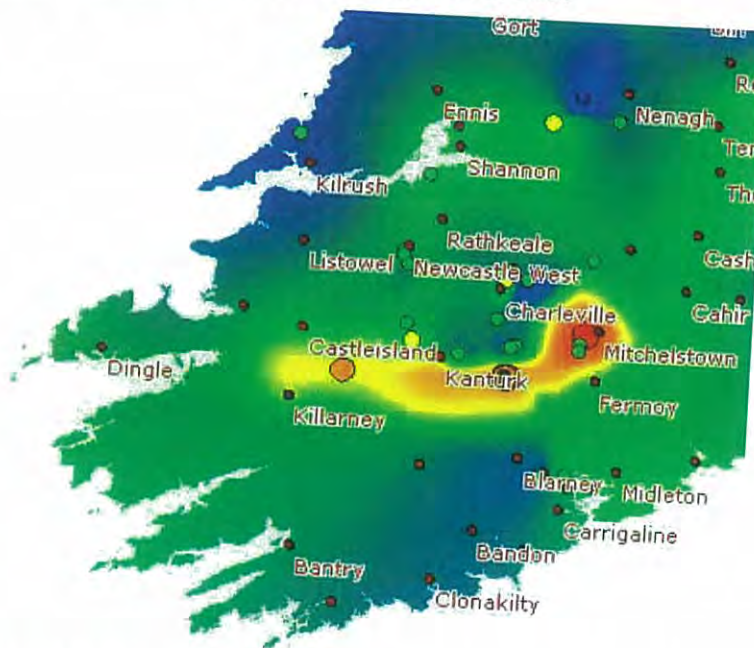
Tidal/Wave Energy

Ireland has become one of the world leaders in wave energy technology with the development of the Wavebob. The Wavebob was developed by an Irish company and can successfully convert wave energy to electrical energy. In general the waters off South Cork have poor potential for wave energy generation. The potential wave resources for the country and county can be seen on www.marinemaps.ie.

Geothermal

In 2004, CSA Group, a natural resource consultancy, completed a study commissioned by SEI, which aimed at identifying the potential resources of geothermal energy in Ireland. The results of this review indicate that Ireland is particularly well suited for the utilization of ground source heat pumps, due to its temperate climate and rainfall levels that ensure good conductivity and year round rain-fall recharge. The current installation rate is increasing rapidly and requires immediate attention to set and maintain high standards of equipment installation and operation. One of the outcomes of the project was to create a series of geothermal maps for Ireland, an example of which is illustrated below.

Figure 5.6.4: Geothermal Resources in the South West



This Map is for illustrative purposes only. All data copyright OSI + SEI

Source www.sei.ie

The map above illustrates clearly the Killarney-Mallow thrust fault and elevated ground temperatures. The warm springs in the Mallow area and in the more recently identified eastward extension to Glanworth, lie along an east-northeast trending Killarney-Mallow thrust fault. Temperatures in this area vary between 13°C at

Marybrook spring, Newmarket, Co. Cork (typical of groundwater temperatures in the area) to 23.5 °C at the County Council borehole north of Glanworth, Co. Cork. It is also worth noting that in broad terms silica rich rocks, of which the Devonian in the Cork and Kerry area are mostly comprised, have higher heat conductivity than limestone.

Bioenergy

The bioenergy sector is emerging as a viable alternative to the traditional non renewable energy supply sources of coal and oil. Bioenergy is energy derived from the processing of solar energy that has been bound up in biomass during the process of photosynthesis. The photosynthesis process uses solar energy to combine carbon dioxide from the atmosphere with water and various nutrients from the soil to produce plant matter-biomass. The biomass can then be refined or upgraded to produce two types of biofuels; solid biofuel (wood pellets) and liquid biofuel (biodiesel).

It is an objective of the Cork County Development Plan to recognise and develop the full potential of biomass for energy production.

Power Generation in Cork

There are 3 power stations operating in County Cork and permission has also been granted for a further power station at Aghada, which is yet to commence construction. The €400m plant at Aghada will generate 400 megawatts of electricity for the national grid every year. The plant will sit alongside an existing power station and is due to be completed in 2009. (Natural gas powered).

Table 5.6.1: Existing Power Plants in Cork

Location	Capacity (megawatts)	Energy Source
Inniscarra	27	Hydro
Aghada	525	Gas
Marina	115	Gas

Energy Efficiency in Buildings, Sustainable Building Design

The EU Directive on the Energy Performance of Buildings (EPBD) contains a range of provisions aimed at improving energy performance of residential and non-residential buildings, both new-build and existing. This Directive was adopted into Irish law as Regulation in 2006.

The EPBD obliges specific forms of information and advice on energy performance to be provided to building purchasers, tenants and users. This information and advice provides consumers with information regarding the energy performance of a building and enables them to take this into consideration in any decisions on property transactions.

As part of the Directive, a Building Energy Rating (BER) certificate, which is effectively an energy label, will be required at the point of sale or rental of a building, or on completion of a new building.

The Action Plan for Implementation of the EPBD in Ireland published in July 2006 proposes phased implementation of BER in Ireland as follows:

- 1 January 2007: BER of new dwellings;
- 1 July 2008: BER of new buildings, other than dwellings; and
- 1 January 2009: BER of existing dwellings and other existing buildings, when offered for sale or rental.

5.6.3 Impact assessment – existing environmental problems and constraints

Sustainability is a key constraint for future development. Emissions to the atmosphere, energy consumption and climate change are all interlinked. Future developments should give consideration to passive design and clean and energy efficient technologies such as renewables, district heating and co-generation.

In Ireland the transport sector is the fast growing contributor of GHG emissions. A reliable efficient public transport system within the Mallow area would reduce car dependence and combat rising CO₂ emissions from vehicle exhausts.

Space may also be a constraint in particular when locating vertical ground source heat pumps and district heating plant.

5.6.4 Evolution without implementation of the plan

Evolution without the plan would see a continued upward trend in the inefficient use of energy in the region and deterioration in air quality as a result of ever increasing combustion emissions and inefficient use of

resources. Evolution without the plan would also see a slower uptake of renewable energy technologies sustainable building design.

The proposed Plan contains a number of sustainable Objectives and policies to encourage reduction in energy consumption and emissions, which are not included in the existing plan.

5.7 MATERIAL ASSETS

Within the Mallow area there are a variety of material assets. In general material assets are associated with the:

- Built Environment – (protected structures and archaeological monuments); (discussed under cultural heritage)
- Natural Assets – (quarries and mines, agriculture and forestry, conservation areas;
- Infrastructure – (roads, telecommunications, wastewater, roads, energy).

It is how these assets are utilised that has the potential to impact on the Environment.

5.7.1 Policy

The Mallow Plan has a number of policies that have regard to material assets. The Plan takes into account policies at a national level, regional and local level. Particular reference is made to the National Spatial Strategy (for transport), the Urban Wastewater Treatment Regulations 2001, the Cork Waste Management Plan, the Cork County Development Plan and the Mallow Electoral Local Area Plan.

5.7.2 Baseline

Water Supply

The Mallow Water Supply Scheme is supplied with water from an impounding reservoir on the Fiddane Stream 3.5km southeast of the town and an abstraction from the Clyda River 2 km upstream of its confluence with the River Blackwater at Dromore (3km to the southwest of the town). The Fiddane impoundment was the original source for the town from which water gravitates via a 225mm main to the treatment plant at Ballyellis on the southeast side of the town. Original treatment was via slow sand filters at Ballygarrett, which are now disused.

Raw water is pumped from the Clyda intake at Dromore to the Ballyellis treatment plant via 3.6 km of 250mm rising main. Treatment at Ballyellis consists of conventional sedimentation, rapid gravity filtration and disinfection. In early 2005 a borehole was drilled on site to augment the supply. This borehole pumps directly into the 2,273m³ treatment plant reservoir (TWL = 114.6 mOD) following disinfection.

The Mallow Water Supply requires an upgrading of the Ballyellis WTP to provide 5.0 million litres a day, together with the development of the Box Cross well field, its connection to Mallow will provide an additional 3.5 million litre storage reservoir at Ballyellis.

The Council is currently awaiting approval from the Department of Environment Heritage and Local Government under the Mallow/Ballyvinitter Regional Water Supply Scheme in order to develop the new ground water source identified close to Doneraile Box Cross Roads. This new source will enhance the existing river source to the Ballyvinitter and the St. Joesph's Road areas and provide capacity in excess of 20,000 PE. The

Council expects this programme to be implemented during the lifetime of the Plan and in accordance with the phased growth of the Plan as per Objective IU2 of the Plan, which is to 'Ensure an adequate, sustainable and economic supply of good quality water for domestic, commercial and industrial use'. It is also an objective of the Plan (Objective IU3) to 'Conserve water supplies through the elimination of leakage in the interests of efficiency and sustainability and promote public awareness and involvement in water conservation measures'.

Drinking Water Quality

Drinking water is regulated by the European Communities (Drinking Water) Regulations, 2000. Drinking water is supplied in County Cork via a range of public and private schemes; however, the vast majority of the population is served by public water supplies. Most drinking water originates from surface water, particularly for public water supplies whereas group water schemes and small private supplies tend to be slightly more reliant on groundwater or spring water.

Cork County Council as a sanitary authority is responsible for the production, distribution and monitoring of public water supplies. Other drinking water supply schemes which are present in the County include:

- Public Group Water Schemes, where the water is provided by the sanitary authority but responsibility for distribution of the water rests with the group scheme. These schemes tend to be supplied off larger public water supplies.
- Private Group Water Schemes' are schemes where the owners of the scheme (usually representatives of the local community) source and distribute their own water.

In accordance with these regulations, the local authority must notify the EPA where there has been a failure to meet a quality standard. According to the EPA report: *'The Provision and Quality of Drinking Water in Ireland, A Report on the Years 2006-2007'*, no notification of drinking water contamination has been sent to the EPA regarding the supply to the Mallow Town Council area. From a summary of the number of incidents of E. coli contamination reported during 2006, 6 incidents of E. coli contamination of public water supplies occurred in Cork (North) during 2006 in the Burnfoot, Bartlemy, Doneraile, Glenduff, Rahan and Mitchelstown Galtee public water supplies, with the latter being serious. All these incidents were caused by the failure or inadequacy of chlorine dosing equipment at the treatment plants. The continual failure of a large number of supplies (6 supplies were contaminated during 2005) is of concern. The Council should investigate and install chlorine monitors to allow detection of faulty chlorinators in advance of contamination of the water supply. E. coli was detected in 3 of the 14 private group water schemes monitored in Cork (North) during 2006 (at moderate levels).

According to the Environmental Protection Agency, the River Blackwater and most of its tributaries are described as being 'at risk of not achieving good status' in terms of water quality under the Water Framework Directive. As noted in Section 5.5.3 which refers to water there are a variety of activities both within and outside the study area, which have the potential to impact on water quality. These include sewerage treatment works, flooding, domestic water treatment systems, housing, construction work, industry, landfill at Bottlehill, spillages, increased road runoff and agriculture.

Waste Water Treatment

Under the EPA Act 1992 (Urban Waste Water Treatment) Regulations, 1994, S.I. 419 of 1994, all wastewater entering collection systems shall be subject to secondary treatment, or equivalent treatment, prior to discharge. To meet modern day legislation the sewerage must be treated.

Currently there is a secondary treatment plant serving the town. This plant at Ballyellis has a design capacity for 18,000 PE (Population Equivalent) and is estimated to be currently running at 66% capacity. There is adequate capacity to cater for zoned lands within the Town, however this will need to be monitored. The modular design of the Ballyellis plant allows for an expansion of the plant to accommodate the projected growth for the Town.

The 'Mallow Sewerage Collection System Preliminary Report' has set out a phased programme for the extension to, and upgrade of the existing sewerage infrastructure network throughout the town and into the surrounding environs. The implementation of this programme, which is currently subject to funding, could commence in early 2010 and could take between 2-3.5 years to implement.

There is a possibility of unchecked increase in demand for wastewater treatment with potential for increased pollution to surface waters. Therefore correct treatment of wastewater is an important factor to consider in order protecting the quality of surface water. It is essential that the Wastewater Treatment Plant operates to highest standards and that monitoring of the performance of the WWTP and sewerage networks is undertaken to capture leakages to GW and SW. The new WWTP at Ballyellis has been expanded to serve a population equivalent of over 18,000. Despite that the Treatment Plant has capacity at present, the treatment plant capacity will need to be monitored to ensure that it can cater for future growth within the area, in accordance with its 'hub status'.

Waste Disposal/Landfill

In relation to waste disposal, it is noted that the Cork MRF, which is the cornerstone of Waste Management Strategy, is yet to be constructed. A new landfill for the County is proposed at Bottlehill on a greenfield site in a commercial forestry, south of Mallow. Bottlehill is currently non-operational and Landfill capacity in the Cork region, prior to the opening of Bottlehill, is limited to that at Youghal (300,000 tonnes), which is running below licensed capacity. Rossmore is currently at capacity. Kinsale Road landfill only accepts waste from Cork City Council. Once Bottlehill opens it will have a capacity of 5 Million tonnes with an approximate life of 20 years. Mallow currently disposes of its waste to a landfill site in Ringaskiddy.

Waste and IPPC Licensed Sites

Currently there are 3 IPPC licensed facilities within Mallow Town Council. These are Dairygold Co-Operative Society Limited (IPPC Reg: P0403-01), located at Annabella, Mallow, which deals with the manufacture of dairy products. Micam Limited, located at Sean Moylan Park in Mallow (IPPC Reg: P0247-01), deals with the

manufacture of integrated circuits and printed circuit boards. Finally, Road Binders Ltd, based at Quartertown Mills in Mallow (IPPC Reg: P0084-01) is involved in the chemical manufacture of glues, bonding agents and adhesives.

Just outside of Mallow Town, to the east lies Irish Sugar Plc., Kilvealton West, Mallow (IPPC Reg: P0223-01), and are involved in the production of sugar. The nearest Waste Facility is located at Bottlehill, Tureen South, Coom, Glashaboy, North Bottlehill (IPPC Reg: W0161-01). It will be a specially engineered landfill, with placement into lined discrete cells which are capped and isolated from one another and the environment. This site has yet to go into operation.

Waste-to-Energy

In January 2004 Indaver received planning permission for the construction of Phase 1 of a 100,000tpa €75M incinerator for hazardous waste, including a Waste Transfer Station for hazardous waste, to be located at Ringaskiddy. The development was appealed to An Bord Pleanála who subsequently granted permission subject to 27 conditions in January 2004. In addition, a Waste Licence was granted by the EPA for the facility in November 2005. Judicial reviews were sought by objectors to both EPA and APB decisions

Gas Infrastructure

Gas infrastructure is divided between transmission and distribution infrastructure. Transmission infrastructure forms the backbone of the Irish natural gas system and delivers large volumes of gas at high pressures to the main consumption centres, and in special cases, high consumption customers (generally power stations). The distribution network operate at lower pressure and delivers gas to low consumption customers, typically including small businesses and residential customers, in mostly urban areas.

Transmission Infrastructure

Currently Bord Gais Éireann (BGE) is the only entity that owns and operates transmission infrastructure in Ireland. However the possibility exists for other entities to build and operate a transmission network, subject to licence by the CER under the Gas (Interim) (Regulation) Act 2002.

Electricity

The Electricity Regulation Act 1999 liberalised the electricity sector in Ireland. As a result, the electricity market in Ireland is now fully open to competition, in accordance with the requirements of the EU Directives 96/92/EC and 98/30/EC, as of February 19th 2005. Nationally, the electricity network is currently undergoing a major refurbishment program, to continue to 2010. One of the major projects within this programme is the completion of the Medium Voltage Network Renewal Project. This project will see all of Ireland's Medium Voltage overhead electricity network converted to 20kV or refurbished, to ensure a secure, high quality supply with adequate capacity for existing and future loads.

Transport

Mallow Town Council had a population of 7,864 in the 2006 Census. Significant economic growth and a consequent increase in car ownership throughout Ireland in recent years have added to the pressures on existing infrastructure. Mallow experiences significant congestion on its road network arising from through traffic traversing the town centre and demand for on-street car parking, particularly along Davis Street. Therefore proposals within the Plan include a new relief road to the north of the town that would remove existing N72 traffic from the town centre. Furthermore as part of the national road improvement programme, the N20 will be upgraded to motorway standard.

It is the aim of Mallow Town Council to provide for effective circulation and movement of strategic and local traffic through and around the town and; to reduce traffic congestion in the town centre in order to create a vibrant town centre and improve the environmental quality and character of the town; and, to facilitate greater connectivity through the town and with other centres.

The Plan contains a number of detailed objectives based upon the understanding of the detailed issues and which shall contribute to the effective implementation of Strategic Objective No. 2 of the Plan which seeks an 'accessible and legible town'. These Objectives aim to improve accessibility to/from and around the town and central area through an integrated transportation and landuse planning approach; It is also proposed to improve and enhance pedestrian and cycling connectivity throughout the town specifically between the town centre and public transport nodes.

Access to Mallow Town

Significant economic growth and a consequent increase in car ownership throughout Ireland in recent years have added to the pressures on existing infrastructure. Mallow Town is accessed via the N20 National Primary Route which connects the town to Cork City with Limerick City, and the N72 National Primary Route which connects Mallow with Dungarvan, Fermoy, and Killarney (also a Hub). The N73 National Primary Route also connects Mallow with Mitchelstown and Dublin City via the N8. The town is accessed from the rural hinterland via a series of regional routes including the R621 and R620, but also by many other minor roads. The town benefits from a railway station that connects the town to Cork City, the strategic Hub of Killarney and Tralee, Limerick City (via Limerick Junction), and Dublin City. At present, Mallow is served by an hourly bus service to and from Cork City, which also connects the town to Limerick, Shannon Airport and Galway City in addition to local commuter services. It is proposed to utilise the Dairygold West End site in order to facilitate a transport interchange and a public transport 'hub' for the town. It is also proposed to accommodate a new bus station within this public transport 'hub' as all of the bus services currently stop at the Town Park bus stop on Park Road, with a request stop available at Mallow Hospital. Mallow Town is approx. 42km north of Cork International Airport. There are also objectives to set in place a designated cycleway network linking all parts of the urban area, and in particular the town centre and railway station.

Table 5.7.1 Accessibility to Mallow Town

Road Network	Transport Network
National Road	N20 – Cork City – Mallow – Buttevant – Charleville – Limerick City N72 – Killarney – Mallow – Fermoy – Dungarvan N73 – Mallow – Mitchelstown
Regional Road	R619 – Dromahane - Coachford
Rail Network	Mallow Station – serves Cork (20mins), Kerry, Limerick, Dublin (2hrs 50mins) Kent Station, Cork City (88km 1.30hrs) – Kerry, Dublin.
Air	Cork International Airport (42km 45mins)

5.7.3 Impact assessment – existing environmental problems and constraints

Traffic - A Traffic and Transportation Study for Mallow Town is currently being undertaken and recommendations have not yet been made. Therefore it is recommended that all new transport objectives that will be included within the plan should be assessed in terms of strategic environmental assessment. In addition it is also considered that any large-scale proposals should undergo Environmental Impact Assessment. Consideration should also be given to the environmental policies and objectives of the current and proposed plan should any of the proposed options be implemented.

Wastewater Treatment – Currently there is a secondary treatment plant serving the town. This new plant at Ballyellis has a design capacity for 18,000 PE (Population Equivalent), and provides treatment to the effluent prior to it being discharged to the River Blackwater. In addition to this the Mallow Sewerage Collection System Preliminary Report has set out proposals for the extension and upgrade of the existing sewerage infrastructure network of Mallow town to cater for the planned growth of the town. Treatment plant capacity will need to be monitored to ensure that development is served by adequate wastewater provision.

Water Supply – The water supply for Mallow Town is sourced upstream on the Fiddane Stream 3.5km southeast of the town, and an abstraction from the Clyda River 2 km upstream of its confluence with the River Blackwater at Dromore (3km to the southwest of the town). The water for the town is treated downstream on the banks of the River Blackwater. The source and treatment have adequate capacity to cater for the existing

situation, however the Mallow Water Supply will require upgrading to allow for ample capacity for the town to expand in line with projected growth associated with the Town's 'Hub' designation.

5.7.4 Evolution without implementation of the plan.

In the absence of the Town Development Plan specific transport objectives would still be provided through the National Road Improvement Programme, The County Development Plan, the Mallow Electoral Local Area Plan and special Mallow Local Area Plan. However the town plan provides guidance that specifically relates to transport infrastructure in line with particular provisions of the Plan.

It is an objective of the plan to implement the outcome of the Mallow Traffic and Transportation Study, which proposes to advise on traffic mitigation measures for the town. In the absence of the Mallow Town Development Plan 2010 – 2016 recommendations of the transportation study would not be implemented and therefore it is likely that the town would become even more congested, causing increased air and noise pollution within the town centre. Without the plan it is likely that additional public transportation facilities, cycling facilities, pedestrian amenities and parking facilities would not be provided. Without these integral features of the plan the transport situation within the town itself would deteriorate as increased volumes of traffic over time were using the same routes that may presently be at or near capacity.

5.8 CULTURAL HERITAGE

This section of the SEA establishes Mallow Town Council's objectives and policies for the protection, conservation and enhancement of Mallow's architectural and archaeological heritage. There are many fine buildings of note in the town and these buildings have been listed in the Record of Protected Structures for Mallow and are also protected by virtue of their location within the Architectural Conservation Area (ACA) designation. In addition to architectural and social heritage, the town is also of archaeological note having regard to the large number of Archaeological sites within the Town.

5.8.1 Policy

There are a number of specific planning policies and objectives in the Mallow Development Plan 2010 to 2016 to preserve and enhance those structures, buildings and streetscapes within the town which significantly add to the uniqueness of Mallow's urban landscape and to the amenity value of the town. Strategic Objective No. 3 of the Plan seeks to achieve a 'positive physical natural environment.

5.8.2 Baseline

Cultural heritage includes inherited artifacts and intangible attributes that are inherited from past generations, maintained and bestowed for the benefit of future generations. The protection of heritage not only has environmental benefits and benefits for the quality of the people of Mallow, but it also brings economic benefits to the County by providing attractive towns, villages and countryside for visitors to enjoy.

Mallow town possesses a wealth of historical buildings and archaeological remains. Such features are a finite, non-renewable resource particularly vulnerable to partial or total destruction and in certain instances contain irreplaceable information about the past. The Plan recognises the value and significance of its built and archaeological heritage and therefore seeks to ensure the effective protection, conservation and enhancement of historical and archaeological sites, monuments and their settings, through preparing a Record of Protected Structures (RPS), defining an Architectural Conservation Area (ACA), identifying recorded monuments and archaeological sites and defining an Area of Archaeological Potential.

Archaeological Heritage

Archaeological heritage is a resource, which can be used to gain knowledge and understanding of the past and is therefore of great cultural and scientific interest. Archaeological heritage ranges from sites, features and objects of archaeological interest.

The Minister for the Environment and Local Government is responsible for the protection of archaeological heritage, including the licensing of archaeological excavations, through the exercise of powers under the National Monuments Acts 1930 to 2004.

There are a number of categories of monuments under the National Monuments Acts

- National monuments in the ownership or guardianship of the Minister or a Local Authority or national monuments which are subject to a preservation order;
- Historic monuments or archaeological areas recorded in the Register of Historic Monuments; or
- Monuments or places recorded in the Record of Monuments and Places.

The Archaeological Survey of Ireland (ASI) compiles the record of all archaeological monuments in the State and is responsible for the publication of Archaeological Inventories. The Record of Monuments and Places is compiled by The ASI and comprises lists and maps of all monuments with known locations.

It should be noted that any direct impacts on national monuments in State or Local Authority care or subject to a preservation order will require the consent of the Minister for the Environment, Heritage and Local Government under Section 14 of the National Monuments Act 1930 as amended by Section 5 of the National Monuments (Amendment) Act 2004.

Record of Monuments and Places

The National Monuments (Amendment) Act 1994 made provision for the compilation of a record of all known monuments in the County - The Record of Monuments and Places (RMP). The Record of Monuments and Places consists of a set of maps on which all the archaeological sites in the county known to the Minister in 1997 were marked. It is accompanied by a manual, which contains a descriptive listing of each site. All the sites marked on the RMP maps are protected under section 12 of the National Monuments (Amendment) Act 1994. As new features and monuments are discovered due to research and development driven archaeological assessment, monitoring, testing and excavation a second layer of monuments not yet included in the RMP is created.

Copies of the Record of Monuments & Places maps and accompanying manual can be viewed at the Copies of the Record of Monuments & Places maps and accompanying manual can be viewed at the Cork County Library, Model Business Park, Model Farm Road, Cork and at the Mallow Town Council, North Street, Mallow.

Preservation (i.e. preservation in-situ or, as a minimum, preservation by record) of all archaeological monuments included in the Record of Monuments and Places as established under Section 12 of the National Monuments (Amendment) Act, 1994, and of sites, features and objects of archaeological interest generally, is legal requirement. This includes all remains and sites which might yet be undiscovered, as the Record of Monuments and Places is subject to ongoing continuous updating.

Mallow Town has a diverse range of monuments ranging from a number of historic eras. Monuments within the area include holy wells, churches, ring forts, fulacht fiadh, country houses and limekilns. There are a number of RMP sites located within the town boundary and these are listed in Appendix 2 of the Plan and shown in Map 2 of the Plan.

There are also a number of monuments under the 'Sites and Monuments Record' (SMR), which is a list of monuments that are awaiting statutory protection. A list of all SMRs within the town is included in Appendix 2 and shown in Map 2 of the Mallow Town Development Plan.

The Town also contains a Zone of Archaeological Potential (ZAPs), which are areas where intense archaeology is present.

National Monuments - Archaeological Sites and Monuments in State Ownership

There are 2 National Monuments located within the Mallow Town Council boundary including the Castlelands House and the Town Walls as indicated in Table 5.8.1 below. National Monuments in the ownership or guardianship of the Minister for the Environment, Heritage and Local Government or subject to a preservation order within the boundary of Mallow Town Council are as follows:

Table 5.8.1: National Monuments located within Mallow Town Council Boundary

RMP Monument No.	Townland	Classification	National Mon No.
CO033-00901	Castlelands	Fortified House	281 (G)
CO033-093	Mallow	Historic Town	Town Walls

Under the national monuments acts (1930-2004) any works at or in proximity to such monuments will require ministerial consent.

In addition it should also be noted that under the National Monuments Acts any monument in the ownership or guardianship of the local authority may be declared a national monument. This applies to any Recorded Monument in local authority ownership or guardianship where the preservation of any such monument is a matter of national importance because of the archaeological, architectural, historical, traditional or artistic importance attaching to that monument. National Monuments Service will advise on any determinations regarding the status of such monuments. Under the national monuments acts (1930-2004) any works at or in proximity to such monuments will require ministerial consent.

It should also be noted that under the National Monuments Acts any monument in the ownership or guardianship of the local authority may be declared a national monument. This applies to any Recorded Monument in local authority ownership or guardianship where the preservation of any such monument is a matter of national importance because of the archaeological, architectural, historical, traditional or artistic importance attaching to that monument. National Monuments Service will advise on any determinations regarding the status of such monuments. Under the national monuments acts (1930-2004) any works at or in proximity to such monuments will require ministerial consent.

Architectural Heritage

The term “architectural heritage” is defined in the Architectural Heritage (National Inventory) & Historic Monuments Act, 1999 as meaning all:

- a) Structures and buildings together with their settings and attendant grounds fixtures and fittings;
- b) Groups of such structures and buildings, and Sites; and
- c) Which are of architectural, historical, archaeological, artistic, scientific, social or technical interest.

Record of Protected Structures

There are currently 138 protected structures within the Mallow Town Council Boundary. The Planning and Development Act, 2000 (Part II, Section 10) places an obligation on all local authorities to include in its development plan objectives for the protection of structures, or parts of structures, which are of special architectural, historic, archaeological, artistic, cultural, scientific, social or technical interest. These buildings and structures are compiled on a register known as the Record of Protected Structures (RPS), and is outlined in Appendix 2 and mapped on Map 4a. There are a number of structures listed for protection in the Record of Protected Structures within the town.

The buildings and structures identified on the RPS are irreplaceable records of the past, of the local and national heritage, and therefore require protection. Their presence enhances the character of Mallow and adds to its local distinctiveness. It is a policy of the plan to draw attention to the heritage value of protected structures and offer general advice on conservation as is available. The Council will resist demolition of protected structures in whole or in part; removal or modification of features of architectural importance; and development that would adversely affect the setting of a protected structure.

In addition to the Record of Protected Structures, structures of architectural heritage merit, although not put forward for inclusion in the Record of Protected Structures (RPS) may continue to contribute to the identity of a locality and should be taken into account in the preparation of the Development Plan. The Mallow area is unique in form and character. It is an objective to seek the identification and protection of all structures within the town that are of special architectural, historical, archaeological, artistic, cultural, scientific, social or technical interest. Such structures include but are not exclusive to the Record of Protected Structures.

National Inventory of Architectural Heritage (NIAH) - Recorded Structures

The NIAH is a section within the Department of the Environment, Heritage and Local Government. The work of the NIAH involves identifying and recording the architectural heritage of Ireland, from 1700 to the present day. Identified buildings may be put forward for inclusion in the Record of Protected Structures. Surveys of County Cork have not yet been published.

Architectural Conservation Areas (ACA's)

The built heritage of County Cork and Mallow town is also offered protection through the designation of Architectural Conservation Areas (ACAs).

An ACA is defined as a place, area, group of structures or townscape, taking account of building lines and heights, that is of special architectural, historical, archaeological, artistic, cultural scientific, social or technical interest or that contributes to the appreciation of a Protected Structure, and whose character is an objective of a development plan to preserve. Piecemeal alterations on individual non-protected structures can have a significant cumulative effect on the streetscape.

Three areas within the Town are designated as ACA's, including the Main Street that runs from West End through Davis Street and down to the Clock Tower. Spa Glen and Bearforest Demesne have also been designated as ACA's.

In addition to the policy of the plan, Architectural Conservation Areas are protected by legislation and may be used to protect the following:

- Groups of structures of distinctiveness or visual richness or historical importance;
- The setting and exterior appearance that are of special interest, but the interiors of which do not merit protection;
- The setting of a Protected Structure where this is more extensive than its curtilage;
- Designed landscapes where these contain groups of structures as in, for example urban parks, the former demesnes of country houses and groupings of archaeological or industrial remains; and
- Groups of structures, which form, dispersed but unified entities but which are not within the attendant grounds of a single dominant Protected Structure.

Tree Preservation Orders

In accordance with Section 205 of the Planning & Development Act (2000) it is the policy of the Council to ensure that the existing trees in the town are retained and protected within the Mallow Development Plan 2010 - 2016. In Mallow there are four Tree Preservation Orders (TPO's) relating to trees in Castlelands, Castlelands and Ballyellis, Spa Glen and Spa Glens and Castlelands. A TPO enables the planning authority to preserve trees and brings them under planning control. Essentially the permission of the planning authority must be sought before any tree with a TPO is lopped, topped or felled.

Industrial Heritage

Over the past decade there has been a growing public awareness of Ireland's industrial heritage, as seen in a number of sites which have been restored by enthusiasts and are now open to the public as tourist and educational attractions. Although there is now official recognition of the importance of the industrial heritage of Ireland, statutory protection is still low, due in the main to a backlog of listing of heritage structures.

Apart from functioning as an important employment and service centre, the town of Mallow seeks to enhance its tourism base. The Blackwater Amenity Area and townscape all combine to make Mallow an attractive tourist destination.

It is recognised that one of the main opportunities to strengthen the permanent population structure of the area is by not only strengthening the economic and employment base of the towns but also by promoting a stronger tourism and leisure economy through the protection of the assets of the town's natural and built heritage.

Gaeltacht Areas

There are no Gaeltacht areas within the subject area.

5.8.3 Impact assessment –existing environmental problems and constraints

Developments or works which occur in close proximity to archaeological monuments would have potential to impact existing archaeological monuments through disturbance or destruction of the monuments. New developments that are adjacent to and/or alterations/extensions to existing protected structures also need to be carefully managed to ensure that the cultural heritage of such areas are not disturbed or negatively impacted upon.

It is deemed that the Plan area is of high archaeological potential. This determination is based on the presence of substantial archaeological remains from many periods of the past within the development area.

5.8.4 Evolution without implementation of the plan

In the absence of the Plan, specific objectives would still be provided through the Cork County Development Plan and National Legislation. However the Mallow Development Plan provides a guidance that encompasses principles from the Cork County Development Plan and the national legislation and is therefore more applicable to the area of Mallow.

If the plan were not implemented there would not be any local guidance, policies or objectives to protect and conserve archaeological sites, protected structures, trees of merit, Architectural Conservation Areas and buildings and sites of Architectural merit. Therefore these features of special architectural, historical, archaeological, artistic, cultural, social or technical interest could be damaged or even lost in some cases.

5.9 LANDSCAPE

Mallow is set in a rich and diverse landscape strategically located in the Blackwater Valley. It is this setting which sets it apart from many other large towns and cities. Mallow contains significant areas of landscape importance, which are important not only for their intrinsic value as places of natural beauty but also because they provide a real asset for residents and visitors alike in terms of recreation, tourism, agriculture and other uses. The importance of landscape is recognised in the Planning and Development Act 2000, which requires that Development Plans include objectives for the preservation of the landscape, views and prospects and the amenities of places and features of natural beauty.

5.9.1 Policy

There are a number of specific planning policies and objectives in the 2010 to 2016 Mallow Development Plan to protect features of Landscape and Natural Heritage importance which significantly add to the uniqueness of Mallow's landscape and to the amenity value of the town. The Plan also refers to national, regional and local plans including the Cork County Development Plan 2003 and Cork County Development Plan 2009.

5.9.2 Baseline

'Landscape' is a general term used to describe the appearance of the physical environment. It is composed of a complex mix of natural and man-made elements that can be an important part of the identity of an individual or community. Landscape characterisation is a process of assessment, which is used to identify homogeneous physiographic areas of landscape. The character specified for a study area is generally a descriptive term made up of the prominent landform and land cover. Each landscape character also represents its own landscape values and sensitivities. An assessment of values takes cultural, historic and religious and other understandings of the landscape into account. Landscape sensitivity refers to the extent to which a landscape can accommodate change without an unacceptable loss of existing character or interference with values.

The town of Mallow is particularly attractive enjoying a fine townscape and complex topography, within the Blackwater Valley. This attractive scenic setting is framed by surrounded by prominent hills and ridges to the northwest and the low-lying valley region to the south of the town. This gives the town its rich and diverse natural setting. The River Blackwater is the main natural amenity feature and has had a strong influence on the historic development of the town. The physical pattern of the town centre has been directly influenced by the extent of the flood plain of the River Blackwater, which in turn influences the existing and potential land uses along the river corridor including the Town Park. Other natural characteristics features influencing the development of Mallow include the Spa Glen landscape amenity area along the N72 (Fermoy Road) and the location of Mallow Castle at the eastern edge of the town centre.

According to the Draft Cork County Council Landscape Strategy the landscape type of Mallow town is of very high value and is of very high value in terms of sensitivity.

Landscape Types

Mallow and its surrounding landscape is comprised mostly of a fertile plain area, which forms part of the 'Golden Vale' but also includes other landscape types such as the Fissured Marginal and Forested Rolling Upland areas and Fissured Fertile Middleground. This landscape type dominates a substantial proportion of northeast Cork. This is a low lying landscape, which comprises an extensive area of predominantly flat or gently undulating topography along the River Blackwater and which is continued in its periphery by low ridges. The latter include the southern slopes of the Ballyhoura and Galtee Mountains to the north, the northern slopes of the Nagles to the south and the western ridges of the Knockmealdown mountains. The bedrock of the plain is comprised mostly of limestone, while the sandstone typically forms the underlying geology of the peripheral ridges.

These physical conditions create a fertile and verdant landscape well suited to intensive farming. It is this activity and the planar landform, which give the landscape its characteristic rectilinear mosaic of large sized fields. This mosaic is articulated by the field boundaries comprising mostly mature broadleaf hedgerows but also scrub species such as gorse. Articulation also results from the variation in colour arising from alternative use, whether dairying or arable. Occasional small blocks of coniferous plantations introduce a patchy land cover pattern to hills and ridge tops.

Lower ground comprises large fertile fields, predominantly used for intensive farming, while coniferous plantations occur on hills and ridge tops.

The landscape is also characterised by many old demesnes comprising, for example, high stone walls, broadleaf avenues and open parkland. Farmsteads are also scattered throughout the landscape, comprising large houses and traditional barns.

Values

The landscape is one of high fertility and, thus productivity. It is a "working" landscape, manifesting the human bond with the land through agricultural activity. The 'Golden Vale' is renowned nationally as an important agricultural area. In addition to this, the natural heritage of the area, particularly given the range, quality and diversity of habitats, is also of national importance. The area is highly valued for its recreational (mainly fishing and walking) and scenic amenities, particularly within the broad fertile valley of the River Blackwater. Some upland areas are valued locally for commercial forestry.

The Fissure Marginal and Forested Rolling Upland landscape areas are valued locally as a place to live and for its remote upland quality, even though the character of these upland areas has changed dramatically in recent years due to intensive commercial forestry. The Fissured Fertile Middleground landscape is valued locally for the quality of its agricultural land including limited concentrations of heavy forestry to the east. Its aesthetic quality, particularly regarding its fertile and complex topography is highly valued locally for residential purposes.

Sensitivity

The landscape in the vicinity of the Blackwater valley has been designated as having very high landscape sensitivity. This infers that the landscape is extra vulnerable.

Scenic routes act as indicators of high value landscapes and identify more visually sensitive locations where higher standards of design, siting and landscape are required. The N72 national secondary route between Mallow and Roskeen Bridge is designated as scenic route S14 by the County Plan, for the views it affords of the Blackwater Valley. The elevated lands to the east and west of the town are designated as scenic landscape.

Based on an evaluation of development pressure on scenic landscape zones and scenic routes, Mallow is noted by the Cork County Development Plan as an area under high development pressure. Highly vulnerable environmental areas in the County have also been identified, including along the Blackwater and Awbeg rivers. However, the topographical characteristics along the river and its flooding behaviour, areas of the adjoining land on both the northern and southern river embankments have remained, in part, relatively undeveloped throughout the entire Plan area. The prominent ridges to the southeast and the north west of the town, area also are relatively free from development, and are protected by the Green Belt designation surrounding the town.

To the east and west of the town, the banks of the River Blackwater have been identified as a prime wildlife conservation area and have been designated as a Special Area of Conservation (SAC) under the EU Habitats Directive by the National Parks and Wildlife (NPWS). Although not covered by a formal statutory designation as the River Blackwater, the Spa Glen is considered to be a significant landscape feature within the town and should be designated as an amenity area to ensure its protection from insensitive and inappropriate development.

Mallow has the benefit of some significant stands of urban woodland and mature trees and has four Tree Preservation Orders (TPO's), which were made in 1978, relating to trees in Castlelands, Castlelands and Ballyellis, Spa Glen and Spa Glens and Castlelands. These TPO's conserve and protect these wooded lands from development.

Pressures for Change

Forestry

Forestry development is beginning to dominate the some of the upland areas within this landscape type. Whilst parts of the landscape are robust enough to accommodate forestry development further plantations and re-plantations should be planned and managed in a way that enhances the landscape.

The expansion of coniferous plantation onto the plain would have a profound impact on the general regimented field pattern in the area.

Deciduous trees are a dominant feature within the landscape, especially on the plain, as they help form field boundaries. Their continuation will be important in retaining this landscape type's character.

Agriculture

This is a man made landscape and agriculture has played a central role in shaping the landscape. Its survival therefore will be key to the preservation of the character of the landscape. A decline in agricultural activity is likely to impact on the character of the area. Associated with the changes in the agricultural sector within the County as a whole, are an increase in part time farmers and accompanying decline in farm employment. This loss of labour is often particularly acute with regard to traditional maintenance and management of key agricultural landscape features such as hedgerows and ditches. More recently, with the introduction of schemes such as the Rural Environmental Protection Scheme (REPS), an attempt has been made to explicitly link farming activities to the environment.

If agricultural activity is not encouraged then scrub invasion could damage landscape character by obscuring field patterns and distinctive landform. However, the surrounding agricultural lands have more potential for rural diversification due to their proximity to a large centre of population. The route that any future diversification may take will be a crucial factor in the altering of the landscape. The existence of green belts around the town supports the future of agriculture by helping to retain land in agricultural use and protect it from inappropriate development. Securing the Green Belt in agricultural use provides certainty for the farming community, which encourages investment and diversification in the agricultural industry.

5.9.3 Assessment –existing environmental problems and constraints

The development of Mallow is significantly constrained by its natural landform and landscape features. The prominent undeveloped ridges to the southeast and the north west of the town provide an attractive rural setting to the town and are therefore not considered suitable for development. The green belt that surrounds the town ensures that the rural and urban characteristics of Mallow are kept distinct from each other

The river valley itself, in conjunction with its surrounding floodplains, is designated as a Scenic Landscape. The N72, west of the town, is a designated scenic route. For these reasons it is considered essential that the river valley, which forms part of the main approach roads into the town, is not, generally suitable for development.

To the north and south, the principle approach road into the town is the National Primary Route, N20, which is also deemed unsuitable for development, as it would have a negative impact on the visual setting of the town.

The plan aims to protect the habitat, landscape, visual and amenity qualities of the River Blackwater and Spa Glen so that they can contribute to the ecological diversity of the area for future generations and be used for recreation and other compatible uses during the lifetime of the Plan. It is recognised that the entire river corridor is a finite resource that needs to be formally identified and protected through policies in the Plan. It is also recognised that much of the area is subject to severe and regular flooding and the effect of this flooding potential is to eliminate or restrict development. The opportunity thus exists to create a substantial riverside park along the banks of the River Blackwater. The plan also points to the Spa Glen Landscape Amenity Area, which has been designated to reflect the visual and amenity value of the Spa Glen and ensure that it is protected from inappropriate and insensitive development.

Overall, objectives of the plan aim to conserve and protect the landscape setting of Mallow while also providing active and passive open space and recreational areas thereby enhancing the overall living environment and ensuring quality of life for all residents.

5.9.4 Evolution without implementation of the plan

In the absence of the Plan specific objectives would still be provided through the Cork County Development Plan and National Legislation. However the Mallow Development Plan provides a guidance that encompasses principles from the Cork County Development Plan and the national legislation and is therefore more applicable to the area of Mallow.

If the plan were not implemented, lands within the town would not be zoned and it is likely that development would take place in an ad hoc, haphazard manner. It is likely that that development would take place on scenic landscapes, floodplains and important ridges or vistas of the town. Therefore features of landscape value could be damaged or even lost in some cases.

6 OBJECTIVES, TARGETS AND INDICATORS

The sustainability criteria are broadly categorised in terms of the indicators outlined in the SEA Directive and in the SEA of the Cork County Development Plan 2009-2015. In the course of carrying out the appraisal, the sustainability criteria were refined, combined and classified in order to avoid duplication and ensure a clear, focused and measurable set of criteria against which the strategy can be assessed. Set out in Table 6.1 are the SEA Objectives that are being considered to test the Mallow Development Plan. These objectives are based on the current understanding of the key environmental issues identified at a local level in Mallow and at a county level.

Table 6.1: Mallow Town Plan Objectives, Targets and Indicators

Issue	Objective	Target	Indicator	Responsibility
Biodiversity, Flora and Fauna				
B1	To avoid significant adverse impacts (direct, cumulative and indirect), to protected habitats, species or their sustaining resources in designated ecological sites by development within or adjacent to these sites.	No significant adverse impacts, (direct, cumulative and indirect impacts), to relevant habitats, species or their sustaining resources in designated ecological sites.	Number of significant adverse impacts (direct, cumulative and indirect impacts), to relevant habitats and species in designated ecological sites as a result of implementation of the Plan	MTC DoEHLG
	Protect aquatic and terrestrial habitats from invasive species.	Liaise with MTC in their involvements with National and Regional initiatives to monitor and control invasive species.	Number and types of invasive species identified during the lifetime of the Plan in the study area.	MTC
B2	To protect the marine environment, aquatic biodiversity, flora and fauna.	Meet the requirements of the River Basin Management Plan	Changes in water quality as identified during water quality monitoring programmes.	MTC DoEHLG

Issue	Objective	Target	Indicator	Responsibility
Population and Human Health				
PH1	To improve the quality of life for the people of Mallow through high quality residential, working and recreational environments, sustainable travel patterns.	To improve quality of life, provision of improved physical and social infrastructure, to reduce journey to work times and allow for a better match between place of residence and place of work.	Journey to work times.	CCC
PH2	To protect human health from hazards or nuisances arising from traffic and incompatible landuses.	No spatial concentrations of health problems arising from environmental factors.	Occurrence of a spatially concentrated deterioration in human health as a result of implementation of the Plan.	MTC/CCC
Soils				
S1	To maximise the sustainable re-use of brownfield lands and the existing built environment, rather than developing greenfield lands.	All brownfield lands to be redeveloped at the end of the plan lifespan (subject to availability on the open market and demand for such land).	Area of brownfield land available.	MTC
S2	To maintain the quality of soils.	To reduce contamination and safeguard soil quality and quantity.	Area of contaminated land encountered during development works and nature and extent of soil contamination.	CCC
S3	To minimise waste production and reduce the volume of waste to landfill and to operate sustainable waste management practices.	To meet national and EU targets on the recycling of municipal waste and its diversion from landfill.	Volume of waste recycled and volume of waste sent to landfill.	MTC/CCC

Issue	Objective	Target	Indicator	Responsibility
Water				
W1i	Maintain or improve the quality of surface water and groundwater to meet the requirements of the South Western River Basin Management Plan (SW RBMP) and Programme of Measures (POMs).	0 Faecal Coliform Counts per 100ml of surface and ground water.	Faecal Coliform Counts per 100ml of surface and ground water.	EPA MTC/CCC
W1ii		To improve biotic quality ratings, where possible to Q5.	Changes in water quality as identified during water quality monitoring programmes.	EPA MTC/CCC
W2i	To maintain and improve, where possible, the quality of rivers, lakes and surface water.	To maintain a biotic quality rating of Q4, in line with the requirement to achieve good water status under the Water Framework Directive, by 2015.	Biotic Quality Rating (Q Value) and Risk Assessment.	EPA MTC/CCC
W2ii		To improve biotic quality ratings, where possible, to Q5.	Biotic Quality Rating (Q Value) and Risk Assessment.	EPA MTC/CCC
W3	Promote sustainable water usage	To introduce water measures to reduce water wastage, leakage and over consumption usage and to promote conservation measures at household and Industrial level.	Number of water conservation measures implemented during the lifetime of the Plan	CCC/ MTC
Air and Climate				
A 1	To maintain and improve air quality in Mallow and reduce CO2 Greenhouse Gases (GHGs) to alleviate Climate Change.	Increased use of public transport. Increase numbers of cycle lanes and pedestrian routes in the study area. Increase number of permissions granted for renewable energy projects	Use of public transport. Provision of cycle lanes and walking routes. Number of permissions granted for renewable energy projects. Air quality indicators	MTC/CCC

Issue	Objective	Target	Indicator	Responsibility
Energy				
E1	Promote renewable energy technology for projected power requirements and implementation of the Building Regulations over the lifetime of the Plan.	Encourage use of renewable energy for domestic and small businesses. Use of renewable energy to supply National Grid where applicable.	Number and type of renewable energy technologies employed in new developments since implementation of the Plan.	MTC/CCC
Material Assets				
M1	To serve new development under the plan with appropriate wastewater treatment.	No new developments granted permission, which cannot be adequately served by a public wastewater treatment plant over the lifetime of the plan.	Number of new developments granted permission which cannot be adequately served by a public waste water treatment plant over the lifetime of the plan	CCC NRA
M2	To maintain and improve the quality of drinking water supplies.	To maintain and improve drinking water quality in Mallow to comply with the requirements of the European Communities (Drinking Water) Regulations 2000.	Drinking water quality standards (Microbiological, Chemical and Indicator parameters).	EPA MTC/CCC
Cultural Heritage				
CH1	To protect the archaeological heritage of Mallow and; the context of the above within the surrounding landscape where relevant.	No developments permitted over the lifespan of the plan which result in full or partial loss of: RMPs; or National Monuments or in the context or surrounding landscape of these features.	Number of developments permitted over the lifespan of the plan which result in full or partial loss of RMPs; or National Monuments or in the context or surrounding landscape of these features.	CCC Heritage Section Cork Heritage Forum MTC DoEHLG

Issue	Objective	Target	Indicator	Responsibility
CH2	To preserve and protect the special interest and character of Mallow's architectural heritage and the context of the above within the surrounding landscape where relevant.	No unauthorised developments over the lifespan of the plan which result in physical loss or loss to the context in the surrounding landscape or streetscape of: entries to the Record of Protected Structures; Architectural Conservation Areas, or; entries to the National Inventory of Architectural Heritage.	Number of unauthorised developments permitted over the lifespan of the plan which result in physical loss or loss to the context in the surrounding landscape or streetscape of: entries to the Record of Protected Structures; Architectural Conservation Areas, or; entries to the National Inventory of Architectural Heritage.	CCC Heritage Section Cork Heritage Forum MTC DoEHLG
Landscape				
Li	To protect Mallow's sensitive landscapes, landscape features and designated scenic routes and landscape	No unauthorised developments to be conspicuously located within sensitive landscapes or designated scenic landscape.	Number of unauthorised conspicuous developments located within sensitive landscapes or designated scenic landscape.	MTC/CCC
Lii		No unauthorised developments to adversely impact upon designated scenic views or scenic landscape.	Number of conspicuous developments adversely impacting upon designated scenic views or scenic landscape granted permission during the lifetime of the Plan. Number of Landscape Impact Assessments and photomontages submitted with planning applications	MTC/CCC

7 ASSESSMENT OF ALTERNATIVES

7.1 INTRODUCTION

Article 5 of the SEA Directive requires the environmental report to consider '*reasonable alternatives taking into account the objectives and the geographical scope of the plan or programme*' and the significant effects of the alternatives selected. Alternatives must be realistic and capable of implementation and should present a range of different approaches within the statutory and operational requirements of the Town Plan.

Section 3.14 of the DoEHLG Guidelines notes that the higher the level of the plan, the more strategic the options which are likely to be available. Conversely, lower tier plans, such as Town Plans, will be framed in a policy context set by the level(s) above them, and strategic options may be limited. From a strategic perspective, Mallow has been designated as a 'Hub' settlement to accommodate growth and serve a wider hinterland at a pivotal location between Cork and Limerick and on strategic road and rail network in accordance with the NSS, RPG's, CASP, County Development Plan and Mallow sLAP. As a result, the main objectives of the Plan are set out on this basis and the strategic options available to the preparation of the Mallow Development Plan are limited.

It is a mandatory objective of a Development Plan that sufficient lands are zoned for particular purposes. This is especially relevant in relation to the quantum and location of new residentially zoned lands. In this regard it is important to highlight that sufficient lands are rezoned for residential, employment and community uses within the town boundary in line with national, regional and local population projections, which will contribute to the generation of critical mass within the town of Mallow. Mitigation measures which attempt to prevent, reduce and as fully as possible offset any significant adverse effects on the environment of implementing the preferred alternative – most of which have been integrated into the Development Plan - are identified in chapter 9 of this report.

Historically the town has developed on the northern side of the River Blackwater prior to the construction of Mallow Bridge, which allowed settlement expansion into Ballydaheen and subsequently the old Cork Road. More recently, new residential development has been along Spa Road and St. Joseph's Road (on the northern side) and Killavullen Road (on the southern side) based on the previous Development Plan objectives. While lands to the west of the N20 have experienced a more modest amount of residential development has occurred, with some industrial development at Quartertown to the south west of the town.

The Blackwater River and floodplain dissects the town in two as historic flooding patterns have resulted in a physical separation between the north and south of the town centre, whereby access to the south of the town centre is restricted to the bridge crossing at the southern side of Bridge Street and access to Quartertown and Old Cork Road is largely restricted to on/off ramps from the N20 Cork-Limerick Road traversing through the town.

It is evident that a substantial amount of the Mallow Town Council urban area has been developed to date and new urban generated development including residential, industrial and commercial enterprises have extended beyond the town boundary and into the 'environs'. However, from examination of the existing 'undeveloped' land within the Town boundary as indicated in Map No. 3 of the Development Plan, it is evident that there are in fact large tracts of undeveloped/underdeveloped areas under a range of differing zonings.

On the basis of the strategic policy, existing settlement patterns and land availability for Mallow Town, the alternative for the Mallow Plan should therefore be based upon; retaining the compact pattern of development that has occurred to date, preserving and enhancing the town centre as the economic service provider to the urban area and wider rural hinterland, and enabling Mallow to achieve its strategic 'Hub' status utilising the inherent physical and natural characteristics of the town.

The following Alternatives have been considered for the development of the Town;

- **Alternative 1** Minimalist Approach
- **Alternative 2** Densification of the town
- **Alternative 3** Promote development in a market led

Under Alternative Option 1 the 'minimalist approach', the Mallow Town Plan would still be reviewed and replaced by a new development plan in accordance with legislation, however this Plan would take a more cautious approach to new development by prioritising the Town's natural environment together with the amenity and character of existing residential areas.

This scenario would involve the adoption of planning policies which seek to maintain the status quo as far as possible and limit the development potential of growth areas and brownfield sites to reflect the established pattern and character of development in the Town.

Alternative Option 2 is to develop the town in a compact and sustainable manner in order to restrict the need to develop lands outside the town boundary. This alternative would promote the densification of the existing Town Centre and expansion of town centre westwards and allow the redevelopment of brownfield sites and Greenfield sites only where there is a natural extension to existing zoning.

Under this scenario, new town expansion areas would be developed / redeveloped to accommodate new urban development and deliver the maximum quantitative efficiency of new population density and commercial floorspace in line with the Town's Hub designation.

Alternative Option 3 is to promote development in a market led approach, which would involve the relaxation of planning controls throughout the Town, creating a situation where favorable consideration is given to higher density development in all areas with less weight given to existing residential or architectural character or environmental amenity. Due to the market led approach, no opportunity sites and zoned development areas would be provided for in the Plan. It is likely that under this scenario growth would happen in a dispersed,

haphazard manner and would be likely to have a negative impact on the intrinsic architectural character and environmental amenities such as the Blackwater amenity Corridor and Flood Plain within the area.

7.2 ASSESSMENT OF OPTIONS

Table 7.2.1 below provides a description of the criteria used to assess the various environmental SEA topics against the proposed alternative.

Table 7.2.1 Scoring Symbol for the Purpose of Assessment of Alternatives

Impact	Negative	Negative indirect	Neutral	Positive (direct)	Positive (indirect)	Uncertain/ Questionable
Symbol	x	☒	0	✓	☑	?

Alternative 1 - the “Minimalist Approach”

Under Option 1 the ‘minimalist approach’, the Mallow Town Plan would still be reviewed and replaced by a new development plan in accordance with legislation, however this Plan would take a more cautious approach to new development by prioritising the Town’s natural environment together with the amenity and character of existing residential areas.

This scenario would involve the adoption of planning policies which seek to maintain the status quo as far as possible and limit the development potential of growth areas and brownfield sites to reflect the established pattern and character of development in the Town.

New development would be limited in terms of scale and would be in the form of lower density development. This would restrain Special Development Areas and town expansion areas from attaining a sustainable mix of population and employment and providing the critical mass of activity to sustain an integrated public transport network for the Town.

The economic and social implications of this scenario would be negative. The positive regeneration benefits which would be released by the redevelopment of key Special Development Areas and town expansion areas for more intensive urban development would be compromised and in the longer term problems of urban decay and decline would result. Development under this scenario would be pushed out into the Mallow environs beyond the administrative boundary and there would be a decline in traditional employment within the Town.

It is therefore likely that Alternative Option 1 would not achieve the strategic vision of the Mallow Town Development Plan, which Mallow’s vision is based on a number of objectives under the following headings;

developing the hub, making Mallow an accessible legible town, to create a positive physical & natural environment and to create a vibrant & balanced community. An overview of impacts by considering the “do nothing” scenario is provided below in Table 7.2.2.

Table 7.2.2: Alternative 1 - The Minimalist Approach

Environmental Issue	Score	Commentary
Biodiversity	<input checked="" type="checkbox"/>	This scenario would be least likely to impact upon biodiversity and flora and fauna within the Town boundary however it would be likely to result in impacts upon biodiversity and flora and fauna outside the Town boundary.
Population and Human Health	0/ <input checked="" type="checkbox"/>	Under this scenario the existing environment is likely to remain unchanged. It is unlikely that population targets for the area would be met and unlikely that new roads would be implemented and therefore traffic congestion within the town would remain.
Water	0	Under the minimalist approach, this scenario would not promote growth and development within the town and would therefore not impose additional pressure in terms of water supply. Under this scenario strict control of development is unlikely to impact on flooding within the town
Soil	0	This scenario would significantly undermine the efficiency of the Town to accommodate new development and would fail to maximise the redevelopment of vacant sites or brownfield areas in the Town. However this scenario is unlikely to have an impact on soil due to the lack of development.
Air & Climate	0/ <input checked="" type="checkbox"/>	Under this scenario the existing environment is likely to remain unchanged. It is unlikely that population targets for the area would be met and unlikely that new roads would be implemented and therefore traffic congestion within the town would remain.
Material Assets	0	This option is likely to keep the status quo within the town and not put pressure on existing services. However it is likely to increase the amount of development outside the town boundary in an unsustainable unplanned manner and reduce the amount of development contributions to upgrade services within the town.
Cultural Heritage	<input checked="" type="checkbox"/>	It is likely that under this scenario all elements of cultural heritage will not be directly impacted upon, however it is likely that due to the lack of growth and development within the Town that features will not be maintained or reinstated under this scenario.
Landscape	<input checked="" type="checkbox"/>	This scenario would serve to protect the Towns existing landscape assets and, however the spread of development beyond the Town's administrative boundary would be likely to indirectly impact upon the landscape surrounding the Town.
Traffic	0/ <input checked="" type="checkbox"/>	It is unlikely that population targets for the area would be met and unlikely that new roads would be implemented and therefore traffic congestion within the town would remain.

- **Alternative 2 - Densification of the Town**

Alternative Option 2 is to develop the town in a compact and sustainable manner in order to restrict the need to develop lands outside the town boundary. This alternative would promote the densification of the existing Town Centre and expansion of town centre westwards and allow the redevelopment of brownfield sites and Greenfield sites only where there is a natural extension to existing zoning.

Under this scenario, new town expansion areas would be developed / redeveloped to accommodate new urban development and deliver the maximum quantitative efficiency of new population density and commercial floorspace in line with the Town's Hub designation. Under this scenario a the west of the Town is a key expansion area and a number of opportunity sites are also identified including the following;

- Opportunity Site 1 – Car Park to Rear of Hibernian Hotel
- Opportunity Site 2 – Car Park Between Davis Street and Muddy Hill
- Opportunity Site 3 – Mallow Castle
- Opportunity Site 4 – Dairygold West End

This scenario allows for the intensification of the town centre and the consolidation and expansion of existing services to easily accessible lands. This approach would meet a number of the objectives of the Town Development Plan, as it would allow the rejuvenation of existing derelict sites, which would improve the town's architectural character and townscape and consequently improve its tourist function.

Furthermore this alternative helps to achieve the provisions as set out in strategic policy for the area to retain the compact pattern of development that has occurred to date, preserving and enhancing the town centre as the economic service provider to the urban area and wider rural hinterland, and enabling Mallow to achieve its strategic 'Hub' status utilising the inherent physical and natural characteristics of the town. Therefore Option 2 is the preferred option for the Mallow Town Development Plan 2010 - 2016.

Table 7.2.3: Densification of the Town

Environmental Issue	Score	Commentary
Biodiversity	0	Much of the town is already developed therefore the densification of the Town planned growth of the Town is not likely to impact biodiversity as it would reduce impacts to greenfield areas and wildlife corridors outside the town.
Population and Human Health	✓	This scenario would promote greater use of public transport due to the intensification of the town centre and promotion of development on lands, which have been zoned in a planned manner. This option promotes walking and cycling and allows good access to local amenities and services.
Water	0	Policies in the plan ensure that development will only take place in areas where wastewater and water supply capacity have been assessed with the aim of reducing pressure on surface water and groundwater.
Soil	0	This scenario would involve uptake of land the majority of which is made ground and therefore there is likely to be less impacts due to the brownfield nature of development.
Air & Climate	✓	The new populations provided by this scenario would contribute to a critical mass which would make the provision of new public transport infrastructure and services more economically viable
Material Assets	✓	This option focuses development in existing development areas and also promotes development on brownfield sites and on Greenfield sites only where there is a natural extension to existing zonings. This option would help to rejuvenate existing derelict sites, which would improve the town's architectural character and townscape and consequently its tourist function. This option promotes development where there is already provision of services, water supply and transport systems can be planned to accommodate development.

Environmental Issue	Score	Commentary
Cultural Heritage	0	This option will concentrate development in areas already developed or zoned for development. It is likely that under planned growth scenario that there is likely to be more funding and tourism in the town which will help to fund the maintenance and/or reinstatement of amenity, architectural and archaeological features of cultural heritage under this scenario.
Landscape	0	This option would lead to the development of a more compact urban structure and reduce the need for the development of amenity areas within the town and greenfield areas at the edge of town.
Traffic	✓	With the provision of sustainable public transport and new transport links, it is likely that there will be an increase of use in public transport and reductions in the distances of commuting for the increasing population, as development is concentrated in the town and on lands planned and zoned for development.

Alternative 3 - Promote development in a market led approach to the north and south of the town

Alternative Option 3 is to promote development in a market led approach, which would involve the relaxation of planning controls throughout the Town creating a situation where favorable consideration is given to higher density development in all areas with less weight given to existing residential or architectural character or environmental amenity. Due to the market led approach, no opportunity sites and zoned development areas would be provided for in the Plan. It is likely that under this scenario growth would happen in a dispersed, haphazard manner and would be likely to have a negative impact on the intrinsic architectural character and environmental amenities such as the Blackwater amenity Corridor and Flood Plain within the area.

This approach is not considered to be the most sustainable development approach for the town, as it would not maximise the use of brownfield lands within the town centre. It is also considered that this scenario would be likely to result in pockets of unplanned growth close to the N20 and also within the environs of the Town. This scenario is not considered to be sustainable as it would not help to consolidate the town centre, nor would it promote walking or cycling or make use of the existing services in the town centre. This option would result in the development of lands based on a market led approach and not on sustainable planning principles. Therefore Option 3 is considered unsustainable due to the dispersed nature of growth and primarily due to its potential to have impacts on the environment. An overview of impacts by considering Alternative Option 3 is provided below in Table 7.2.4.

Table 7.2.4: Promote development in a market led approach to the north and south of the town

Environmental Issue	Score	Commentary
Biodiversity	⊗	This scenario may result in pressures to the Blackwater Amenity Corridor due to unplanned market led growth. Possible loss of hedgerows, tree lines and potentially sensitive habitats but not on a significant scale.
Population and Human Health	⊗	This scenario would create a higher dependency on the private motorcar, which may adversely affect human health due to deterioration of air quality, as development would not be proposed in a planned phased manner.

Environmental Issue	Score	Commentary
Water	☒	Adopting limited planning controls, development under this scenario would be more likely to occur sporadically across the plan area thus development could locate within flood plain areas and could potentially have negative impacts on the water quality groundwater in the area.
Soil	☒	Market led development is likely to take place on greenfield lands within the town and is likely to eventually result in loss of fertile soils/resources in favour of development of brownfield sites.
Air & Climate	0/☒	Under this scenario there is no provision for the facilitation of a green fabric and therefore there would be a greater reliance on the private car rather than use of cycleways and pedestrian links resulting in increased CO ₂ emissions and negative impacts to air quality and climate.
Material Assets	0/☒	This option would result in the development of greenfield sites instead of the re-use of brownfield sites and the redevelopment of derelict structures within the town. This option would therefore result in the further dilapidation of the town centre and would not be sustainable in the long term. This could have indirect impacts on the tourism industry in Mallow.
Cultural Heritage	0/☒	There could be impacts on the recorded monuments and places sites and protected structures within the area as a consequence of this option as lands would not be zoned in a planned manner.
Landscape	*	This Market-led Scenario would represent a significant departure from the existing predominantly low-rise pattern of existing residential development in the town. It is likely that market led development would have a visual impact on the town due to higher densities and developments on high grounds around the Town.
Traffic	0/☒	It is likely that development under this scenario could occur in a piecemeal fashion and could undermine the economic viability of the provision of new public transport infrastructure and services.

7.3 CONCLUSION

Table 7.3.1. below summarises the scoring for each development option. Development Option 2 has clearly emerged as the preferred option for the preparation of the Mallow Development Plan and is the logical alternative for development within the Plan. This alternative is the chosen alternative for the Development Plan as it is in line with the provisions of Chapter 3 of the Plan, which highlights that the 'way forward' for the growth of the town. The proposed 'way forward' for the town is to retain the compact pattern of development that has occurred to date, reserving and enhancing the town centre as the economic service provider to the urban area and wider rural hinterland, and enabling Mallow to achieve its strategic 'Hub' status utilising the inherent physical and natural characteristics of the town.

Table 7.3.1 Summary of Development Option Score

SEA Objective	Option 1	Option 2	Option 3
Biodiversity	☒	0	☒
Population and Human Health	0/☒	✓	☒

Water	0	0	<input checked="" type="checkbox"/>
Soil	0	0	<input checked="" type="checkbox"/>
Air & Climate	0/ <input checked="" type="checkbox"/>	✓	0/ <input checked="" type="checkbox"/>
Material Assets	0	✓	0/ <input checked="" type="checkbox"/>
Cultural Heritage	<input checked="" type="checkbox"/>	0	0/ <input checked="" type="checkbox"/>
Landscape	<input checked="" type="checkbox"/>	0	x
Traffic	0/ <input checked="" type="checkbox"/>	✓	0/ <input checked="" type="checkbox"/>

8 EVALUATION OF THE PLAN POLICIES

8.1 INTRODUCTION

The purpose of this section of the Environmental Report is to evaluate as far as possible the potential environmental effects of the Mallow Town Development Plan and to set out measures envisaged to prevent, reduce and as far as possible offset any significant adverse effects on the environment. On this basis, this section of the environmental report assesses the policies, objectives and main development strategies of the Plan against the SEA environmental objectives.

As part of the methodology a matrix was used to assess the policies/objectives of the Plan against the objectives devised to ensure that the strategy is sustainable. This process enables an overview of where potential environmental problems may arise from implementation of the Plan and allows for mitigation measures to be implemented where necessary.

Overall the proposed strategy will not have a negative impact on the environment. Where potential impacts/constraints occur mitigation measures will be put in place and monitoring will ensure there is no deterioration in environmental quality within the Plan area. Mitigation and monitoring measures are described in Chapters 9 and 10 respectively.

The environmental objectives of Biodiversity, Flora and Fauna, Population and Human Health, Soil water, Air and Climatic Factors, Energy, Material Assets, Cultural Heritage and Landscape area assessed against the draft policies and objectives of the draft Mallow Town Development Plan 2010 – 2016 as consulted on in February 2009 in Table 8.2 below.

In order to ensure that the SEA process is transparent, the assessment of the proposed amendments as conducted at the s.12 (7) and s.12 (8) Amendment Stages are set out in Tables 8.3 and 8.4 respectively below also.

8.2 ASSESSMENT CRITERIA

The assessment criteria used is based on the likely significant effects of the Plan's Objectives on the environmental objectives as detailed in Table 8.1. The criteria used for the assessment is described in Table 8.1:

Table 8.1 Assessment Criteria

Type of Impact	Description	Symbol
Positive	Improves the quality of the environment (i.e. improves air quality, biodiversity etc. Positive impacts may be Short Term / Temporary Long Term/ Permanent Indirect	+ +S +L +T +P + I
Negative	Reduces the quality of the environment (i.e. reducing air quality or reducing species diversity). A negative impact can however be sufficiently minimised/eliminated by installation of appropriate mitigation measures. Negative impacts may be Short Term/Temporary Long Term/Permanent Indirect	- _S _L _I
Short term/ Temporary	Usually lasts the duration of the project i.e. during the construction stage of a development i.e. during provision of infrastructure recommended in the Plan.	S +S or _S
Long term/ Permanent	Will last greater than 60 years	L

		+L or _L
Indirect	Effects that are not a direct result of the Plan, same as secondary effects.	I +I or _I
Neutral	No Impact	0
Questionable	Unknown	?
Cumulative	Effects on the environment that result from incremental changes caused by strategic action together with other past, present, and reasonably foreseeable future actions. These results can result from individually minor but collectively significant actions taking place over time or space.	C

Table 8.2 Mallow Town Development Objective's Assessment Matrix

Strategic Objectives	Biodiversity Flora & Fauna		Population & Human Health			Soil			Water			Air & Climate		Energy		Material Assets		Cultural Heritage		Landscape	Comments
	B1	B2	PH1	PH2	S1	S2	S3	W1	W2	W3	A1	E1	M1	M2	CH1	CH2	L				

Main Objectives																					
B1	B2	PH1	PH2	S1	S2	S3	W1	W2	W3	A1	E1	M1	M2	CH1	CH2	L					
Clearly define the role and function of the Mallow Town Council area within its strategic context.	+I		+I	+I	+I	+I	+I	+I	0	+I	+I	+I	+I	+I	+I						
Outline the importance of the town centre as the administrative, commercial, social, and community 'engine'.	0		+L	0	0	+I	0	0	0	+I	+I	+I	+I	+I	+I						
Identify unique features and opportunities of Mallow to enhance its strategic role that could contribute to future physical, social and/or cultural development of the wider area.	+I		+L	+L	+I	+I	+I	+I	0	+I	+I	+I	+I	+L	+L						
Facilitate and encourage public and private investment in the town, by providing supportive development policies and encouraging rather than restricting development.	0		+I	+I	0	+I	+I	0	0	+I	+I	+I	+I	+I	+I						
Direct new development to those areas best served to accommodate development and that will enhance the character of the town;	+L		+I	+I	+I	+I	+I	+I	+L	+I	+I	+I	+I	+I	+I						
To encourage and control development positively.	+I		+I	+I	+I	+I	+I	+I	+L	+I	+I	+I	+I	+I	+I						
A Strategic Vision																					
B1	B2	PH1	PH2	S1	S2	S3	W1	W2	W3	A1	E1	M1	M2	CH1	CH2	L					
Objective 1 - Developing the Hub	+I	+L	0	+I	+I	+I	+I	+I	+I	+I	+I	+I	+I	+I	+I						
Objective 2 - An Accessible & Legible Town	0	+L	+I	+I	0	+I	0	0	0	0	+I	+I	+I	+I	+I						
Objective 3 - A Positive Physical + Natural Environment	+L	+L	+I	+S	+I	+L	+I	+L	0	0	+I	+I	+I	+L	+L						
Objective 4 - A Vibrant + Balanced Community	0	+L	0	0	0	0	0	0	0	0	0	+L	+I	0	0						

Table 8.2 Mallow Town Development Objective's Assessment Matrix

Strategic Objectives	Biodiversity Flora & Fauna		Population & Human Health		Soil			Water			Air & Climate	Energy	Material Assets		Cultural Heritage	Landscape	Comments		
	B1	B2	PH1	PH2	S1	S2	S3	W1	W2	W3	A1	E1	M1	M2	CH1	CH2		L	
Effective Transport and Movement Objectives	B1	B2	PH1	PH2	S1	S2	S3	W1	W2	W3	A1	E1	M1	M2	CH1	CH2	L		
Objective T1	-I	-S	+L	+I	-I	-I	0	0	0	0	-I	0	0	0	0	0	0	0	May have negative impacts on biodiversity and the environment. Would need to adhere to other protective policies in the plan to mitigate against potential adverse impact.
Objective T2	0	+I	+S	+S	0	+I	0	+I	0	0	+L	0	0	0	+I	+I	+I		
Objective T3	+I	+I	+L	+L	+I	+I	0	+I	+I	0	+L	+I	+I	+I	0	0	+I		
Objective T4	+I	+I	+L	+I	+I	+I	0	+I	+I	0	+L	+I	0	0	0	0	+I		
Objective T5	-I	-I	+L	+L	-I	-I	0	-I	-I	0	0	-I	0	0	+I	+I	-I	It is considered that new road developments generally have negative impacts in terms of biodiversity, soil, air and landscape. However, it is considered that the road would improve congestion in the town.	
Objective T6	+I	+I	+L	+L	+I	+I	0	+I	+I	0	+L	+I	0	0	+I	+I	+I		
Objective T7	+I	+I	+I	+I	+I	+I	+I	+I	+I	0	+I	0	0	+I	+I	+I	+I		
Objective T8 - Facilitate an extension of the Park Road to link with the N20 and ultimately onto Navigation Road westwards.	-I	-I	+I	+I	-I	-I	-I	-I	-I	-I	-I	-I	0	-I	+I	+I	+I	It is considered that new road developments generally have negative impacts in terms of biodiversity, soil, air and landscape. However, it is considered that the road would improve congestion in the town.	

Table 8.2 Mallow Town Development Objective's Assessment Matrix

Strategic Objectives	Assessment Matrix														Comments			
	B1	B2	PH1	PH2	S1	S2	S3	W1	W2	W3	A1	E1	M1	M2		CH1	CH2	L
Objective T9 - Consider the feasibility for the provision of an inner relief road around the town.	-I	-I	+I	+I	-I	-I	-I	-I	-I	-I	-I	-I	0	-I	+I	+I	+I	It is considered that new road developments generally have negative impacts in terms of biodiversity, soil, air and landscape. However, it is considered that the road would improve congestion in the town.
Traffic and Movement Policies	B1	B2	PH1	PH2	S1	S2	S3	W1	W2	W3	A1	E1	M1	M2	CH1	CH2	L	
Policy T1 - Strategic Transport Corridor	-I	-I	+I	+I	0	0	0	0	0	0	+I	0	0	0	+I	+I	+I	May be indirect effects on biodiversity from the promotion of use of the N20 Primary Route and the rail line.
Policy T2 - Integrated Public Transport	+I	+I	+L	+L	+I	+I	+I	+I	+I	+I	+L	+I	+I	+I	+I	+I	+I	It is considered that new road developments generally have negative impacts in terms of biodiversity, soil, water and air. However, it is considered that the road would improve congestion in the town.
Policy T3 - N72 Northern Distributor Road	-L	-L	+I	+I	-I	-I	-I	-I	-I	-I	-I	-I	-I	-I	+I	+I	+I	It is considered that the implementation of the Mallow Traffic and Transportation Study may have negative impacts in terms of biodiversity, soil, air and landscape. However, it is considered that this would improve circulation and parking in
Policy T4	0	0	+I	+I	-I	-I	0	-I	-I	-I	-I	-I	0	0	-I	-I	-I	

Table 8.2 Mallow Town Development Objective's Assessment Matrix

Strategic Objectives	Biodiversity Flora & Fauna		Population & Human Health		Soil			Water			Air & Climate		Energy		Material Assets		Cultural Heritage		Landscape	Comments
	B1	B2	PH1	PH2	S1	S2	S3	W1	W2	W3	A1	E1	M1	M2	CH1	CH2	L			
Policy T5	+I	+I	+L	+L	+I	+I	+I	+I	+I		+I	+I	0	0	+I	+I	+I		the town.	
Town Centre, Urban Renewal & Regeneration Objectives																				
Town Centre Areas																				
Old Town Quarter	+L	+L	+L	+L	S1	S2	S3	W1	W2	W3	A1	E1	M1	M2	CH1	CH2	L			
Historic Quarter	-I	-I	+L	+L	+L	-I	0	0	-S	0	0	0	0	0	+I	+I	+L		Would need to adhere to other protective policies in the plan to mitigate against potential adverse impact from development of the Historic Quarter.	
Town Centre Expansion Quarter	-I	-I	+L	+L	-S	-S	0	0	-S	0	0	0	0	0	+L	+L	+L		Would need to adhere to other protective policies in the plan to mitigate against potential adverse impact from Town Centre expansion.	
Community/Recreational Quarter	+L	+L	+L	+L	+I	+I	0	+I	+I		+I	0	0	0	+I	+I	+L			
Opportunity Sites																				
Opportunity Site 1 Bowling Green Car Park	0	0	+L	+L	S1	S2	S3	W1	W2	W3	A1	E1	M1	M2	CH1	CH2	L			
Opportunity Site 2 Carmichael Land	0	0	+L	+L	+L	0	0	0	0	0	0	0	0	0	+I	+I	+I			
Opportunity Site 3 Dunnes Stores Vacant Building and Adjoining Yard	0	0	+L	+L	+L	0	0	0	0	0	0	0	0	0	+L	+L	+L			
Opportunity Site 4 Central Hotel Vacant Building	0	0	+L	+L	+L	0	0	0	0	0	0	0	0	0	+L	+L	+L			

Table 8.2 Mallow Town Development Objective's Assessment Matrix

Strategic Objectives	Biodiversity Flora & Fauna		Population & Human Health		Soil			Water			Air & Climate	Energy	Material Assets		Cultural Heritage	Landscape	Comments
	B1	B2	PH1	PH2	S1	S2	S3	W1	W2	W3	A1	E1	M1	M2	CH1	CH2	

Opportunity Site 5 Mallow Castle	+L	+L	+I	+I	+L	+L	0	0	0	0	0	0	0	0	+L	+L	+L	
Opportunity Site 6 Dairygold	-L	-L	+L	+I	-L	-I	0	-I	-I	0	0	0	0	0	+L	+L	-I	Would need to adhere to other protective policies in the plan to mitigate against potential adverse impact from large-scale redevelopment of the Dairygold site.
Town Centre Objectives	B1	B2	PH1	PH2	S1	S2	S3	W1	W2	W3	A1	E1	M1	M2	CH1	CH2	L	
Objective TC1	0	0	+I	+I	+I	+I	+I	+I	+I	+I	+I	0	+I	+I	+I	+I	+I	
Objective TC2	-S	-S	+L	+I	+S	-S	0	-S	0	0	-I	+I	+I	+I	+I	+I	+I	Development of opportunity sites may have negatives impacts on biodiversity, soil and water. Would need to adhere to other protective policies in the plan to mitigate against potential adverse impact.
Objective TC3	0	0	+I	+I	+I	+I	0	+I	+I	+I	+I	0	0	0	+L	+L	+I	
Objective TC4	0	0	+I	+I	+I	+I	0	+I	+I	+I	+I	+I	0	0	+I	+I	+I	
Objective TC5	0	0	+I	+I	+S	+S	0	+S	+S	+S	+I	0	0	0	+I	+I	+S	
Objective TC6	+I	+S	+I	+I	+S	+S	+I	+I	+S	+S	+L	+L	+I	+I	+I	+I	+S	
Objective TC7	0	0	+L	+S	+I	0	0	+I	+I	+I	+I	+I	0	0	+I	+I	+L	
Objective TC8	-I	-I	+L	+I	+I	+I	0	+I	+I	+I	+I	0	+I	+I	+I	+I	+I	May be indirect impacts on biodiversity from use of land for recreation and amenity purposes. Would need to adhere to

Table 8.2 Mallow Town Development Objective's Assessment Matrix

Strategic Objectives	Biodiversity Flora & Fauna		Population & Human Health		Soil			Water			Air & Climate	Energy	Material Assets	Cultural Heritage	Landscape	Comments
	B1	B2	PH1	PH2	S1	S2	S3	W1	W2	W3	A1	E1	M1	M2	CH1	

Policy TC7 - Evening Economy	0	0	+I	+I	0	0	0	0	0	0	+I	0	-S	-S	+I	+I	+I	May have short-term impacts on water infrastructure. However, in most cases mitigation measures have been built into the plan to mitigate against potential impact. Would need to comply with these monitoring and mitigation measures.
Employment Enterprise and Economic Development Objectives	B1	B2	PH1	PH2	S1	S2	S3	W1	W2	W3	A1	E1	M1	M2	CH1	CH2	L	
Objective EC1	0	0	+I	+I	0	0	0	0	0	0	0	0	-S	-S	-I	-I	+I	May have short-term impacts on water supply capacity and indirect impacts on built heritage. Would need to comply with mitigation and conservation measures in the Plan.
Objective EC2	-I	-I	+L	+I	+I	-I	+I	-I	-I		+I	+I	0	0	+I	+I	+I	Potential adverse indirect impacts on biodiversity, soil and water from development. However, there are protective mitigation measures in the Plan to prevent adverse impacts.
Objective EC3	+I	+I	+L	+I	+I	+I	+I	+I	+I		+L	+I	0	0	+I	+I	+I	
Objective EC4	-I	-I	+L	+I	-I	-I	-I	-I	-I		+I	+I	+I	+I	+I	+I	+I	Potential adverse indirect impacts on biodiversity, soil and water from development. However, there are protective mitigation measures in the

Table 8.2 Mallow Town Development Objective's Assessment Matrix

Strategic Objectives	Biodiversity Flora & Fauna		Population & Human Health		Soil			Water			Air & Climate	Energy	Material Assets		Cultural Heritage	Landscape	Comments
	B1	B2	PH1	PH2	S1	S2	S3	W1	W2	W3	A1	E1	M1	M2	CH1	CH2	

Employment Enterprise and Economic Development Policies	B1	B2	PH1	PH2	S1	S2	S3	W1	W2	W3	A1	E1	M1	M2	CH1	CH2	L	Plan to prevent adverse impacts and long-term employment benefits to be gained.
EC1 New Employment Proposals	0	0	+I	+I	+I	0	0	0	0	0	0	0	-S	-S	-I	-I	+I	Potential short-term impacts on water treatment and built heritage. However, there are protective mitigation measures in the Plan to prevent adverse impacts and employment benefits to be gained.
EC2 Technology, Science and Education Provision	-I	-I	+L	+I	+I	-I	+I	-I	-I		+I	+I	0	0	+L	+L	+I	Potential adverse indirect impacts on biodiversity, soil and water from new development. However, there are protective mitigation measures in the Plan to prevent adverse impacts and long-term employment benefits to be gained.
EC3 Small-scale Business	0	0	+L	+I	+L	+I	+I	+I	+I		+L	+I	0	0	+I	+I	+I	Potential adverse indirect impacts on biodiversity, soil and water. However, there are protective mitigation measures in the Plan to prevent adverse impacts and long-term employment benefits to be gained.
EC4 Promotion of Quality Working Environment	-I	-I	+L	+I	-I	-I	-I	-I	-I		+I	+I	+I	+I	+I	+I	+I	Potential adverse indirect impacts on biodiversity, soil and water. However, there are protective mitigation measures in the Plan to prevent adverse impacts and long-term employment benefits to be gained.

Table 8.2 Mallow Town Development Objective's Assessment Matrix

Strategic Objectives	Biodiversity Flora & Fauna		Population & Human Health		Soil			Water			Air & Climate	Energy	Material Assets		Cultural Heritage	Landscape	Comments	
	B1	B2	PH1	PH2	S1	S2	S3	W1	W2	W3	A1	E1	M1	M2	CH1	CH2		L
Shopping and Retail Planning Objective SR1	0	0	+I	+I	-S	-S	-S	-S	-S		+I	+I	+S	+S	+I	+I	0	Short term impacts on land and water quality from new development to expand the town. Protective policies in the Plan to ensure new developments are accommodated in the interest of sustainable development.
Objective SR2	-I	-I	+L	+I	-I	-I	0	-I	-I		-I	+I	0	0	+I	+I	0	Development of opportunity sites may have negatives impacts on biodiversity, soil and water. Would need to adhere to other protective policies in the plan to mitigate against potential adverse impact.
Objective SR3	0	0	+I	+I	0	0	0	0	0		0	0	0	0	0	0	0	
Objective SR4	0	0	+I	+I	0	0	0	0	0		0	0	+I	+I	+I	+I	+I	
Objective SR5	0	0	+I	+I	0	0	0	0	0		0	0	+I	+I	+I	+I	+I	
Objective SR6	-I	-S	+I	+I	-S	-S	0	-I	-I		0	0	0	0	0	0	-L	Retail warehouse provision may have negatives impacts on biodiversity, soil and water. Would need to adhere to other protective policies in the plan to mitigate against potential adverse impact.
Shopping and Retail Planning Policies	B1	B2	PH1	PH2	S1	S2	S3	W1	W2	W3	A1	E1	M1	M2	CH1	CH2	L	

Table 8.2 Mallow Town Development Objective's Assessment Matrix

Strategic Objectives	Biodiversity Flora & Fauna		Population & Human Health		Soil			Water			Air & Climate	Energy	Material Assets		Cultural Heritage	Landscape	Comments	
	B1	B2	PH1	PH2	S1	S2	S3	W1	W2	W3	A1	E1	M1	M2	CH1	CH2		L
Policy SR1 Protecting Vitality and Viability of the Retail Core and Town Centre	-S	-S	+I	+I	-S	-S	-S	-S	-S		+I	+I	+S	+S	+I	+I	0	New retail development may have negatives impacts on biodiversity, soil and water. However, it is an objective of the Plan to ensure that development is accommodated in a sequential manner in the interests of sustainable development.
Policy SR2 Non compatible uses	0	0	+L	+L	0	0	0	0	0		0	0	0	0	+I	+I	0	
Policy SR3 Sequential Approach	0	0	+I	+I	+L	0	0	0	0		0	0	+I	+I	+I	+I	0	
Policy SR4 Retail Warehousing	-I	-S	+I	+I	-S	-S	0	-I	-I		0	0	0	0	0	0	-L	Retail warehouse provision may have negatives impacts on biodiversity, soil and water. Would need to adhere to other protective policies in the plan to mitigate against potential adverse impact.
Policy SR5 Commercial Use	0	0	+I	+I	0	0	0	0	0		0	0	+I	+I	+I	+I	0	
Policy SR6 Neighbourhood Centre	0	0	+L	+I	+I	0	0	0	0		0	0	0	0	0	0	+I	
Policy SR7 Advertising	0	0	+I	+I	0	+I	0	0	0		0	0	0	0	+I	+I	0	
Residential Strategy and Neighbourhood Objectives	B1	B2	PH1	PH2	S1	S2	S3	W1	W2	W3	A1	E1	M1	M2	CH1	CH2	L	
Objective H1	0	0	+L	+L	0	0	0	0	0		+I	+I	+I	+I	+I	+I	0	
Objective H2	+I	+I	+L	+I	+I	+I	+I	+I	+I		+I	+I	+I	+I	+I	+I	+L	
Objective H3	0	0	+L	+L	0	0	0	0	0		+I	+I	+I	+I	+I	+I	0	
Objective H4	0	0	+I	+I	0	0	0	0	0		+I	+I	0	0	+I	+I	0	

Table 8.2 Mallow Town Development Objective's Assessment Matrix

Strategic Objectives	Biodiversity Flora & Fauna		Population & Human Health		Soil			Water			Air & Climate	Energy	Material Assets		Cultural Heritage	Landscape	Comments	
	B1	B2	PH1	PH2	S1	S2	S3	W1	W2	W3	A1	E1	M1	M2	CH1	CH2		L
Objective H5	-I	-S	+I	+I	-I	-I	0	-I	-I		+I	+I	+I	+I	+I	+I	+I	New development may have adverse impacts on biodiversity and soil quality. However, there are objectives in the Plan to ensure brownfield land is development first and that all development occurs in a sustainable manner.
Objective H6	+I	+I	+L	+L	+I	+I	+I	+I	+I	+L	+L	+L	+L	+L	+I	+I	+I	
Objective H7	+I	+I	+L	+I	+S	+S	0	+S	+S	+S	+I	+I	+I	+I	+I	+I	+I	
Objective H8	0	0	+I	+I	+I	+I	0	+I	+I	+I	+I	+I	+I	+I	+I	+I	+I	
Objective H9	0	0	+L	+I	+I	+I	+I	+I	+I	+I	+I	+I	+I	+I	+I	+I	0	
Objective H10	+I	+I	+L	+I	+L	0	+I	0	0	0	0	0	0	0	0	0	0	
Residential Strategy and Neighbourhood Policies	B1	B2	PH1	PH2	S1	S2	S3	W1	W2	W3	A1	E1	M1	M2	CH1	CH2	L	
Policy H1	+I	+I	+L	+L	+I	+I	+I	+I	+I	+I	+I	+I	+I	+I	+I	+I	+I	
Policy H2	0	0	+L	+L	0	0	0	0	0	0	0	0	0	0	0	0	0	
Policy H3	+I	+I	+L	+L	+I	+I	+I	+I	+I	+I	+I	+I	+I	+I	+I	+I	+L	
Policy H4	+I	+I	+L	+L	+I	+I	+I	+I	+I	+I	+I	+I	0	0	+I	+I	+I	
Policy H5	0	0	+L	+L	0	0	0	0	0	+I	+I	+I	+I	+I	+I	+I	+I	
Policy H6	+I	+I	+L	+L	+I	+I	+I	+I	+I	+I	+I	+I	+I	+I	+I	+I	+L	
Policy H7	+I	+I	+L	+L	+L	+I	+I	+I	+I	+I	+I	+I	+I	+I	+I	+I	+I	
Environment and Built Heritage Objectives																		
Natural Environment	B1	B2	PH1	PH2	S1	S2	S3	W1	W2	W3	A1	E1	M1	M2	CH1	CH2	L	
Objective EH1	+L	+L	+L	+L	+L	+L	+L	+L	+L	+L	+L	+I	0	0	+I	+I	+L	
Objective EH2	+L	+L	+L	+L	+L	+L	+I	+L	+L	+L	+I	0	+I	+I	+L	+L	+L	

Table 8.2 Mallow Town Development Objective's Assessment Matrix

Strategic Objectives	Biodiversity Flora & Fauna		Population & Human Health			Soil			Water			Air & Climate	Energy	Material Assets		Cultural Heritage	Landscape	Comments
	B1	B2	PH1	PH2	S1	S2	S3	W1	W2	W3	A1	E1	M1	M2	CH1	CH2	L	
Objective EH3	+L	+L	+L	+I	+L	+L	+I	+L	+L			+L	0	0	+I	+I	+L	
Objective EH4	+I	+L	+L	+I	+L	+L	0	+L	+L			+L	0	0	+I	+I	+L	
Objective EH5	+L	+L	+S	+S	+L	+L	0	+L	+L			+I	+I	+I	+I	+I	+L	
Built Heritage	B1	B2	PH1	PH2	S1	S2	S3	W1	W2	W3	A1	E1	M1	M2	CH1	CH2	L	
Objective EH6	0	0	+I	+I	0	0	0	0	0			+I	+I	+I	+L	+L	+L	
Objective EH7	0	0	+I	+I	0	0	0	0	0			+I	0	0	+I	+I	+L	
Objective EH8	+I	+I	+I	+I	+S	0	0	+I	+I			+I	+I	+I	+I	+I	+I	
Objective EH9	+I	+I	+I	+I	+I	+I	+I	+I	+I			+I	0	0	+L	+L	+L	
Objective EH10	+S	+S	+S	+S	+I	+I	0	+I	+I		+S	+I	0	0	+L	+L	+L	
Environment and Built Heritage Policies	B1	B2	PH1	PH2	S1	S2	S3	W1	W2	W3	A1	E1	M1	M2	CH1	CH2	L	
Policy EH1 Natural Environment	+L	+L	+I	0	0	+I	0	+I	+L			+I	0	0	+I	+I	+L	
Policy EH2 Blackwater Amenity Corridors	+L	+L	+L	+L	+L	+L	0	+I	+L			+L	0	0	0	0	+L	
Policy EH3 Protection of Trees	+I	+L	+L	+I	0	+L	0	+I	+I			+L	0	0	0	0	+L	
Policy EH4 Protected Structures	0	0	+I	+I	+I	0	0	0	0			0	0	0	+L	+L	+L	
Policy EH5 Architectural Conservation Areas	0	0	+I	+I	0	0	0	0	0			0	0	0	+L	+L	+L	
Policy EH6 Protection of Archaeological Sites and Places	0	0	+I	+I	+I	0	0	0	0			0	0	0	+L	+L	+L	
Recreation, Public Amenity and Community Facilities Objectives	B1	B2	PH1	PH2	S1	S2	S3	W1	W2	W3	A1	E1	M1	M2	CH1	CH2	L	
Objective CR1	+I	+I	+L	+L	+I	+I	0	+I	+I			+I	0	0	+I	+I	+I	
Objective CR2	+L	+L	+L	+L	+I	+I	0	+I	+I			+I	0	0	+I	+I	+L	
Objective CR3	+I	+I	+L	+L	0	0	0	0	0			+I	0	0	+I	+I	+I	
Objective CR4	+I	+I	+L	+L	+I	+I	0	+I	+I			+I	0	0	+I	+I	+I	
Objective CR5	-I	-I	+L	+L	-S	-S	0	-I	-S			+I	0	0	+I	+I	0	Waterside development

Table 8.2 Mallow Town Development Objective's Assessment Matrix

Strategic Objectives	Biodiversity Flora & Fauna		Population & Human Health		Soil			Water			Air & Climate	Energy	Material Assets		Cultural Heritage		Landscape	Comments	
	B1	B2	PH1	PH2	S1	S2	S3	W1	W2	W3	A1	E1	M1	M2	CH1	CH2	L		
Policy CR7 Provision of Residential Care Homes and Childcare Facilities	0	0	+L	+L	0	0	0	0	0	0	0	0	0	0	0	0	0		
Tourism Arts and Culture Objectives	B1	B2	PH1	PH2	S1	S2	S3	W1	W2	W3	A1	E1	M1	M2	CH1	CH2	L		
Objective TAC1	-I	-L	+I	+I	0	0	0	-I	-L	0	0	0	0	0	0	0	+L	May be adverse impacts on biodiversity and water quality during construction, therefore would also need to adhere to other protective Plan policies.	
Objective TAC2	+I	+I	+I	+I	+I	-I	0	0	0	+I	+I	+I	0	0	+I	+I	+I	May have indirect impacts on soil quality. Best practice should be implemented to prevent soil disturbance and escape of suspended solids into nearby watercourses.	
Objective TAC3.	0	0	+I	+I	0	0	0	0	0	0	0	0	0	0	+I	+I	+I	Possible short term impacts on soil and water quality from development.	
Objective TAC4	0	0	+I	+I	+I	-S	0	-S	0	0	0	0	0	0	0	0	0		
Objective TAC5	+I	+I	+I	+I	+I	+I	0	+I	+I	+I	+I	+I	0	0	+I	+I	+I		
Objective TAC6	0	+I	+I	+I	+I	+I	0	+I	+I	+I	+I	+I	+I	+I	+L	+L	+L		
Objective TAC7	0	0	+I	+I	0	0	0	0	0	+I	+I	0	0	0	+I	+I	+I		
Objective TAC8	0	0	+I	+I	0	0	0	0	0	+I	+I	0	0	0	+I	+I	+I		
Objective TAC9	+I	+I	+I	+I	+I	+I	0	+I	+I	+I	+I	+I	0	0	+I	+I	+I		
Tourism Arts and Culture Policies	B1	B2	PH1	PH2	S1	S2	S3	W1	W2	W3	A1	E1	M1	M2	CH1	CH2	L		
Policy TAC1 Development of Tourist Facilities on the River Blackwater	-I	-L	+I	+I	0	0	0	-I	-L	0	0	0	0	0	0	0	+L	Waterside development could impact on the biodiversity of the River.	

Table 8.2 Malloy Town Development Objective's Assessment Matrix

Strategic Objectives	Biodiversity Flora & Fauna		Population & Human Health		Soil			Water			Air & Climate	Energy	Material Assets		Cultural Heritage	Landscape	Comments
	B1	B2	PH1	PH2	S1	S2	S3	W1	W2	W3	A1	E1	M1	M2	CH1	CH2	

Policy TAC2 Development of Civic and Public Buildings	0	0	+I	+I	+I	0	+I	0	0	0	0	0	+I	+I	+L	+L	+L	However, it is an objective of the Plan to protect the river Blackwater and other ecological networks within the Plan area. All development will have to comply with natural environment objectives
Policy TAC3 New Tourism Development	+I	+I	+I	+I	+I	+I	0	0	0	0	+I	0	+I	+I	+L	+L	+L	
Policy TAC4 Heritage Trail	0	0	+L	+L	0	-S	0	0	0	0	+I	0	0	0	0	0	+I	May have indirect impacts on soil quality. Best practice should be implemented to prevent soil disturbance and escape of suspended solids into nearby watercourses
Infrastructure, Utilities and Flooding Objectives	B1	B2	PH1	PH2	S1	S2	S3	W1	W2	W3	A1	E1	M1	M2	CH1	CH2	L	
Objective IU1.	+I	+I	+L	0	0	+I	0	+L	+L		+I	+I	+I	+L	0	0	0	
Objective IU2	+I	+I	+L	+L	+I	+I	0	+L	+L		+I	+I	+L	+L	0	0	0	
Objective IU3	+I	+I	+I	+I	0	0	0	+L	+L		+I	+I	+L	+L	0	0	0	
Objective IU4	+I	+I	+I	+I	0	0	+S	+L	+L		0	0	+L	+I	0	0	+I	
Objective IU5	-I	-I	+L	+L	0	-I	0	-I	-I		0	0	+I	+L	0	0	0	May have adverse impacts on biodiversity. However, there are mitigation measures in the Plan to promote the implementation of water management plans.

Table 8.2 Mallow Town Development Objective's Assessment Matrix

Strategic Objectives	Biodiversity Flora & Fauna		Population & Human Health			Soil			Water			Air & Climate	Energy	Material Assets		Cultural Heritage		Landscape	Comments
	B1	B2	PH1	PH2	PH2	S1	S2	S3	W1	W2	W3	A1	E1	M1	M2	CH1	CH2	L	
Objective IU6	+I	+I	+I	+I	+I	+I	+I	+I	+I	+I		0	0	0	0	+I	+I	+L	
Objective IU7	+I	+I	+S	+S	0	+S	+L	+L	+L	+L		+I	+I	+L	+L	0	0	0	
Objective IU8	-I	-I	+L	0	0	-I	0	0	0	0		0	+I	0	0	0	0	-I	May have adverse impacts on biodiversity from construction and use. However, there are long-term communication benefits to be gained by the residents and businesses of the town.
Objective IU9	+I	+I	+I	+I	+I	+I	+I	+I	+L	+L		+I	0	+I	+I	+I	+I	+I	
Objective IU10	0	+I	+I	+I	0	+I	0	+L	+L	+L		0	0	+L	+L	0	0	+I	
Infrastructure, Utilities and Flooding Objectives	B1	B2	PH1	PH2	S1	S2	S3	W1	W2	W3	A1	E1	M1	M2	CH1	CH2	L		
Policy IU1 Protection of Water Resources	+I	+I	+L	0	0	+I	0	+L	+L	+L		+I	+I	+L	0	0	0	0	
Policy IU2 Waste Water Management	+I	+I	+I	+I	0	0	0	+L	+L	+L		0	0	+L	+I	0	0	+I	
Policy IU3 Surface Water Management	+I	+I	+I	+I	0	0	0	+L	+I	+I		0	0	+I	+I	0	0	+I	
Policy IU4 Flood Risk Management	+I	+I	+L	+I	0	+L	0	+L	+L	+L		0	0	+I	+L	0	0	+I	
Policy IU5 Public Utility Management and Provision	0	+I	+I	+I	0	+L	0	0	0	0		0	0	0	0	+I	+I	+I	
Policy IU6 Waste Management	0	+I	+I	0	0	+I	+L	+I	0	0		0	0	0	0	0	0	+I	
Policy IU7 Telecommunications	0	+I	+I	+I	+I	+I	0	0	0	0		0	0	0	0	0	0	0	
Urban Design Objectives	B1	B2	PH1	PH2	S1	S2	S3	W1	W2	W3	A1	E1	M1	M2	CH1	CH2	L		
Objective UD1	0	0	+I	+I	0	0	0	0	0	0		+L	+I	0	+I	+I	+I	+I	
Objective UD2	0	0	+I	+I	+I	-I	0	-I	-I	-I		+I	+I	+L	+I	+I	+I	+I	Expansion of town centre may have negatives impacts on soil and water quality. Would need to

Table 8.2 Malloy Town Development Objective's Assessment Matrix

Strategic Objectives	Biodiversity Flora & Fauna		Population & Human Health		Soil			Water			Air & Climate	Energy	Material Assets		Cultural Heritage	Landscape	Comments
	B1	B2	PH1	PH2	S1	S2	S3	W1	W2	W3	A1	E1	M1	M2	CH1	CH2	L

Objective UD3	+L	+S	+S	+I	+S	+I	+L	+L	+L		+I	+S	+S	+L	+S		+S	adhere to other protective policies in the plan to mitigate against potential adverse impact.
Urban Design Policies	B1	B2	PH1	PH2	S1	S2	S3	W1	W2	W3	A1	E1	M1	M2	CH1	CH2	L	
Policy UD1	+I	+I	+S	+L	+L	0	0	0	0	0	0	+I	+I	0	+S	+S	+I	
Policy UD2	+L	+L	+S	+L	+S	+I	+I	+L	+L		+I	+I	+L	+L	+L	+L	+L	
Policy UD3	+I	+I	+L	+L	0	0	0	0	0		0	+I	0	0	+L	+L	+L	
Objective IU9	+L	+L	+I	0	+I	+I	0	+L	+L		0	0	0	+I	0	0	+I	
Objective IU8	0	0	+L	0	0	0	0	0	0		0	0	0	0	0	0	-I	May have adverse impacts on landscape. However, there are long-term communication benefits to be gained by the residents and businesses of the town.
Implementation Objectives	B1	B2	PH1	PH2	S1	S2	S3	W1	W2	W3	A1	E1	M1	M2	CH1	CH2	L	
Objective IMP1	+L	+L	+L	+L	+L	+I	+L	+L	+L		+L	+L	+L	+L	+L	+L	+L	
Objective IMP2	+S	+S	+S	+S	0	+I	+I	+I	+I		0	+I	+I	+I	+S	+S	+S	
Objective IMP3	0	0	+I	+I	0	0	-I	I	0		0	0	0	0	0	0	0	
Objective IMP4	+I	+I	+S	+I	+I	0	+I	0	0		0	0	0	0	+I	+I	+I	
Objective IMP5	+I	+I	+S	+I	+I	0	0	0	0		0	0	0	0	+I	+I	+I	

Table 8.3: Assessment of Amendments s.12 (7)

	Biodiversity Flora & Fauna		Population & Human Health		Soil			Water			Air & Climate	Energy	Material Assets		Cultural Heritage	Land-scape	Comments	
	B1	B2	PH1	PH2	S1	S2	S3	W1i	W2i	W3	A1	E1	M1	M2	CH1	CH2		L
New Objective EC5 Major Accidents Directive Ref: Chap 6, s.6.4	O	O	+L	O	O	O	O	O	O	O	O	O	O	O	O	O	O	protective policies in the plan to mitigate against potential adverse impact
Amendment re: EH1 Natural Heritage Considerations Ref: Chap 9, s.9.4 p. 65	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	This objective would potentially have positive impacts for the population of the town. Text amendment is not Material.
Amendment re: Built Heritage Ref: Chap 9, s.9.4, p.65	O	O	+L	O	O	O	O	O	O	O	O	O	O	O	O	O	O	Overall changes in text improve clarity in terms of built and Cultural Heritage
Amendment re: Archaeological Heritage and EH1 Explanation Ref: Chap 9, p.63	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	Overall changes in text improve clarity in terms of Archaeology
Amendment re: EH 1 -2 Natural Environment and EH1 Explanation Ref: Chap 3	+L	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	Positive impact as this amendment ensures no impact on designated areas.
Amendment re: Policy EH4 Explanation: Ref: Chap 9, p.66	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	Overall changes in text improve clarity in terms of RPS.
Amendment re: EH5-3 Ref: Chap 3	O	O	+L	O	O	O	O	O	O	O	O	O	O	O	O	O	O	Overall Positive in terms of Cultural Heritage and Population
Amendment re: EH5-4 Ref: Chap 3	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	Overall Positive in terms of Cultural Heritage and Population
Amendment re: Residential Guidelines – Trees, Hedgerows, Landscaping Ref: s.15, p.104 Table 15.4.1	+L	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	Positive impacts in terms of biodiversity, And landscape
Amendment re: Policy EH1-5 Explanation, EH 1 - 5 Ref: Chap 9, s.9.5, p. 66	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	
Amendment Re: Recreation & Public Amenity Ref: Chap 10, s.10.2, p.68	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	Update text. Text amendment is not Material.

Table 8.3: Assessment of Amendments s.12 (7)

	Biodiversity Flora & Fauna		Pop- ulation & Human Health		Soil			Water			Air & Climate	Energy	Material Assets		Cultural Heritage	Land- scape	Comments	
	B1	B2	PH1	PH2	S1	S2	S3	W1i	W2i	W3	A1	E1	M1	M2	CH1	CH2		L
Amendment re: TAC2 Ref: Chap 11, p. 79	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	This amendment provides further protection through the need to provide appropriate assessment screening, which is positive.
Amendment re: Housing Strategy Ref: Chap 8, s.8.2.1, p. 53	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Update text. Text amendment is not Material.
Amendment re: Flooding Text Insertion Ref: Chap 12, s.12.2.7, p. 82	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Text insertion to improve clarity. Is therefore not material.
Amendment re: Cork Planning Authorities, draft Joint Strategy 2009 Ref: Appendix 1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Update text. Text amendment is not Material.

Table 8.4: Assessment of Amendments s.12 (8)

Comments	Land-scape		Cultural Heritage		Material Assets		Energy		Air & Climate		Water			Soil			Pop-ulation & Human Health		Biodi-versity Flora & Fauna	
			CH1	CH2	M2	M1	E1	E1	A1	A1	W3	W2i	W1i	S3	S2	S1	PH2	PH1	B2	B1
Updated section 12.2.7 Flood Risk Management	0	0	0	0	+L	0	0	0	0	0	+L	0	+I	0	+I	0	+L	+I	+I	+I
Policy IU4 Flood Risk Management	0	0	0	0	+L	0	0	0	0	0	+L	0	+I	0	+I	0	+L	+I	+I	+I

Certain ambiguity with regard to reference to areas of 'High Probability of flooding' and 'Zone A', last Para. on page 5 of the s.12 Manager's Report as there is no definitive information available nor has any study been undertaken to define whether the probability of flooding within the area is greater than or less than 1:100 year flooding.

Therefore recommend clarifying within this section of the Plan that: No detailed flood risk assessment has been undertaken as part of the drafting of this Plan and therefore it was not possible to undertake the 'Justification Test for Development Plans', rather, it is proposed to implement the 'Justification Test for Development Management' within the life of the Development Plan.

No detailed Flood Risk Assessment was carried out for the purpose of the drafting of this Development Plan. Therefore on this basis the Justification Test for Development Plans was not carried out. Instead policies and objectives have been included within this Plan to ensure that justification tests are carried out at project and planning application stage instead.

NOTE: Under the statutory timeframe for the making of development plans as per the Planning and Development Act 2000 (as amended) the draft Mallow Town Development Plan is due for adoption in January 2010. This Plan was drafted having regard to the draft Flood Risk Management Guidelines. The draft Development Plan is currently being reviewed in terms of the recently published Flood Risk Management Guidelines for Planning Authorities and on this basis a number of amendments have been made. Overall it is considered that a precautionary approach in terms of flood risk management is proposed. Given that no detailed Flood Risk Assessment has been undertaken as part of the drafting of this Plan and given the short timeframe remaining before the adoption of the Plan it is not possible to undertake the 'Justification Test for Development Plans', rather, it is proposed to implement the 'Justification Test for Development Management' within the life of the Development Plan.

9 SIGNIFICANT EFFECTS AND MITIGATION

9.1 INTRODUCTION

Annex 1 (f) and (g) of the Directive requires that the Environmental Report describe the likely significant effects on the environment and their interrelationship and the measures envisaged to prevent, reduce and/or offset as fully as possible any significant adverse effects on the environment from implementing the plan.

It should be noted that proposals to implement this plan may also require Environmental Impact Assessment (EIA) at planning application stage. Other impacts and necessary mitigation measures or actions may be identified during this process.

The likely significant effects of the Mallow Town Development Plan have been informed by trends and potential impacts as identified in section 5 of this Environmental Report and from impacts arising from the assessment of policies and objectives of the Plan as identified through assessment of the Plan at both draft Plan and amendment stages of the process as set out in Tables 8.2, 8.3 and 8.4 of this report.

The following table 9.1 links significant effects with potential trends and impacts with proposed mitigation measures and monitoring as set out in table 10.1 below.

The mitigation measures identified within this Environmental Report have been included within the Mallow Town Development Plan. These have been included by way of changes to or inclusion of additional objectives and or policies within the Plan where possible. The following table references where mitigation measures have been included within the plan.

Table 9.1 Significant Effects, Proposed Mitigation Measures and Proposed Monitoring

Significant Effects	Mitigation Measures (and reference to where addressed in the draft Plan highlighted)	Monitoring (Refer to relevant Indicators, targets and responsibilities as indicated in table 10.1)
<p>Biodiversity</p> <p>Overall it is considered that the draft Plan is extremely positive in terms of the provision of protective environmental Policies and Objectives within the Plan. However given the 'hub' town status for Mallow and associated growth projections in addition to the environmental cSAC designation of the Blackwater cSAC which runs through the centre of the Town it is considered that a number of additional mitigatory policies and objectives should be included within the Plan in terms of biodiversity, flora and fauna;</p>	<p>SEA Recommends the inclusion of a policy setting out the need to undertake an Appropriate Assessments in areas within or likely to affect cSAC's and SPAs in consultation with the NPWS in accordance with Article 6 of The EU Habitats Directive; i.e. new roads and other infrastructure, other major developments, etc.</p> <p>Adequately dealt with under Policy EH1 – 5</p> <p>The SEA Recommends the modification of the following Objective TAC-1 to read: "in consultation with NPWS and SWRFB, provide a slipway and fishing stands"</p> <p>Adequately dealt with under Policy EH1 - 5</p> <p>SEA Recommends the following amendments to Text of Plan:</p> <p>Section 3.4: Under 'Environmental Parameters', the first sentence describes Natura 2000 designation as an 'amenity' designation; this is considered inaccurate and the word 'amenity' should be replaced with 'biodiversity conservation'.</p> <p>Adequately dealt with in section 3.4 of the Plan</p>	<p>Refer to Monitoring Programme As Indicated in Table 10.1: B1, B2</p> <p>Refer to Monitoring Programme As Indicated in Table 10.1: B1, B2, W2</p> <p>Refer to Monitoring Programme As Indicated in Table 10.1: B1, B2, W2</p>

Table 9.1 Significant Effects, Proposed Mitigation Measures and Proposed Monitoring

Significant Effects	Mitigation Measures (and reference to where addressed in the draft Plan highlighted)	Monitoring (Refer to relevant Indicators, targets and responsibilities as indicated in table 10.1)
<p>Widespread development on floodplains and the associated infilling of wetlands, is a potential environmental problem within this Plan area that has been highlighted in correspondence between RPS and the EPA.</p> <p>The Development Applications Unit of the DoEHLG have commented in correspondence with RPS (letter received 31st October 2008) that developments in flood plain areas that might affect flooding and require subsequent flood prevention measures and downstream hydrological impacts is an issue that may potentially impact negatively on biodiversity, and should therefore be addressed in the plan.</p> <p>The Development Applications Unit of the DoEHLG have commented in correspondence with RPS (letter received 31st October 2008) that the potential for discharges from surface water run-off, old subsurface drainage and construction site drainage may carry hydrocarbons, sediment, nutrients and potentially toxic substances to the River Blackwater is an issue that may potentially impact negatively on biodiversity, and should therefore be addressed in the plan.</p> <p>All developments which take place on greenfield sites are likely cause some degree of negative impact on biodiversity. Where developments such as roads, housing and other infrastructural developments occur on greenfield sites they often replace semi-natural and natural areas with artificial surfaces causing a gradual loss of biodiversity.</p>	<p>Section 9.2.3 'statutory and amenity designations' in the last sentence add the words 'and ecological corridor' as follows:</p> <p>... the Spa Glen is considered to be a significant landscape feature and ecological corridor within the town...."</p> <p>Section 9.23 has been amended to include the above text.</p> <p>SEA Recommends the following modification to Policy TAC1-1 to read: ".....the risk of flooding and the designation of the river and the banks within The River Blackwater (Cork / Waterford) cSAC imposes additional restrictions on development."</p> <p>Adequately addressed under Policy EH1 – 5 and Policy IU4</p> <p>Objective IU1, IU4, IU10 and Policy EH1 and EH2 adequately deals with this matter.</p> <p>Due to the hub status and population projections for the area it is accepted that there will be development on greenfield lands. Sufficient policies to mitigate against any long-term negative impacts resulting from proposed development.</p>	<p>Refer to Monitoring Programme As Indicated In Table 10.1: B1, B2, W2</p> <p>Refer to Monitoring Programme As Indicated In Table 10.1: B1, B2</p> <p>Refer to Monitoring Programme As Indicated In Table 10.1: B1, S1, S2, S3</p> <p>Refer to Monitoring Programme As Indicated In Table 10.1: B1, B2, PH1, PH2, S1, S2, W1 – W3, E1, M1, M2, L</p>

Table 9.1 Significant Effects, Proposed Mitigation Measures and Proposed Monitoring

Significant Effects	Mitigation Measures (and reference to where addressed in the draft Plan highlighted)	Monitoring (Refer to relevant Indicators, targets and responsibilities as indicated in table 10.1)
<p>Introduction of Invasive species and Potential Loss of native species.</p>	<p>SEA Recommends new policy under EH Natural Environment as follows: "Mallow Town Council will, in consultation with NPWS and SWRFB, develop an 'Invasive Species and Ecologically Appropriate Planting' policy which will be used in development and planning decisions to protect the River Blackwater and other ecologically sensitive sites within the town from negative impacts that might result from the introduction of invasive alien species such as dace, grey squirrel, and Japanese knotweed, and noxious weeds." Policy EH 1 refers to protection from invasive species.</p>	<p>Refer to Monitoring Programme As Indicated In Table 10.1: B1, B2</p>
<p>Severance of ecological corridors - The removal of ecological networks / corridors is a significant issue. It is recognised that there has been a significant increase in hedgerow removal throughout Ireland in recent years. The Development Applications Unit of the DoEHLG have commented in correspondence with RPS (letter received 31st October 2008) that riverside or flood plain (riparian) development without the planting of native trees and other plants is an issue that potentially impact negatively on biodiversity, and should therefore be addressed in the plan.</p>	<p>SEA Recommends new policy under EH Natural Environment as follows: "It is a policy of Mallow Town Council to enhance biodiversity and to cooperate with other local authorities to facilitate the maintenance and development of ecological networks." Policy EH1 of the draft Plan proposes to protect, conserve and enhance biodiversity, however no reference to 'cooperate with other local authorities to facilitate the maintenance and development of ecological networks.'</p>	<p>Refer to Monitoring Programme As Indicated In Table 10.1: B1, B2</p>
<p>Population and Human Health</p>		
<p>Mallow Town faces the threat of dispersed growth outwards of the town within the environs area of Mallow.</p>	<p>The SEA recommends the inclusion of text or objective within the Plan to ensure the co-ordinated</p>	<p>Refer to Monitoring Programme As Indicated In Table 10.1:</p>

Table 9.1 Significant Effects, Proposed Mitigation Measures and Proposed Monitoring

Significant Effects	Mitigation Measures (and reference to where addressed in the draft Plan highlighted)	Monitoring (Refer to relevant Indicators, targets and responsibilities as indicated in table 10.1)
<p>Where development does take place best practice should be implemented to prevent soil erosion and prevent escape of suspended solids into nearby watercourses (watercourses particularly where there is proposed developments along the riverside.</p>	<p>development of Mallow Town and its environs through enhanced and on-going co-operation and consultation with Cork County Council.</p> <p>Dealt with in Part 1 of the Plan</p> <p>SEA Recommends the inclusion of a policy for implementation of the policies and objectives of the Soils Directive;</p> <p>No Policy included within the Plan</p>	<p>PH2, PH1</p> <p>Refer to Monitoring Programme As Indicated In Table 10.1: S1, S2,</p>
<p>Water</p> <p>The Wastewater Treatment Plant for Mallow Town is on the EPA Remedial Action List, where further investigation or improvement maybe required. As a result the majority of the study area is "possibly at risk of not achieving good status" for groundwater and under the WFD the River Blackwater is classified as being "At Risk of Not Achieving Good Status";</p>	<p>SEA Recommends the inclusion of a policy to promote the implementation of Management Plans for the South Western region for the protection of groundwater and surface waters.</p> <p>Policy and Objective IU1 and IU2 adequately address this issue.</p> <p>SEA Recommends the inclusion of a policy to monitor the performance of wastewater treatment plants and the sewerage network to capture leakages to Ground water and surface water.</p> <p>No policy or reference in Plan, however is proposed in monitoring programme as proposed in table 10.1 of this report.</p> <p>SEA Recommends the inclusion of a policy to ensure that development in areas of extreme GW vulnerability should employ best practice to ensure that the underlying GW resource is protected.</p> <p>No policy or reference in Plan</p>	<p>Refer to Monitoring Programme As Indicated In Table 10.1: B2, W1, W2, M2</p> <p>Refer to Monitoring Programme As Indicated In Table 10.1: W1, W2, M1, M2</p> <p>Refer to Monitoring Programme As Indicated In Table 10.1: W1, W2, B1, B2</p>

Table 9.1 Significant Effects, Proposed Mitigation Measures and Proposed Monitoring

Significant Effects	Mitigation Measures (and reference to where addressed in the draft Plan highlighted)	Monitoring (Refer to relevant Indicators, targets and responsibilities as indicated in table 10.1)
<p>Air and Climate</p> <p>As the population of Mallow continues to grow in the future, there is a need to ensure that growth is planned for and that there are sufficient and appropriate lands zoned to accommodate such growth. A sustainable transport system is required to reduce car dependence and reduce GHG emissions. Sustainable construction and design in addition to clean and energy efficient technologies should be encouraged at design stage. It is acknowledged that the Plan provides for a wide range of objective to encourage reduction in energy consumption and emissions.</p>	<p>Consideration could also be given in the Plan to examining the feasibility of district energy systems for public buildings and the Mallow urban area in general, such as combined heat and power and district heating, particularly for new developments. The main advantages of district heat systems include:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Fewer emissions in densely populated areas; <input type="checkbox"/> Less individual boilers; <input type="checkbox"/> Higher energy efficiency and lower CO₂ emissions; and <input type="checkbox"/> Reaching Higher Building Energy Rating Targets. <p>Adequately addressed in Section 14 of the draft Plan refers to the implementation of sustainability objectives within the Plan. There are also a number of energy, renewables and public transport, walking and cycling in the draft Plan. Also refer to Development Management section 15.8 revering to energy within the Plan.</p>	<p>Refer to Monitoring Programme As Indicated in Table 10.1: A1, PH1, PH2, E1</p>
<p>Material Assets</p> <p>The existing water supply source and treatment facilities have adequate capacity to cater for the existing situation within the Town, however the Mallow Water Supply and treatment facilities will require upgrading to allow for ample capacity for the town to expand in line with projected growth associated with the Town's 'Hub' designation.</p>	<p>Recommend Policy to ensure sufficient water supply source and treatment facilities town to expand in line with projected growth associated with the Town's 'Hub' designation.</p> <p>Policy and Objective IU2 sufficiently deals with this matter</p>	<p>Refer to Monitoring Programme As Indicated in Table 10.1: M1, M2</p>
<p>Cultural Heritage</p> <p>In addition to the Record of Protected Structures, structures of architectural heritage merit, although not put forward for inclusion in the Record of Protected Structures (RPS) may continue to contribute to the identity of a locality and should be taken into account in the preparation of the Development Plan. The Mallow area is unique in form and character. The contribution of any features,</p>	<p>Recommend Policy or text within the Plan for recognition of structures of architectural heritage merit, although not put forward for inclusion in the Record of Protected Structures (RPS) and any features, which give identity to and enhance that</p>	<p>Refer to Monitoring Programme As Indicated in Table 10.1: CH2</p>

Table 9.1 Significant Effects, Proposed Mitigation Measures and Proposed Monitoring

Significant Effects	Mitigation Measures (and reference to where addressed in the draft Plan highlighted)	Monitoring (Refer to relevant Indicators, targets and responsibilities as indicated in table 10.1)
<p>which give identity to and enhance that uniqueness, should be given recognition in the preparation of the Development Plan.</p>	<p>uniqueness of the area should be given recognition in the preparation of the Development Plan. Adequately addressed in Policy EH6</p>	
<p>At present there is no protection for Mallow's Zone of Archaeological Potential as detailed on the statutory Recorded Monuments and Places Map.</p>	<p>Recommend inclusion of the Zone of Archaeological Potential (ZAPs) map within the in Mallow Town Plan and include a policy setting out its protection. Adequately addressed in section 9.3.4 of the Plan</p>	<p>Refer to Monitoring Programme As Indicated In Table 10.1: CH1,</p>
<p>Map 2 of the draft Plan indicates archaeological sites on the 'Sites and Monuments Record' (SMR), which are archaeological monuments awaiting statutory protection, however are not currently protected and therefore could be destroyed or impacted upon by development.</p>	<p>Recommend inclusion of a policy within the plan outlining that Mallow Town Council will take due regard for the protection of SMRs even through they are not statutory protected monuments and places. Adequately addressed in Chapter 9 of the Plan</p>	<p>Refer to Monitoring Programme As Indicated In Table 10.1: CH1,</p>
<p>Landscape Reduction in hedgerows and field patterns and associated impact on character of the landscape</p>	<p>Hedgerows where possible, should be retained in order to reflect field patterns and further planting of deciduous trees should be encouraged as their continuation is important in retaining the character of this landscape. Policy EH 1 – 4 within the draft Plan adequately addresses this issue</p>	<p>Refer to Monitoring Programme As Indicated In Table 10.1: L1</p>

9.2 CUMULATIVE EFFECTS

Cumulative effects are changes to the environment that are caused by an action in combination with other past, present and future human actions. Cumulative impacts can be created when insignificant impacts are joined together to create a cumulative impact. Cumulative effects can occur in various ways including 'Nibbling loss', Spatial and temporal crowding and growth inducing potential and are described as follows;

- **'Nibbling loss'**: the gradual disturbance and loss of land and habitat
- **Spatial and temporal crowding**: Cumulative effects can occur when a lot of things are happening within too a small area and in too brief a period of time. This may result in the exceedance of a threshold and the environment may not be able to recover to pre-disturbance conditions and can occur quickly or gradually over a long period of time before the effects become apparent. Spatial crowding results in an overlap of effects among actions
- **Growth-inducing potential**: Each new action can induce further actions to occur. The effects of these "spin-off" actions (e.g., increased vehicle access into a previously unroaded hinterland area) may add to the cumulative effects already occurring in the vicinity of the proposed action, creating a "feedback" effect. Such actions may be considered as "reasonably-foreseeable actions".

Cumulative impacts of the Mallow Town Development Plan have been assessed by way of consideration of all the impacts resulting from strategic objectives as indicated in Table 8.1 of this Report whereby each of the strategic objectives of the Plan have been assessed in relation a number of Sustainable Environmental Objectives (SEO's). Furthermore all potential issues and problems arising from the study of the existing baseline topics outlined in Chapter 5 of this report were considered in terms of cumulative effects and all potential significant effects are outlined in Table 8.3 below. It is not considered that the subject Development Plan would have any significant cumulative impacts on the environment of the area.

Table 9.2 Assessment of Cumulative Impacts

Environmental Topic	Description of Cumulative effects	Significance	Mitigation (refer to Chapter 9 below)	Residual Significance
Biodiversity	The cumulative loss of remaining vegetation and associated species, habitats - and their flora and fauna of development such as roads, housing and other infrastructural developments occurring often replace semi-natural and natural areas with artificial surfaces causing a gradual loss of biodiversity, flora and fauna.	Possibly significant if not mitigated	New Policies and Objectives have been included to mitigate against this matter under Biodiversity in Chapter 9 of this Report.	Not significant
Population	Potential cumulative impacts due to increase of population within town using resources such as water, increases sewage etc, increased people on the transport network could all have cumulative impacts of the town	Significant if not managed and mitigated	Policies to monitor population growth in line with provision of services are recommended under environmental topics; Biodiversity, Water and Material Assets in Chapter 9 below.	Not significant
Water Quality	Potential for cumulative impacts on the aquatic environment, and in particular on the River Blackwater, in the form of residential, industrial and agricultural run-off; waste water discharge and other municipal sources of pollution; fragmentation of river corridors and soil erosion.	Significant if not managed and mitigated	New Policies and Objectives have been included to mitigate against this matter within the Plan and under environmental topics; Biodiversity, Water and Material Assets in Chapter 9 of this Report.	Not significant
Cultural Heritage	The cumulative accommodation of large scale development in the Town has the potential to cumulatively impact upon cultural heritage as well as the medieval layout and settlement patterns of the Town.	Potentially Significant	Strict development management controls are included in Part 4 of the plan and is considered	Not significant

			sufficient mitigation to prevent impacts on the cultural heritage of the town.	
Landscape	A potential landscape problem is the individual and cumulative visual impacts which occur as a result of intensification and densification of the Town to cater for population growth - particularly from the edge of the Town.	Potentially Significant	Strict development management controls are outlined in Part 4 of the plan and protection of the Landscape is promoted within the Plan.	Not significant

10 MONITORING

Article 10 of the SEA Directive (2001/42/EEC) requires Member States to monitor the significant environmental effects of the implementation of plans “*in order, inter alia, to identify at an early stage unforeseen adverse effects to be able to undertake appropriate remedial action*”. The primary purpose of monitoring is to cross-check significant environmental effects which arise during the implementation stage against those predicted during the plan preparation stage.

The Directive leaves considerable flexibility to Member States in deciding how monitoring shall be arranged, however it is generally agreed that a mixture of “quantitative and qualitative indicators are required. The Directive recognises that the monitoring does not necessarily require new research activity and that existing sources of information can be used. Monitoring programmes for different Plans can also be combined e.g. monitoring of within the Mallow Development Plan can be combined with monitoring required for the Cork County Development Plans. This allows for consistency in monitoring across the county and assists in comparing results.

In addition monitoring can be used to identify any information gaps and/deficiencies that were identified as part of the SEA process. Furthermore, Government Guidelines state that monitoring should concentrate on the likely significant effects identified in the Environmental Report (DOEHLG, 2004).

Monitoring will be based around the SEA ‘Environmental Objectives, indicators and targets’. The Objectives, indicators and targets for the various environmental topics are set out below in Table 10.1. The indicators that area used will show changes that would be attributable to the implementation of the Plan. The indicators chosen are at a level, which is relevant to the Plan and are collated on and reported on by a variety of government agencies including EPA, KCC, NPWS, OPW and WFD.

Monitoring proposals must concentrate on likely significant environmental effects, which have been identified in the Environmental Report and the measures identified as necessary to prevent, reduce, or offset any significant adverse effects. The indicators/monitoring will act as an early warning sign so that appropriate remedial action is undertaken.

Responsibilities and Frequency of Reporting

The Statutory Manager’s Report on progress in achieving objectives of the Town Plan, takes place two years after the adoption of the Town Plan and “shall include information in relation to the progress on, and the results of monitoring the significant environmental effects of implementation of the plan”. If an objective or policy is having a significant adverse effect a variation may be considered during the lifetime of the plan.

It is largely the responsibility of Cork County Council to undertake the monitoring, however it is the responsibility of Mallow Town Council to interpret the monitoring data relevant to Mallow and to ensure new studies recommended in the Environmental Report (i.e. habitat survey) are undertaken.

Identification of Significant Gaps in Environmental Information

During the preparation of this Environmental Report a number of gaps in environmental information have been identified, these comprise:

- The lack of local habitat surveys for non-designated sites and insufficient baseline data on habitats and species to allow for on-going monitoring. There is a need to prepare a local biodiversity action plan, which is expected to occur during the lifetime of the new 2010 - 2016 Plan. It is recommended that Mallow Town Council undertake habitat and wetland surveys of the study area
- No detailed wetland inventory in County Cork
- Lack of information available in Cork County Council on National Monuments
- The Recorded Monuments and Places list is currently being updated and the updated maps are not available in Cork County Council.
- No Landscape assessment for Mallow Town
- Lack of monitoring on “Major Pressures reported in the assessment of Habitats and Species” in Mallow

Table 10.1 Monitoring

Issue	Objective	Target	Indicator	Responsibility	Frequency
Biodiversity, Flora and Fauna					
B1	To avoid significant adverse impacts (direct, cumulative and indirect), to protected habitats, species or their sustaining resources in designated ecological sites by development within or adjacent to these sites.	No significant adverse impacts, (direct, cumulative and indirect impacts), to relevant habitats, species or their sustaining resources in designated ecological sites.	Number of significant adverse impacts (direct, cumulative and indirect impacts), to relevant habitats and species in designated ecological sites as a result of implementation of the Plan	MTC DoEHLG	Review each planning application as submitted

Issue	Objective	Target	Indicator	Responsibility	Frequency
	Protect aquatic and terrestrial habitats from invasive species.	Liaise with MTC in their involvements with National and Regional initiatives to monitor and control invasive species.	Number and types of invasive species identified during the lifetime of the Plan in the study area.	MTC	Review Annually
B2	To protect the marine environment, aquatic biodiversity, flora and fauna.	Meet the requirements of the River Basin Management Plan	Changes in water quality as identified during water quality monitoring programmes.	MTC DoEHLG	Review in parallel with water quality monitoring programmes
Population and Human Health					
PH1	To improve the quality of life for the people of Mallow through high quality residential, working and recreational environments, sustainable travel patterns.	To improve quality of life, provision of improved physical and social infrastructure, to reduce journey to work times and allow for a better match between place of residence and place of work.	Journey to work times and numbers traveling to work and school other than private motorcar.	CCC	Review at next census
PH2	To protect human health from hazards or nuisances arising from traffic and incompatible landuses.	No spatial concentrations of health problems arising from environmental factors.	Occurrence of a spatially concentrated deterioration in human health as a result of implementation of the Plan.	MTC/CCC	Review during the lifetime of the Plan
Soils					
S1	To maximise the sustainable re-use of brownfield lands and the existing built environment, rather than developing greenfield lands.	All brownfield lands to be redeveloped at the end of the plan lifespan (subject to availability on the open market and demand for such land).	Area of brownfield land available.	MTC	Review during the lifetime of the Plan
S2	To maintain the quality of soils.	To reduce contamination and safeguard soil quality and quantity.	Area of contaminated land encountered during development works and nature and extent of soil contamination.	CCC	Review during the lifetime of the Plan

Issue	Objective	Target	Indicator	Responsibility	Frequency
S3	To minimise waste production and reduce the volume of waste to landfill and to operate sustainable waste management practices.	To meet national and EU targets on the recycling of municipal waste and its diversion from landfill.	Volume of waste recycled and volume of waste sent to landfill.	MTC/CCC	Annually
Water					
W1i	Maintain or improve the quality of surface water and groundwater to meet the requirements of the South Western River Basin Management Plan (SW RBMP) and Programme of Measures (POMs).	0 Faecal Coliform Counts per 100ml of surface and ground water.	Faecal Coliform Counts per 100ml of surface and ground water.	EPA	As per monitoring cycle in accordance with the WFD monitoring programme
W1ii		To improve biotic quality ratings, where possible to Q5.	Changes in water quality as identified during water quality monitoring programmes.	MTC/CCC	
W2i	To maintain and improve, where possible, the quality of rivers, lakes and surface water.	To maintain a biotic quality rating of Q4, in line with the requirement to achieve good water status under the Water Framework Directive, by 2015. To improve biotic quality ratings, where possible, to Q5.	Biotic Quality Rating (Q Value) and Risk Assessment.	EPA MTC/CCC	Review in parallel with water quality monitoring programmes
W3	Promote sustainable water usage	To introduce water measures to reduce water wastage, leakage and over consumption usage and to promote conservation measures at household and Industrial level.	Number of water conservation measures implemented during the lifetime of the Plan	CCC/ MTC	Annually
Air and Climate					
A 1	To maintain and improve air quality in Mallow and reduce CO2 Greenhouse Gases (GHGs) to alleviate Climate Change.	Increased use of public transport. Increase numbers of cycle lanes and pedestrian routes in the study area. Increase number of permissions granted for renewable energy projects	Use of public transport. Provision of cycle lanes and walking routes. Number of permissions granted for renewable energy projects.	MTC/CCC	Review each planning application in terms of the no. of renewable energy projects. Review use of public

Issue	Objective	Target	Indicator	Responsibility	Frequency
			Air quality indicators.		transport implementation of cycle lanes and pedestrian links annually
Energy					
E1	Promote renewable energy technology for projected power requirements and implementation of the Building Regulations over the lifetime of the Plan.	Encourage use of renewable energy for domestic and small businesses. Use of renewable energy to supply National Grid where applicable.	Number and type of renewable energy technologies employed in new developments since implementation of the Plan.	MTC/CCC	Review each planning application in terms of the no. of renewable energy projects.
Material Assets					
M1	To serve new development under the plan with appropriate wastewater treatment.	No new developments granted permission, which cannot be adequately served by a public wastewater treatment plant over the lifetime of the plan.	Number of new developments granted permission which cannot be adequately served by a public wastewater treatment plant over the lifetime of the plan	CCC NRA	Review Planning Applications
M2	To maintain and improve the quality of drinking water supplies.	To maintain and improve drinking water quality in Mallow to comply with the requirements of the European Communities (Drinking Water) Regulations 2000.	Drinking water quality standards (Microbiological, Chemical and Indicator parameters).	EPA MTC/CCC	Review in parallel with water quality monitoring programmes
Cultural Heritage					
CH1	To protect the archaeological heritage of Mallow and; the context of the above within the surrounding landscape where relevant.	No developments permitted over the lifespan of the plan which result in full or partial loss of: RMPs; or National Monuments or in the context or surrounding landscape of these features.	Number of developments permitted over the lifespan of the plan, which result in full or partial loss of RMPs; or National Monuments or in the context or surrounding landscape of these features.	CCC Heritage Section Cork Heritage Forum MTC DoEHLG	Review Planning Applications

Issue	Objective	Target	Indicator	Responsibility	Frequency
CH2	To preserve and protect the special interest and character of Mallow's architectural heritage and the context of the above within the surrounding landscape where relevant.	No unauthorised developments over the lifespan of the plan which result in physical loss or loss to the context in the surrounding landscape or streetscape of: entries to the Record of Protected Structures; Architectural Conservation Areas, or; entries to the National Inventory of Architectural Heritage.	Number of unauthorised developments permitted over the lifespan of the plan which result in physical loss or loss to the context in the surrounding landscape or streetscape of: entries to the Record of Protected Structures; Architectural Conservation Areas, or; entries to the National Inventory of Architectural Heritage.	CCC Heritage Section Cork Heritage Forum MTC DoEHLG	Review of unauthorised developments and enforcement cases.
Landscape					
Li		No unauthorised developments to be conspicuously located within sensitive landscapes or designated scenic landscape.	Number of unauthorised conspicuous developments located within sensitive landscapes or designated scenic landscape.	MTC/CCC	Review of unauthorised developments and enforcement cases.
Lii	To protect Mallow's sensitive landscapes, landscape features and designated scenic routes and landscape	No unauthorised developments to adversely impact upon designated scenic views or scenic landscape.	Number of conspicuous developments adversely impacting upon designated scenic views or scenic landscape granted permission during the lifetime of the Plan. Number of Landscape Impact Assessments and photomontages submitted with planning applications	MTC/CCC	Review of unauthorised developments and enforcement cases. Review of planning applications

APPENDIX 1 – DESIGNATED SITES SYNOPSIS

SITE NAME: BLACKWATER RIVER (CORK/WATERFORD)**SITE CODE: 002170**

The River Blackwater is one of the largest rivers in Ireland, draining a major part of Co. Cork and five ranges of mountains. In times of heavy rainfall the levels can fluctuate widely by more than 12 feet on the gauge at Careysville. The peaty nature of the terrain in the upper reaches and of some of the tributaries gives the water a pronounced dark colour. The site consists of the freshwater stretches of the River Blackwater as far upstream as Ballydesmond, the tidal stretches as far as Youghal Harbour and many tributaries, the larger of which includes the Licky, Bride, Flesk, Chimneyfield, Finisk, Araglin, Awbeg (Buttevant), Clyda, Glen, Allow, Dalua, Brogeen, Rathcool, Finnow, Owentaraglin and Awnaskirtaun. The extent of the Blackwater and its tributaries in this site, flows through the counties of Kerry, Cork, Limerick, Tipperary and Waterford. Towns along, but not in the site, include Rathmore, Millstreet, Kanturk, Banteer, Mallow, Buttevant, Doneraile, Castletownroche, Fermoy, Ballyduff, Rathcormac, Tallow, Lismore, Cappoquin and Youghal.

The Blackwater rises in boggy land of east Kerry, where Namurian grits and shales build the low heather-covered plateaux. Near Kanturk the plateaux enclose a basin of productive Coal Measures. On leaving the Namurian rocks the Blackwater turns eastwards along the northern slopes of the Boggeraghs before entering the narrow limestone strike vale at Mallow. The valley deepens as first the Nagle Mountains and then the Knockmealdowns impinge upon it. Interesting geological features along this stretch of the Blackwater Valley include limestone cliffs and caves near the villages and small towns of Killavullen and Ballyhooly; the Killavullen caves contain fossil material from the end of the glacial period. The associated basic soils in this area support the growth of plant communities which are rare in Cork because in general the county's rocks are acidic. At Cappoquin the river suddenly turns south and cuts through high ridges of Old Red Sandstone. The Araglin valley is predominantly underlain by sandstone, with limestone occurring in the lower reaches near Fermoy. The site is a candidate SAC selected for alluvial wet woodlands and Yew wood, both priority habitats listed on Annex I of the E.U. Habitats Directive. The site is also selected as a candidate SAC for floating river vegetation, estuaries, tidal mudflats, Salicornia mudflats, Atlantic salt meadows, Mediterranean salt meadows, perennial vegetation of stony banks and old Oak woodlands, all habitats listed on Annex I of the E.U. Habitats Directive. The site is also selected for the following species listed on Annex II of the same directive - Sea Lamprey, River Lamprey, Brook Lamprey, Freshwater Pearl Mussel, Crayfish, Twaite Shad, Atlantic Salmon, Otter and the plant, Killarney Fern.

Wet woodlands are found where river embankments, particularly on the River Bride, have broken down and where the channel edges in the steep-sided valley between Cappoquin and Youghal are subject to daily inundation. The river side of the embankments was often used for willow growing in the past (most recently at Cappoquin) so that the channel is lined by narrow woods of White and Almond-leaved Willow (*Salix alba* and *S. triandra*) with isolated Crack Willow (*S. fragilis*) and Osier (*S. viminalis*). Grey Willow (*S. cinerea*) spreads naturally into the sites and occasionally, as at Villierstown on the Blackwater and Sapperton on the Bride, forms woods with a distinctive mix of woodland and marsh plants, including Gypsywort (*Lycopus europaeus*), Guelder Rose (*Viburnum opulus*), Bittersweet (*Solanum dulcamara*) and various mosses and algae. These wet woodlands form one of the most extensive tracts of the wet woodland habitat in the country.

A small stand of Yew (*Taxus baccata*) woodland, a rare habitat in Ireland and the EU, occurs within the site. This is on a limestone ridge at Dromana, near Villierstown. While there are some patches of the wood with a canopy of Yew and some very old trees, the quality is generally poor due to the dominance of non-native and invasive species such as Sycamore, Beech and Douglas Fir (*Pseudotsuga menziesii*). However, the future prospect for this Yew wood is good as the site is proposed for restoration under a Coillte EU Life Programme. Owing to its rarity, Yew woodland is listed with priority status on Annex I of the EU Habitats Directive.

Marshes and reedbeds cover most of the flat areas beside the rivers and often occur in mosaic with the wet woodland. Common Reed (*Phragmites australis*) is ubiquitous and is harvested for thatching. There is also much Marsh Marigold (*Caltha palustris*) and, at the edges of the reeds, the Greater and Lesser Pond-sedge (*Carex riparia* and *C. acutiformis*). Hemlock Water-dropwort (*Oenanthe crocata*), Wild Angelica (*Angelica sylvestris*), Reed Canary-grass (*Phalaris arundinacea*), Meadowsweet (*Filipendula ulmaria*), Nettle (*Urtica dioica*), Purple Loosestrife (*Lythrum salicaria*), Marsh Valerian (*Valeriana officinalis*), Water Mint (*Mentha aquatica*) and Water Forget-me-not (*Myosotis scorpioides*).

At Banteer there are a number of hollows in the sediments of the floodplain where subsidence and subterranean drainage have created isolated wetlands, sunk below the level of the surrounding fields. The water rises and falls in these holes depending on the watertable and several different communities have developed on the acidic or neutral sediments. Many of the ponds are ringed about with Grey Willows, rooted in the mineral soils but sometimes collapsed into the water. Beneath the densest stands are woodland herbs like Yellow Pimpernel (*Lysimachia nemorum*) with locally abundant Starwort (*Callitriche stagnalis*) and Marsh Ragwort (*Senecio palustris*). One of the depressions has Silver Birch (*Betula pendula*), Ash (*Fraxinus excelsior*), Crab Apple (*Malus sylvestris*) and a little Oak (*Quercus robur*) in addition to the willows.

Floating river vegetation is found along much of the freshwater stretches within the site. The species list is quite extensive and includes Pond Water-crowfoot (*Ranunculus peltatus*), Water-crowfoot (*Ranunculus* spp.), Canadian Pondweed (*Elodea canadensis*), Broad-leaved Pondweed (*Potamogeton natans*), Pondweed (*Potamogeton* spp.), Water Milfoil (*Myriophyllum* spp.), Common Club-rush (*Scirpus lacustris*), Water-starwort (*Callitriche* spp.), Lesser Water-parsnip (*Berula erecta*) particularly on the Awbeg, Water-cress (*Nasturtium officinale*), Hemlock Waterdropwort, Fine-leaved Water-dropwort (*O. aquatica*), Common Duckweed (*Lemna minor*), Yellow Water-lily (*Nuphar lutea*), Unbranched Bur-reed (*Sparganium emersum*) and the moss *Fontinalis antipyretica*.

The grassland adjacent to the rivers of the site is generally heavily improved, although liable to flooding in many places. However, fields of more species-rich wet grassland with species such as Yellow-flag (*Iris pseudacorus*), Meadow-sweet, Meadow Buttercup (*Ranunculus acris*) and rushes (*Juncus* spp.) occur occasionally. Extensive fields of wet grassland also occur at Annagh Bog on the Awbeg. These fields are dominated by Tufted Hair-grass (*Deschampsia cespitosa*) and rushes.

The Blackwater Valley has a number of dry woodlands; these have mostly been managed by the estates in which they occur, frequently with the introduction of Beech (*Fagus sylvatica*) and a few conifers, and sometimes of Rhododendron (*Rhododendron ponticum*) and Laurel. Oak woodland is well developed on

sandstone about Ballinatrav, with the acid Oak woodland community of Holly (*Ilex aquifolium*), Bilberry (*Vaccinium myrtillus*), Greater Woodrush (*Luzula sylvatica*) and Buckler Ferns (*Dryopteris affinis*, *D. aemula*) occurring in one place. Irish Spurge (*Euphorbia hyberna*) continues eastwards on acid rocks from its headquarters to the west but there are many plants of richer soils, for example Wood Violet (*Viola reichenbachiana*), Goldilocks (*Ranunculus auricomus*), Broad-leaved Helleborine (*Epipactis helleborine*) and Red Campion (*Silene dioica*). Oak woodland is also found in Rincrew, Carrigane, Glendine, Newport and Dromana. The spread of Rhododendron is locally a problem, as is over-grazing. A few limestone rocks stand over the river in places showing traces of a less acidic woodland type with Ash, False Brome (*Brachypodium sylvaticum*) and Early-purple Orchid (*Orchis mascula*).

In the vicinity of Lismore, two deep valleys cut in Old Red Sandstone join to form the Owenashad River before flowing into the Blackwater at Lismore. These valleys retain something close to their original cover of Oak with Downy Birch (*Betula pubescens*), Holly and Hazel (*Corylus avellana*) also occurring. There has been much planting of Beech (as well as some of coniferous species) among the Oak on the shallower slopes and here both Rhododendron and Cherry Laurel (*Prunus laurocerasus*) have invaded the woodland.

The Oak wood community in the Lismore and Glenmore valleys is of the classical upland type, in which some Rowan (*Sorbus aucuparia*) and Downy Birch occur. Honeysuckle (*Lonicera periclymenum*) and Ivy (*Hedera helix*) cover many of the trees while Greater Woodrush, Bluebell (*Hyacinthoides non-scripta*), Wood Sorrel (*Oxalis acetosella*) and, locally, Bilberry dominate the ground flora. Ferns present on the site include Hard Fern (*Blechnum spicant*), Male Fern (*Dryopteris filix-mas*), Buckler Ferns (*D. dilatata*, *D. aemula*) and Lady Fern (*Athyrium filix-femina*). There are many mosses present and large species such as Rhytidiadelphus spp., *Polytrichum formosum*, *Mnium hornum* and Dicranum spp. are noticeable. The lichen flora is important and includes 'old forest' species which imply a continuity of woodland here since ancient times. Tree Lungwort (*Lobaria* spp.) is the most conspicuous and is widespread.

The Araglin valley consists predominantly of broadleaved woodland. Oak and Beech are joined by Hazel, Wild Cherry (*Prunus avium*) and Goat Willow (*Salix caprea*). The ground flora is relatively rich with Pignut (*Conopodium majus*), Wild Garlic (*Allium ursinum*), Garlic Mustard (*Alliaria petiolata*) and Wild Strawberry (*Fragaria vesca*). The presence of Ivy Broomrape (*Orobancha hederæ*), a local species within Ireland, suggests that the woodland, along with its attendant Ivy is long established. Along the lower reaches of the Awbeg River, the valley sides are generally cloaked with mixed deciduous woodland of estate origin. The dominant species is Beech, although a range of other species are also present, e.g. Sycamore (*Acer pseudoplatanus*), Ash and Horse-chestnut (*Aesculus hippocastanum*). In places the alien invasive species, Cherry Laurel, dominates the understorey. Parts of the woodlands are more semi-natural in composition, being dominated by Ash with Hawthorn (*Crataegus monogyna*) and Spindle (*Euonymus europaea*) also present. However, the most natural areas of woodland appear to be the wet areas dominated by Alder and willows (*Salix* spp.). The ground flora of the dry woodland areas features species such as Pignut, Wood Avens (*Geum urbanum*), Ivy and Soft Shield-fern (*Polystichum setiferum*), while the ground flora of the wet woodland areas contains characteristic species such as Remote Sedge (*Carex remota*) and Opposite-leaved Golden-saxifrage (*Chrysosplenium oppositifolium*).

In places along the upper Bride, scrubby, semi-natural deciduous woodland of Willow, Oak and Rowan occurs with abundant Great Woodrush in the ground flora. The Bunaglanna River passes down a very steep valley, flowing in a north-south direction to meet the Bride River. It flows through blanket bog to heath and then scattered woodland. The higher levels of moisture here enable a vigorous moss and fern community to flourish, along with a well-developed epiphyte community on the tree trunks and branches.

At Banteer a type of wetland occurs near the railway line which offers a complete contrast to the others. Old turf banks are colonised by Royal Fern (*Osmunda regalis*) and Eared Willow (*Salix aurita*) and between them there is a sheet of Bottle Sedge (*Carex rostrata*), Marsh Cinquefoil (*Potentilla palustris*), Bogbean (*Menyanthes trifoliata*), Marsh St. John's-wort (*Hypericum elodes*) and the mosses *Sphagnum auriculatum* and *Aulacomnium palustre*. The cover is a scraw with characteristic species like Marsh Willowherb (*Epilobium palustre*) and Marsh Orchid (*Dactylorhiza incarnata*).

The soil high up the Lismore valleys and in rocky places is poor in nutrients but it becomes richer where streams enter and also along the valley bottoms. In such sites Wood Speedwell (*Veronica montana*), Wood Anemone (*Anemone nemorosa*), Enchanter's Nightshade (*Circaea lutetiana*), Barren Strawberry (*Potentilla sterilis*) and Shield Fern occur. There is some Wild Garlic, Three-nerved Sandwort (*Moehringia trinervia*) and Early-purple Orchid (*Orchis mascula*) locally, with Opposite-leaved Golden-saxifrage, Meadowsweet and Bugle in wet places. A Hazel stand at the base of the Glenakeeffe valley shows this community well. The area has been subject to much tree felling in the recent past and re-sprouting stumps have given rise to areas of bushy Hazel, Holly, Rusty Willow (*Salix cinerea* subsp. *oleifolia*) and Downy Birch. The ground in the clearings is heathy with Heather (*Calluna vulgaris*), Slender St John's-wort (*Hypericum pulchrum*) and the occasional Broom (*Cytisus scoparius*) occurring.

The estuary and the other Habitats Directive Annex I habitats within it form a large component of the site. Very extensive areas of intertidal flats, comprised of substrates ranging from fine, silty mud to coarse sand with pebbles/stones are present. The main expanses occur at the southern end of the site with the best examples at Kinsalebeg in Co. Waterford and between Youghal and the main bridge north of it across the river in Co. Cork. Other areas occur along the tributaries of the Licky in east Co. Waterford and Glendine, Newport, Bride and Killahaly Rivers in Waterford west of the Blackwater and large tracts along the Tourig River in Co. Cork. There are narrow bands of intertidal flats along the main river as far north as Camphire Island. Patches of green algae (filamentous, *Ulva* species and *Enteromorpha* sp.) occur in places, while furoid algae are common on the more stony flats even as high upstream as Glenassy or Coneen.

The area of saltmarsh within the site is small. The best examples occur at the mouths of the tributaries and in the townlands of Foxhole and Blackbog. Those found are generally characteristic of Atlantic salt meadows. The species list at Foxhole consists of Common Saltmarsh-grass (*Puccinellia maritima*), small amounts of Greater Seaspurrey (*Spergularia media*), Glasswort (*Salicornia* sp.), Sea Arrowgrass (*Triglochin maritima*), Annual Sea-blite (*Suaeda maritima*) and Sea Purslane (*Halimione portulacoides*) - the latter a very recent coloniser - at the edges. Some Sea Aster (*Aster tripolium*) occurs, generally with Creeping Bent (*Agrostis stolonifera*). Sea Couchgrass (*Elymus pycnanthus*) and small isolated clumps of Sea Club-rush (*Scirpus maritimus*) are also seen. On the Tourig River additional saltmarsh species found include Lavender (*Limonium*

spp.), Sea Thrift (*Armeria maritima*), Red Fescue (*Festuca rubra*), Common Scurvy-grass (*Cochlearia officinalis*) and Sea Plantain (*Plantago maritima*). Oraches (*Atriplex* spp.) are found on channel edges.

The shingle spit at Ferrypoint supports a good example of perennial vegetation of stony banks. The spit is composed of small stones and cobbles and has a well developed and diverse flora. At the lowest part, Sea Beet (*Beta vulgaris*), Curled Dock (*Rumex crispus*) and Yellow-horned Poppy (*Glaucium flavum*) occur with at a slightly higher level Sea Mayweed (*Tripleurospermum maritimum*), Cleavers (*Galium aparine*), Rock Samphire (*Crithmum maritimum*), Sandwort (*Honkenya peploides*), Spear-leaved Orache (*Atriplex prostrata*) and Babington's Orache (*A. glabriuscula*). Other species present include Sea Rocket (*Cakile maritima*), Herb Robert (*Geranium robertianum*), Red Fescue (*Festuca rubra*) and Kidney Vetch (*Anthyllis vulneraria*). The top of the spit is more vegetated and includes lichens and bryophytes (including *Tortula ruraliformis* and *Rhytidiadelphus squarrosus*).

The site supports several Red Data Book plant species, i.e. Starved Wood Sedge (*Carex depauperata*), Killarney Fern (*Trichomanes speciosum*), Pennyroyal (*Mentha pulegium*), Bird's-nest Orchid (*Neottia nidus-avis*), Golden Dock (*Rumex maritimus*) and Bird Cherry (*Prunus padus*). The first three of these are also protected under the Flora (Protection) Order 1999. The following plants, relatively rare nationally, are also found within the site: Toothwort (*Lathraea squamaria*) associated with woodlands on the Awbeg and Blackwater; Summer Snowflake (*Leucojum aestivum*) and Flowering Rush (*Butomus umbellatus*) on the Blackwater; Common Calamint (*Calamintha ascendens*), Red Campion (*Silene dioica*), Sand Leek (*Allium scorodoprasum*) and Wood Club-rush (*Scirpus sylvaticus*) on the Awbeg.

The site is also important for the presence of several Habitats Directive Annex II animal species, including Sea Lamprey (*Petromyzon marinus*), Brook Lamprey (*Lampetra planeri*), River Lamprey (*L. fluviatilis*), Twaite Shad (*Alosa fallax fallax*), Freshwater Pearl-mussel (*Margaritifera margaritifera*), Otter (*Lutra lutra*) and Salmon (*Salmo salar*). The Awbeg supports a population of White-clawed Crayfish (*Austropotamobius pallipes*). This threatened species has been recorded from a number of locations and its remains are also frequently found in Otter spraints, particularly in the lower reaches of the river. The freshwater stretches of the Blackwater and Bride Rivers are designated salmonid rivers.

The Blackwater is noted for its enormous run of salmon over the years. The river is characterised by mighty pools, lovely streams, glides and generally, a good push of water coming through except in very low water. Spring salmon fishing can be carried out as far upstream as Fermoy and is very highly regarded especially at Careysville. The Bride, main Blackwater upstream of Fermoy and some of the tributaries are more associated with grilse fishing.

The site supports many of the mammal species occurring in Ireland. Those which are listed in the Irish Red Data Book include Pine Marten, Badger and Irish Hare. The bat species Natterer's Bat, Daubenton's Bat, Whiskered Bat, Brown Long-eared Bat and Pipistrelle, are to be seen feeding along the river, roosting under the old bridges and in old buildings.

Common Frog, a Red Data Book species that is also legally protected (Wildlife Act, 1976), occurs throughout the site. The rare bush cricket, *Metrioptera rosellii* (Orthoptera: Tettigoniidae), has been recorded in the reed/willow vegetation of the river embankment on the Lower Blackwater River. The Swan Mussel (*Anodonta cygnea*), a scarce species nationally, occurs at a few sites along the freshwater stretches of the Blackwater.

Several bird species listed on Annex I of the E.U. Birds Directive are found on the site. Some use it as a staging area, others are vagrants, while others use it more regularly. Internationally important numbers of Whooper Swan (average peak 174, 1994/95- 95/96) and nationally important numbers Bewick's Swan (average peak 35, 1994/95- 95/96) use the Blackwater Callows. Golden Plover occur in regionally important numbers on the Blackwater Estuary (average peak 885, 1984/85-86/87) and on the River Bride (absolute max. 2141, 1994/95). Staging Terns visit the site annually (Sandwich Tern (>300) and Arctic/Common Tern (>200), average peak 1974-1994). The site also supports populations of the following: Red Throated Diver, Great Northern Diver, Barnacle Goose, Ruff, Wood Sandpiper and Greenland White-fronted Goose. Three breeding territories for Peregrine Falcon are known along the Blackwater Valley. This, the Awbeg and the Bride River are also thought to support at least 30 pairs of Kingfisher. Little Egret now breed at the site (12 pairs in 1997, 19 pairs in 1998) and this represents about 90% of the breeding population in Ireland.

The site holds important numbers of wintering waterfowl. Both the Blackwater Callows and the Blackwater Estuary Special Protection Areas (SPAs) hold internationally important numbers of Black-tailed Godwit (average peak 847, 1994/95- 95/96 on the callows, average peak 845, 1974/75-93/94 in the estuary). The Blackwater Callows also hold Wigeon (average peak 2752), Teal (average peak 1316), Mallard (average peak 427), Shoveler (average peak 28), Lapwing (average peak 880), Curlew (average peak 416) and Black-headed Gull (average peak 396) (counts from 1994/95-95/96). Numbers of birds using the Blackwater Estuary, given as the mean of the highest monthly maxima over 20 years (1974-94), are Shelduck (137 +10 breeding pairs), Wigeon (780), Teal (280), Mallard (320 + 10 breeding pairs), Goldeneye (11- 97), Oystercatcher (340), Ringed Plover (50 + 4 breeding pairs), Grey Plover (36), Lapwing (1680), Knot (150), Dunlin (2293), Snipe (272), Black-tailed Godwit (845), Bar-tailed Godwit (130), Curlew (920), Redshank (340), Turnstone (130), Blackheaded Gull (4000) and Lesser Black-backed Gull (172). The greatest numbers (75%) of the wintering waterfowl of the estuary are located in the Kinsalebeg area on the east of the estuary in Co. Waterford. The remainder are concentrated along the Tourig Estuary on the Co. Cork side.

The river and river margins also support many Heron, non-breeding Cormorant and Mute Swan (average peak 53, 1994/95-95/96 in the Blackwater Callows). Heron occurs all along the Bride and Blackwater Rivers - 2 or 3 pairs at Dromana Rock; c. 25 pairs in the woodland opposite; 8 pairs at Ardsallagh Wood and c. 20 pairs at Rincrew Wood have been recorded. Some of these are quite large and significant heronries. Significant numbers of Cormorant are found north of the bridge at Youghal and there are some important roosts present at Ardsallagh Wood, downstream of Strancally Castle and at the mouth of the Newport River. Of note are the high numbers of wintering Pochard (e.g. 275 individuals in 1997) found at Ballyhay quarry on the Awbeg, the best site for Pochard in County Cork.

Other important species found within the site include Long-eared Owl, which occurs all along the Blackwater River, and Barn Owl, a Red Data Book species, which is found in some old buildings and in Castlehyde west

of Fermoy. Reed Warbler, a scarce breeding species in Ireland, was found for the first time in the site in 1998 at two locations. It is not known whether or not this species breeds on the site, although it is known to nearby to the south of Youghal. Dipper occurs on the rivers.

Landuse at the site is mainly centred on agricultural activities. The banks of much of the site and the callows, which extend almost from Fermoy to Cappoquin, are dominated by improved grasslands which are drained and heavily fertilised. These areas are grazed and used for silage production. Slurry is spread over much of this area. Arable crops are grown. The spreading of slurry and fertiliser poses a threat to the water quality of this salmonid river and to the populations of Habitats Directive Annex II animal species within it. Many of the woodlands along the rivers belong to old estates and support many non-native species. Little active woodland management occurs. Fishing is a main tourist attraction along stretches of the Blackwater and its tributaries and there are a number of Angler Associations, some with a number of beats. Fishing stands and styles have been erected in places. Both commercial and leisure fishing takes place on the rivers. Other recreational activities such as boating, golfing and walking are also popular. Water skiing is carried out at Villierstown. Parts of Doneraile Park and Anne's Grove are included in the site: both areas are primarily managed for amenity purposes. There is some hunting of game birds and Mink within the site. Ballyhay quarry is still actively quarried for sand and gravel. Several industrial developments, which discharge into the river, border the site.

The main threats to the site and current damaging activities include high inputs of nutrients into the river system from agricultural run-off and several sewage plants, dredging of the upper reaches of the Awbeg, overgrazing within the woodland areas, and invasion by nonnative species, for example Cherry Laurel.

Overall, the River Blackwater is of considerable conservation significance for the occurrence of good examples of habitats and of populations of plant and animal species that are listed on Annexes I and II of the E.U. Habitats Directive respectively; furthermore it is of high conservation value for the populations of bird species that use it. Two Special Protection Areas, designated under the E.U. Birds Directive, are also located within the site - Blackwater Callows and Blackwater Estuary. Additionally, the importance of the site is enhanced by the presence of a suite of uncommon plant species.

13.09.2006

SITE NAME: BLACKWATER VALLEY (KILLAVULLEN)

SITE CODE: 001080

As the fourth or fifth largest river in Ireland, the Blackwater River drains a major part of County Cork and the mountains of Kerry. 10 Areas of Scientific Interest occur along its length. This site is situated just downstream (east) of Killavuller Village within an area of limestone. Large prominent outcrops of limestone and caves can be seen along this section. Other habitats included within this site are broad leaved dry woodland and scrub.

5/12/1995

SITE NAME: EAGLE LOUGH**10.1.1.1 SITE CODE: 001049**

Eagle Lough is situated in County Cork, 2km north-east of Buttevant. It is situated in a limestone area, which has a major influence on the site.

The lough is a fluctuating lake and thus displays many features of a turlough, the famous 'vanishing lakes' from the limestone country of Counties Clare and Galway. Farmland surrounds the water body, except around the northern edges, where some small deciduous woods occur. Close to the lake shore, Sedges are common - especially Hairy Sedge (*Carex hirta*) - along with Fake Fox-sedge (*C. otrubae*) and Carnation Sedge (*C. panicea*).

The southern shore is heavily poached by cattle, but it is within this disturbed micro-habitat that the fourth Irish record of Orange Foxtail (*Alopecurus aeguijoides*) was made in 1992. This species is to be included in the next edition of the Red Data Book of Vascular Plants. A healthy population of some thousands of plants occurs, associate with such other wetland species as Thread-leaved Water-Crowfoot (*Ranunculus trichophyllus*), Small Sweet-grass (*Glyceria declinata*), Lesser Marshwort (*Apium inundatum*), Redshank (*Polygonum persicaria*), Pink Water-spreadwell (*Veronica catenata*) and Shoreweed (*Littorella uniflora*).

Cattle grazing is a major land use here, but it is essential for the maintenance of the Orange Foxtail's habitat. The main threat to the site would be from drainage, which should be prevented. Eutrophication does not appear to be a problem, probably because the fluctuating water levels cause a flushing-out of the system, especially in winter.

It is believed that Eagle Lough is the only turlough-type lake in Cork, and this fact, along with the presence of rare plants here, makes the site of at least regional importance.

SITE NAME: AWBEG VALLEY (ABOVE DONERAILE)**SITE CODE: 000075**

This section of the river valley is located immediately north-west of Doneraile. The Awbeg River links the Blackwater system to the lowland hills of south Limerick and, for the most part, flows over limestone. This site includes a section of the Awbeg River along with a tributary flowing south from the Ballyhoura Mountains. The valley sides of both rivers are generally wooded.

The following description of the site is derived largely from the 1986 An Forasl Forbartha report, which provided a generalised description of the whole Awbeg Valley rather than one specific to this section of the valley.

Along the river, lesser Water-Parsnip (*Berula erecta*), fine leaved Water-Dropwort (*Oenanthe aquatica*) and Broad-leaved Pondweed (*Potamogeton natans*) are common, with two large Sedge species (*Carex riparia* and *C. vesicaria*) and Water Dock (*Rumex hydrolapathum*) in marshes nearby.

Along this section of the river, and its tributary, dry broad-leaved woodlands dominate the valley sides. However, there is some commercial forestry in the form of a Poplar (*Populus* sp.) plantation with an exotic species, Laurel (*Lauris* sp.) invading the semi-natural woodland in Watkins Glen.

Within the Awbeg Valley is a whole, two local plants associated with the woodlands are Toothwort (*Laturaea squamaria*) and Ivy Broomrape (*Orobanche hederæ*), while at the edges of the valley thin soils occur over limestone. These soils support an interesting plant community, including herbs such as Margorim (*Origanum vulgare*) and common Calamint (*Calamintha sylvatica* subsp. *axendens*), along with several grasses (*Koeleria custata*, *Trisetum flarescens* and *Aira caryophyllea*).

There are several land uses within the site, but the recent NHA survey reports that agricultural activities (grazing and fertilizer application), a Golf Course and forestry have caused the most damage.

The site is of interest because the limestone substrate gives rise to plant communities that are unusual in the south-west.

4/12/1995

SITE NAME: BLACKWATER VALLEY (BALLINCURRIG WOOD)

SITE CODE: 001793

AUTHOR: RUTH GILBERT

Ballincurrig Wood is located c. 1km east of Kilavullen village and 20km east of Mallow Town in the north of County Cork. The underlying rock is limestone and this site contains wooded craggs.

The woodland tree species are Alder (*Alnus glutinosa*) and Willow (*Salix* species) and there are shrub species such as Elder (*Sambucus nigra*), Hawthorn (*Crataegus monogyna*) and Blackthorn (*Ptunus spinosa*). The ground flora comprises Ivy (*Hedera helix*) and False Brome (*Brachypodium sylvaticum*) with herbs such as Hogweed (*Heraclium sphondilium*), Geramander speedwell (*Veronica chamaedrys*) and Common dog-violet (*Viola tikiniana*). In some parts of the wood the starred Wood-sedge (*Carex depauperata*) is found, a very rare and legally protected species, (Flora Protection Order, 1987) only recorded in East Cork. Also present are the introduced species Sweet Violet (*Viola odorata*) and Columbine (*Aquilegia vulgaris*).

The surrounding land adjacent to the woodland and river banks has been improved for agricultural grassland and the site is vulnerable to these activities. The woodland may also be under threat from clear-felling to extend the area of grassland, but it should be noted that management of the woods for timber production may be beneficial.

The Ballincurrig Wood site is recommended for inclusion in the Blackwater Valley NHA because the area supports the growth of a population of the very rare Starred Woodsedge.

SOURCES:

Ranger return 1993. Rare Plant Survey of Co. Cork 1992-93, Rosemary Fitzgerald, OPW Dublin, AFF Report (1986)

6/12/1995.

**APPENDIX 2: APPROPRIATE
ASSESSMENT OF THE POTENTIAL
FOR MALLOW TOWN DEVELOPMENT
PLAN 2010 - 2016 TO NEGATIVELY
IMPACT UPON THE CONSERVATION
OBJECTIVES OF NATURA 2000 SITES**



**REVIEW OF THE IMPLEMENTATION OF
THE APPROPRIATE ASSESSMENT OF
THE POTENTIAL FOR MALLOW TOWN
DEVELOPMENT PLAN 2010 – 2016 TO
NEGATIVELY IMPACT UPON THE
CONSERVATION OBJECTIVES OF
NATURA 2000 SITES**

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1 INTRODUCTION TO THIS REVIEW

This review has been prepared following the adoption by Mallow town Council of the Mallow Town Development Plan 2010 – 2016. This review discusses the implementation of the 'Required Actions' that were prescribed in Section 5 of the Appropriate Assessment Report (RPS, 2008)¹ that was prepared for the Draft Mallow Town Development Plan 2010 – 2016 in December 2008.

Adoption of the 'Required Actions' detailed in Chapter 5 of the Appropriate Assessment Report (RPS, 2008) was also recommended by the EPA in their Submission of the 17th of June 2009. Despite this the amendments were not included in the Section 12(4) Managers Report. A memo discussing this omission was issued by RPS on the 14th of July 2009, which indicated that in RPS's opinion the proposed changes from Section 5 of the original Appropriate Assessment Report (RPS, 2008) should be included in full in the amended Draft Plan.

Subsequent to the Section 12(4) Managers Report, the 'Proposed Material Amendments to the Draft Plan' included a new Policy EH1-5 as follows:

"Proposals not directly connected with or necessary to the management of the SAC but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives in accordance with and to the satisfaction of the Town Council and relevant bodies."

Whilst it remains our preference that the proposed changes from Section 5 of the original Appropriate Assessment Report (RPS, 2008) should be included in full in the final Plan that is adopted by the Town Council, we would consider that the inclusion of Policy EH1-5 constitutes an adequate alternative.

During the Mallow Development Plan (preparation) Process, additional Amendments to the Draft Town Plan have been screened for Appropriate Assessment by RPS, including the proposed new landuse zonings at Keatley's Close and Bearforest Lower as recommended by EPA in their submission.

It is not considered that the Special Development Area zoning of Keatley's Close is likely to result in negative impacts on the Conservation Objectives of the *Blackwater River (Cork / Waterford)* cSAC.

The Special Development Area zoning of Bearforest Lower includes lands within the boundary of the *Blackwater River (Cork / Waterford)* cSAC. Development within the cSAC boundary is disallowed by Policy H8 of the 'Proposed Material Amendments to the Draft Town Development Plan', however the close proximity of this SDA to the cSAC means that Appropriate Assessment Screening of any proposal at Bearforest Lower is very likely to conclude that (Stage 2) Appropriate Assessment is required at Project level. It is considered that the inclusion of the new Policy EH1-5 (see above), which constitutes a commitment to Appropriate Assessment Screening of any development proposal at Bearforest Lower, provides sufficient commitment to implementation of Article 6 of the Habitats Directive in this regard.

In Section 6 of this report, Amendments to the Objective and Policies that have been made since the Draft Report was Assessed are included, otherwise, the remainder of this report

¹ RPS (2008). *Appropriate Assessment of the Potential for Mallow Town Development Plan 2010 – 2016 to Negatively Impact Upon the Conservation Objectives of Natura 2000 Sites*. RPS, December 2008.

comprises the original Appropriate Assessment Report for the Draft Plan as submitted to the Town Council in December 2008.

2 INTRODUCTION TO THE INITIAL ASSESSMENT

The purpose of Appropriate Assessment of local authority plans is to ensure that protection of the integrity of European 'Natura 2000' sites is included as an integral part of the planning process at a local level. By carrying out an Appropriate Assessment, Mallow Town Council also ensure that in adopting and implementing Mallow Town Development Plan 2010 – 2016 (henceforth referred to as 'the Town Plan') they are not likely to be in breach of the provisions of Articles 6(3) and 6(4) of the Habitats Directive.

The requirement for Appropriate Assessment of plans or projects originates from Article 6 (3) and (4) of *European Union (EU) Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora*, commonly known as the 'Habitats Directive', which is implemented in Ireland through the European Communities (Natural Habitats) Regulations of 1997. The wording of Article 6 (3) of the Directive is as follows:

'Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives. In the light of the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public.'

The wording of Article 6 (4) of the Directive is as follows:

'If, in spite of a negative assessment of the implications for the site and in the absence of alternative solutions, a plan or project must nevertheless be carried out for imperative reasons of overriding public interest, including those of a social or economic nature, the Member State shall take all compensatory measures necessary to ensure that the overall coherence of Natura 2000 is protected. It shall inform the Commission of the compensatory measures adopted.'

In February 2008, the statutory requirement for an Appropriate Assessment of all land use plans was further emphasised by a Department of the Environment, Heritage and Local Government Circular Letter (SEA 1/08 & NPWS 1/08), which was issued to all County and City Managers, Directors of Services for Planning and Town Clerks. The Circular Letter entitled 'Appropriate Assessment of Land Use Plans' emphasises the fact that an appropriate assessment of the ecological implications of any plan or project is required, whether it is within or outside a designated site, if it may impact upon the conservation objectives of that site. In May 2008, the Environmental Protection Agency circulated this letter as part of their guidance on the process to be employed in Strategic Environmental Assessment as part of "SEA Pack Vol. II 16 05 08".

The process is in its infancy in Ireland and to date very few Appropriate Assessments of local authority plans have been completed and there are currently no formal guidelines on the procedure to be employed. Staff from National Parks and Wildlife Service, the competent statutory authority, are however becoming increasingly familiar with the requirements of Appropriate Assessment, and this document has been produced in consultation with NPWS staff. It is our understanding that guidelines are currently being prepared by the EPA, however until these become available, this on-going liaison and consultation process ensures that our Appropriate Assessment has been carried out in a manner that is acceptable to the relevant competent authorities.

In addition to the advice available from NPWS, the EU has published a number of documents which provide guidance on the requirements of Appropriate Assessment, including, *Assessment of Plans and Projects Significantly Affecting Natura 2000 sites - Methodological Guidance on the Provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC*, which sets out the principles of how to approach decision making during the process and this have been followed as closely as possible. There are however a number of restrictions when attempting to apply this document in an Irish context, including first and foremost, the lack of formal statutory guidelines; and also, importantly, the relative lack of published data on many of the faunal and floral elements of the environment which comprise the conservation objectives of European sites.

3 METHODOLOGY

The Appropriate Assessment process progresses through four stages as follows:

- Stage 1 – Screening of Mallow Town Development Plan;
- Stage 2 – Appropriate Assessment of Mallow Town Development Plan;
- Stage 3 – Assessment of alternative solutions; and
- Stage 4 – Assessment of compensatory measures.

Stages 1 and 2 relate to Article 6(3) of the Habitats Directive; and Stages 3 and 4 to Article 6(4).

Stage 1 – Screening

The aim of Stage 1, 'Screening' is to determine whether or not Stage 2, the Appropriate Assessment is required, i.e. to determine whether or not the objectives and policies of the Town Plan are likely to negatively affect the conservation objectives on any Natura 2000 site. This is done by examining the objectives and the policies of the plan; and the conservation objectives of any Natura 2000 sites that might potentially be affected.

Stage 2 – Appropriate Assessment

The aim of Stage 2, the 'Appropriate Assessment' proper, is to propose changes to The Town Plan that will Avoid and Mitigate any negative impacts on Natura 2000 sites and thereby avoid the need to progress to Stage 3, which would effectively constitute a rejection of the plan in its current form and require the Town Council to implement Compensatory measures for impacts on Natura 2000 sites.

A key consideration of Appropriate Assessment is that the Plan or Project under consideration, in this case the Town Plan, must take account of potential impacts on Natura 2000 sites 'in combination' with other plans or projects. Such Impacts are termed 'Cumulative Impacts and are discussed in Section 4.2.2.3.

Stages 3 and 4 - Assessment of Alternative Solutions and Compensatory Measures

Provided the recommendations of Stage 2 are incorporated into future drafts of Mallow Town Development Plan, Stages, 3 and 4, which relate to alternative solutions and Compensatory measures under Article 6(4) of the EU Habitats Directive, will not be required.

4 STAGE 1 – SCREENING

4.1 INTRODUCTION TO THE SCREENING PROCESS

This stage involves establishing whether or not the plan is likely to have a significant effect on the conservation objectives of any Natura 2000 site. The screening process requires an initial review of the draft plan to identify any policies or objectives that might potentially have impacts upon Natura 2000 sites. These might include for example policies and objectives that include a requirement for new development land; policies or objectives that may result in increases in disturbance to sensitive fauna and flora; policies and objectives that could result in deterioration in water quality, etc.

For definition purposes the Natura 2000 sites include Special Areas of Conservation (designated for habitats and / or species) and Special Protection Areas (designated for birds). With regard to SACs, Annex I refers to habitats and Annex II refer to the EU Habitats Directive, Annex I to habitat types and Annex II to species. With regard to SPAs, Annex I refers to the EU Birds Directive. Land that could have a potential to contain important bird areas that have not already been designated as an SPA are also taken into consideration.

Screening requires a review of all Natura 2000 sites that could potentially be subject to the impacts that have been identified. Clearly a key variable that will determine whether or not a particular Natura 2000 site is likely to be negatively effected by the draft plan's policies and objectives is its physical distance from Mallow, and it will generally, but not necessarily, be the case that the greater the distance the lower the possibility of impacts. It is not considered that any of the policies or objectives of The Town Plan have the potential to impact upon any Natura 2000 sites more than 15km from the town. Two Natura 2000 sites are located within 15km of the town. These are shown in Table 1, both are located partially within Mallow town boundary. Each site is discussed with respect to its requirement or not for an Appropriate Assessment.

Table 1: Details of the Natura 2000 Sites located within 15km of Mallow

Site Name	Site Designation	Site Code	Location Relative to Mallow
Blackwater River (Cork / Waterford)	cSAC	002170	Partially within Mallow town
Kilkolman Bog	SPA	004095	12km to the north of Mallow

Data and information for this screening assessment was collected from the following sources, consultation with NPWS, Natura 2000 Forms, NPWS Site Synopses, other published data on rare and protected species, and personal knowledge of the sites.

4.2 BLACKWATER RIVER (CORK / WATERFORD) cSAC

This large cSAC covers the Blackwater River from its headwaters in Cos. Cork, Kerry, Tipperary, Waterford and Limerick, to its mouth at Youghal.

The river is one of the largest in Ireland. The site is designated on the basis of the presence of ten Annex I habitat types including the two Priority Habitats 'remnant alluvial forest', which

is found between Mallow and Cappoquin, and 'Yew woods', a small area of which occurs near Villierstown, some 30km from Mallow and will therefore not be affected by any activity associated with the policies, objectives and zonings of the Town Plan.

Six of the other eight Annex I habitat types, 'estuaries', 'mudflats and sandflats', 'perennial vegetation of stony banks', 'Mediterranean salt meadows', 'Atlantic salt meadows' and '*Salicornia* mudflats and sandflats' occur in the estuarine sections of the cSAC, some 55km downstream of Mallow, and will therefore not be affected by any activity associated with the policies, objectives and zonings of the Town Plan.

The best examples of 'old oak woodland' within the cSAC occur at Ballynatray and Glendine, with other areas at Rincrew, Newport East and Dromana, all of which lie downstream of Cappoquin, more than 40km downstream of Mallow, and will therefore not be affected by any activity associated with the policies, objectives and zonings of the Town Plan. The only area of 'old oak woodland' mentioned in the NPWS Site Synopsis that lies close to Mallow is at Carrigane, which is approximately 13km downstream of Mallow. This woodland is on the steep northern slope of the river valley, and is elevated more than 30m above the valley floor. It is considered very unlikely that it will be affected by any activity associated with the policies, objectives and zonings of the Town Plan.

The final Annex II habitat type, 'floating river vegetation', which, according to the NPWS Site Synopsis, '*is found along much of the freshwater stretches within the Site*', and is therefore likely to occur in the vicinity of Mallow.

The site is also designated on the basis of a number of Annex II species. The mammal species otter occurs throughout the site, including the sections within Mallow town boundary.

Six Annex II fish species are present within the cSAC. Of these, Twaith Shad and Allis shad occur in the estuary, some 55km downstream of Mallow, and will therefore not be affected by any activity associated with the policies, objectives and zonings of the Town Plan; whilst Atlantic salmon, brook lamprey, sea lamprey and river lamprey are all likely to occur at Mallow.

White-clawed crayfish are present within the cSAC in the River Awbeg, which joins the Blackwater some 15km upstream of Mallow, close to Castletownroche. This population is considered very unlikely to be affected by any activity associated with the policies, objectives and zonings of the Town Plan.

The freshwater mollusc, freshwater pearl-mussel occurs within the cSAC, including in the main channel of the river immediately upstream of Mallow.

No suitable habitat for the Annex II plant species Killarney Fern, which is also known from the cSAC, is known of close to Mallow.

Threats to the site listed in the Natura 2000 Form include pollution derived from agricultural run-off and point sources in towns; which may be of relevance to this assessment of the Town Plan. Other negative impacts are also possible and as the cSAC lies partly with Mallow town boundary there are potential impacts on the site as a result of Policies, Objectives, Zonings or other issues described in the Plan. **Appropriate Assessment of Mallow Town Development Plan 2010 - 2016 in relation to the potential for negative impacts on Blackwater River (Cork / Waterford) cSAC is required.**

4.3 KILCOLMAN BOG SPA

The SPA is designated primarily on the basis of non-breeding winter populations of the Birds Directive Annex I species Whooper Swan and Golden Plover, the former occurring in numbers of National Importance. In addition the site supports Nationally Important wintering populations of Teal and Shoveler and significant populations of other Wigeon, Mallard, Coot and Lapwing. 'Vulnerability' of the site listed in the Natura 2000 include the observation that its value is subject to high water levels and that activities in surrounding lands such as drainage and forestry could affect its viability of the site.

Whilst the site is a good distance from Mallow (more than 10km), Policy IU5 of the Town Plan seeks to progress water abstraction at Box Cross Roads to the west of Doneraile, approximately 2.5km from the SPA. Whilst it is considered unlikely that this will result in any draw down of water levels at the bog, it is considered that this nevertheless presents a possibility of a negative impact on the site and therefore needs to be examined as part of this screening process.

A report on the proposed abstraction scheme by Pat Walshe of Cork County Council appears in the Geological Survey of Ireland Groundwater Newsletter of January 1994, which describes small and localised drawdowns. The scheme has also been the subject of an environmental report commissioned by Cork County Council; and is, in addition, subject to the granting of a licence from DoEHLG. Hence, it is considered that Cork County Council will be aware of and DoEHLG will be aware of any potential impact of this scheme on Natura 2000 sites and no further investigation as part of this assessment is required.

Appropriate Assessment of Mallow Town Development Plan 2010 – 2016 in relation to the potential for negative impacts on *Kilcolman Bog* SPA is not required.

5 STAGE 2 – APPROPRIATE ASSESSMENT

5.1 INTRODUCTION TO THE APPROPRIATE ASSESSMENT

The Screening Stage (Stage 1) has concluded that Appropriate Assessment (Stage 2) of the Town Plan is required to identify policies, objectives and proposals (i.e. critical infrastructure) of the plan that might potentially impact negatively, including potential 'in combination' impacts, on the Conservation Objectives of the following Natura 2000 Site:

- ***Blackwater River (Cork / Waterford) cSAC.***

The negative impacts that have been identified, which are discussed in this section, require the implementation of 'Avoidance' or 'Mitigation' measures, which will require amendments to the Town Plan in order to avoid the need to progress to Stages 3 and 4 of the Appropriate Assessment process; the assessment of alternative solutions and compensatory measures.

Documentation that has been referred to in the preparation of this assessment includes the Natura 2000 Forms and Site Synopses for the sites. Consultation with NPWS was also undertaken in this regard, in the form of discussions between Rick Mundy and Jervis Good, NPWS Regional Ecologist and Cyril Saich, NPWS District Conservation Officer; and also in a written response from the Development Applications Unit, received by RPS (31st October 2008) in response to SEA formal consultation.

5.2 BLACKWATER RIVER (CORK / WATERFORD) cSAC

5.2.1 Summary of the Key Features of the Site that occur in the vicinity of Mallow, and of the Environmental Conditions Which Support Them

This section provides details of the Annex I habitats and the Annex II species for which this cSAC has been designated; that may occur or are known to occur close enough to Mallow that there are potential negative impacts as a result of adoption of the zoning, policies and objectives of the Town Plan, and of the environmental factors which support these features (the conservation objectives of the site).

5.2.1.1 Annex I Habitats

The site is designated on the basis of the presence of ten Annex I habitat types. Only two of these occur in the vicinity of Mallow in locations where they could potentially be affected by implementation of the zoning, policies or objectives of the Town Plan, the Priority habitat 'remnant alluvial forest', which is found between Mallow and Cappoquin; and 'floating river vegetation', which occurs along much of the river, probably including sections close to, and downstream of, Mallow.

5.2.1.2 Annex II Species

The site is also designated on the basis of a number of Annex II species.

The mammal species otter occurs throughout the site, including the sections within Mallow town boundary.

Six Annex II fish species are present within the cSAC, four of which, Atlantic salmon, brook lamprey, sea lamprey and river lamprey are all likely to occur at Mallow, the other two being estuarine species.

The freshwater mollusc, freshwater pearl-mussel occurs in sections of the River Blackwater immediately upstream of Mallow and perhaps in other sections of the river close to the town. This species is highly sensitive to deterioration in water quality and also to contamination of the water with fines and to reductions in Salmonid fish populations.

All of these aquatic species of fauna are either directly or indirectly dependent upon good water quality in the river, and this in turn is dependent upon land use and human activity on the flood plain of the river, particularly within the cSAC, being appropriate.

5.2.1.3 Environmental Factors that might be affected by the plan

The only threat to the site listed in the Natura 2000 Form that may be of relevance to this assessment of The Town Plan is the potential for water quality deterioration as a result of pollution from the town. Other negative impacts are however possible. The following broad environmental categories constitute conservation objectives of the site that could potentially be negatively impacted upon by the town plan.

Water quality

The River Blackwater is an aquatic system, and many of habitats and species that the river supports are liable to negative impacts if water quality in the system deteriorates. All of the Annex II species discussed in Sections 4.3.1.2 are highly susceptible to negative impacts resulting from water pollution. The Annex I habitat 'floating river vegetation' and to a lesser extent the Priority habitat 'remnant alluvial forest' may also be susceptible to certain types of water contamination.

NPWS in correspondence with RPS have highlighted waste water discharges; surface water run-off from the town and the potential for new developments to require additional flood relief measures as potential issues that might affect the cSAC and therefore need to be addressed in this assessment, specifically:

[The] "ability of Waste Water Treatment Plant to accommodate extra projected population equivalent loading from new developments, especially in relation to overflow at times of peak loading;

Discharges from storm water surface runoff, old subsurface drainage and construction works drainage, carrying hydrocarbons, sediment, nutrients, and potentially toxic elements and compounds into the Blackwater River.

Development in the river floodplain which may affect flooding and require subsequent further flood relief measures with potential downstream hydrological effects."

Development Applications Unit, DoEHLG, 31st October 2008.

It is considered that the Policies and Objectives of Section 12.0 'Infrastructure, Utilities and Flooding' of the Town Plan are sufficient to protect the Conservation Objectives of the *Blackwater River (Cork / Waterford)* cSAC in this regard.

Integrity of the River Banks

NPWS in correspondence with RPS have highlighted the importance of the integrity riparian corridor along the Banks of the Blackwater to the ecological functioning of the cSAC as a potential issues that need to be addressed in this assessment:

“Riparian development without landscaping with native trees and other plants, affecting movement of wildlife up the river corridor, and potentially introducing invasive river-bank species.”

Development Applications Unit, DoEHLG, 31st October 2008.

Available land / water area and habitat quality

All habitats and species require a sufficient area of land or water supporting suitable habitat, of sufficiently high quality, for populations to persist.

Disturbance

All ecosystems and their habitats and species are to some extent sensitive to human disturbance, and an absence of excessive disturbance constitutes a key environmental factor for all of the species and habitats discussed above. The aquatic fish and invertebrate species within the channel of the River Blackwater are relatively insusceptible to most disturbance impacts. Exceptions might be motorised boat traffic on the river or a substantial increase in fishing activity, however there are no policies or objectives of the Town Plan that are likely to result in such impacts. Otters may be disturbed by humans and dogs within the town and whilst policies to increase the population of the town, expand its area, or increase accessibility to the riverbanks and flood plain area are likely to result in increases to disturbance on otters it is considered very unlikely that this will have a significant negative impact on the conservation status of the species within the cSAC.

Water Supply

Policy IU5 of the Town Plan seeks to progress water abstraction at Box Cross Roads to the west of Doneraile, adjacent to sections of the *Blackwater River (Cork / Waterford)* cSAC along the Awbeg River. A report on the proposed abstraction scheme by Pat Walshe of Cork County Council appears in the Geological Survey of Ireland Groundwater Newsletter of January 1994, which describes small and localised drawdowns. The scheme has also been the subject of an environmental report commissioned by Cork County Council; and is, in addition, subject to the granting of a licence from DoEHLG. Hence, it is considered that Cork County Council will be aware of and DoEHLG will be aware of any potential impact of this scheme on Natura 2000 sites and no further investigation as part of this assessment is required.

5.2.2 Summary of Zoning, Policies and Objectives of the The Town Plan that may impact upon the Conservation Objectives of the site.

A number of the zonings, policies and objectives of the Town Plan have some potential to result in negative impacts on the conservation objectives of *Blackwater River (Cork / Waterford)* cSAC. These are discussed in this Section.

5.2.2.1 Zoning

Lands Within the Boundary of the cSAC

The entire area of the cSAC within Mallow town boundary is Zoned as “Blackwater Amenity Corridor and Spa Glen Amenity Area” (Map No 5a, Land Use Zoning Objectives). According to the Land Use Zoning Matrix presented in the Plan (Section 3.5 ‘Landuse Objectives’, Table 3.1), only ‘Leisure / Recreation / Open space’ developments will be ‘Generally Permitted’ within this zone; whilst ‘Community Hall – Recreational’ and ‘Playground’ developments will be ‘Open to Consideration’. It is not considered that this Zoning is likely to result in any negative impact on the cSAC, however any such development would be subject to Appropriate Assessment under Article 6 of the Habitats Directive in addition to standard planning procedure and this should be stated explicitly in the Plan. This is discussed further in Section 4.2.2.2 and in Table 4.1 of this assessment.

Lands Adjacent to the Boundary of the cSAC

Most of the lands located immediately adjacent to the cSAC boundary (Map No 5a, Land Use Zoning Objectives) are already developed in one form or another and are hence zoned ‘Established Residential’ or ‘Utilities / Infrastructure’.

The zones designated, ‘Town Centre’ or ‘Mixed Use’ (on the south side of Mallow Bridge) allow a large number of different commercial, light industrial, social and retail development types (Section 3.5 ‘Land Use Objectives’, Table 3.1), however due to the largely built-up nature of these areas it is unlikely that new land uses in these areas will significantly increase the risk of impacts on the cSAC directly, however, many of the Objective and Policies discussed in Section 4.2.2.2 and in Table 4.1 of this Assessment relate to these areas.

Other areas immediately adjacent to the cSAC boundary are zoned ‘Open Space / Sport / Recreation / Amenity’, and according to the Land Use Zoning Matrix presented in the Plan (Section 3.5 ‘Land Use Objectives’, Table 3.1), only ‘Leisure / Recreation / Open space’ developments, ‘Bring Centres’ and ‘Playgrounds’ will be ‘Generally Permitted’ within this zone; whilst ‘Community Hall – Recreational’ and ‘Cemetery’ developments will be ‘Open to Consideration’. It is not considered that this Zoning is likely to result in any negative impact on the cSAC, however any significant development in areas adjacent to the cSAC would be subject to Appropriate Assessment under Article 6 of the Habitats Directive in addition to standard planning procedure and this should be stated explicitly in the Plan. This is discussed further in Section 4.2.2.2 and in Table 4.1 of this assessment.

‘Special Development Area 1, Mallow Castle’ also lies immediately adjacent to the cSAC boundary. This site is the subject of Objective TAC 9, to ‘Encourage the development of Mallow Castle and attendant grounds for tourist related uses.’ It is unlikely that new land uses in these areas will significantly increase the risk of impacts on the cSAC.

The proposed extension to Park Road, to link with the N20 and ultimately with the N72 is depicted as an indicative route on Map No 5a ‘Land Use Zoning Objectives’ and is discussed in Objective T8 and elsewhere in the Town Plan. This indicative location lies partially within the boundary of the *Blackwater River (Cork / Waterford)* cSAC and would therefore be subject to Appropriate Assessment under Article 6 of the Habitats Directive in addition to standard planning procedure and this should be stated explicitly in the Plan. This is discussed further in Section 4.2.2.2 and in Table 4.1 of this assessment.

5.2.2.2 Policies and Objectives

Objective T8 refers to the development of an extension to Park Road to link with the N20 and ultimately with the N72. Whilst such a development will not necessarily have negative impacts

on the Conservation Objectives of the cSAC, it could potentially have negative impacts in terms of, Water Quality, Integrity of the River Banks and Disturbance (see Section 4.2.1.3). It will therefore need to be designed and constructed with those Conservation Objectives in mind, and this should be explicitly stated in the Town Plan. An amendment to Objective T8 is proposed accordingly.

Section 4.0 'Traffic and Movement'

Policy T5 refers to a proposal for the provision of a new pedestrian and cycle bridge across the River Blackwater in the Town Park / Park road / Mill Street area; and this proposal is also discussed in Sections 5.2.4 and 9.2.1 and in Table 16.1 of the Town Plan. Whilst such a development will not necessarily have negative impacts on the Conservation Objectives of the cSAC, it could potentially have negative impacts in terms of, Water Quality, Integrity of the River Banks and Disturbance (see Section 4.2.1.3). It will therefore need to be designed and constructed with those Conservation Objectives in mind, and this should be explicitly stated in the Town Plan. An amendment to Policy T5 is proposed accordingly.

Section 11.0 'Tourism Arts and Culture'

Objective TAC1 refers to a proposal to develop a slipway and fishing stands on the River Blackwater within the town; and Policy TAC1-1 refers to development of riverside tourism activities. Whilst such developments will not necessarily have negative impacts on the Conservation Objectives of the cSAC, they could potentially have negative impacts in terms of, Water Quality, Integrity of the River Banks and Disturbance (see Section 4.2.1.3). Such structures will therefore need to be designed and constructed with those Conservation Objectives in mind, and this should be explicitly stated in the Town Plan. Amendments to Objective TAC1 and Policy TAC1-1 are proposed accordingly.

Objective TAC2 refers to a proposal to develop pedestrian trails along both the northern and southern banks of the River Blackwater within the town. Whilst such developments will not necessarily have negative impacts on the Conservation Objectives of the cSAC, they could potentially have negative impacts in terms of, Water Quality, Integrity of the River Banks and Disturbance (see Section 4.2.1.3) and will therefore need to be designed and constructed with those Conservation Objectives in mind. This should be explicitly stated in the Town Plan and an amendment to Objective TAC1 is therefore proposed accordingly.

5.2.3 Potential 'Cumulative Impacts'

A key consideration of Appropriate Assessment is that the Plan or Project under consideration, in this case the Town Plan, must take account of potential impacts on Natura 2000 sites 'in combination' with other plans or projects. These are termed 'Cumulative Impacts', and these are discussed in this Section.

5.2.3.1 Mallow Special Local Area Plan

The Zoning Map for Mallow SLAP indicates that most of the lands within the *Blackwater River (Cork / Waterford)* cSAC within the Plan Area fall within the 'Primary Open Space / Sports / Recreation / Amenity' Land Use Category which is discussed in Section 2.2.2.1 of this Assessment and is not considered to present any threat to the Conservation Objectives of the *Blackwater River (Cork / Waterford)* cSAC.

Two areas of land within the cSAC are however zoned for other uses in the SLAP: Special Zoning X-07 on the southern bank of the river to the west of the town and Special Area X-03 on the northern bank of the river to the east of the town. Large-scale residential development is proposed for both of these areas, which could potentially result in impacts on the Conservation Objectives of the cSAC, in combination with Policies and Objectives of the Town Plan and are therefore discussed as part of this assessment.

Impacts on the Conservation Objectives of the cSAC as a result of these developments might include direct land take, increased level of human disturbance to adjoining areas of the cSAC and the possibility of severance and fragmentation impacts. Any or all of these could potentially constitute Cumulative Impacts were there to be any Policies or Objectives of the Town Plan that would have similar impacts. As there are not, it is not considered that any such impacts are exacerbated by any Zonings, Policies or Objectives of the Town Plan.

Whilst no significant Cumulative Impact on the Conservation Objectives of the Blackwater River (Cork / Waterford) cSAC is therefore anticipated, development of these areas could result in a negative impact on the cSAC in their own right, and further Article 6 Appropriate Assessments of these special area Zonings should be conducted.

The 'Town Park' area within Mallow town is zoned in the Mallow SLAP for 'Primary Educational / Institutional / Civic'. The text of the SLAP however indicates that this zoning is fully compatible with that of the Town Plan's 'Blackwater Amenity Corridor and Spa Glen Amenity Area' and as such will not have any negative impact on the Conservation Objectives of the *Blackwater River (Cork / Waterford)* cSAC.

5.2.3.2 'Undeveloped Extant Residential Permissions'

A parcel of land within the land use zoning type 'Blackwater Amenity Corridor and Spa Glen Amenity Area' (Map No 5a, Land Use Zoning Objectives), and partially within the boundary of the *Blackwater River (Cork / Waterford)* cSAC, is identified as an area with 'Undeveloped Extant Residential Permissions' on Map No 3 'Undeveloped Residential Zone Land'. The parcel of land is located on the southern bank of the River Blackwater, to the east of the town centre.

The situation with this parcel of land is that residential planning permission has already been granted and cannot be revoked by Policies or Objectives in the new Town Plan. As this planning permission is not the result of any Policy or Objective of the Town Plan, any impact on the *Blackwater River (Cork / Waterford)* cSAC that may result from its development is not included as part of this assessment. However it is considered that in combination with Objectives or Policies of the Town Plan, development of this area could potentially result in negative impacts on the *Blackwater River (Cork / Waterford)* cSAC, and is therefore considered here as a potential 'Cumulative Impact'.

Development of this land parcel would result in direct 'land take' of approximately 2.7ha within the boundary of the *Blackwater River (Cork / Waterford)* cSAC. There will not be any change to the land use of any lands within the cSAC boundary as a result of the Policies and Objectives of the Plan. Hence, whilst this land take within the cSAC may have negative impacts on the site's Conservation Objectives (see below), in the context of this assessment, it is not considered that any such impacts are exacerbated by any Zonings, Policies or Objectives of the Town Plan.

In addition to the direct land take, there could potentially be indirect Cumulative Impacts on the Conservation Objectives of the cSAC as a result of a change in land use in this area. Increased level of human disturbance to adjoining areas of the cSAC and the possibility of severance and fragmentation impacts could constitute Cumulative Impacts were there to be

any other development in the this section of the River Blackwater flood plain as a result of Policies or Objectives of the Town Plan. As no such development is proposed it is not considered that any such impacts are exacerbated by any Zonings, Policies or Objectives of the Town Plan.

Whilst no significant Cumulative Impact on the Conservation Objectives of the Blackwater River (Cork / Waterford) cSAC is therefore anticipated, development of this area could result in a negative impact on the cSAC in its own right, and a further Article 6 Appropriate Assessment of any development in this area should be conducted.

5.2.4 Appropriate Assessment of the Town Plan in relation to the potential for negative impacts on *Blackwater River (Cork / Waterford) cSAC*

Table 4.1 brings together in tabular form the details described in Section 4.2.1 and 4.2.2. The matrix identifies the key features for which the cSAC is designated that might experience negative impacts; the environmental factors on which those features depend; the elements of the plan that may result in negative impacts on those environmental factors; and the avoidance and mitigation measures required. Finally, it includes the actions required to implement these measures, namely additional Policies and Objectives and amendments to existing Policies and Objectives of the Plan, which are discussed further in Section 5.

Table 4.1: Potential Impacts on the Conservation Features of Blackwater River (Cork / Waterford) cSAC Resulting From the Policies and Objectives of Mallow Town Development Plan 2010 - 2016

Qualifying Features (Conservation Objectives)	Conditions that support the qualifying feature (conservation objectives) which might be potentially affected by the Town Plan	Possible Impacts of the Town Plan	Possible 'in combination' Impacts From Other Plans and Projects	Avoidance and Mitigation Measures Required	Actions Required
Priority Annex I habitat: 'remnant alluvial forest'	<ul style="list-style-type: none"> <input type="checkbox"/> Unaltered, natural hydrological system. <input type="checkbox"/> Good water quality. 	<ul style="list-style-type: none"> <input type="checkbox"/> Changes to hydrological regime. <input type="checkbox"/> Reduction in water quality as a result if increased inputs from manmade sources. 	None known	<ul style="list-style-type: none"> <input type="checkbox"/> Appropriate Assessment of Policies and Objectives that may result in increased disturbance to riverbank habitats. <input type="checkbox"/> Appropriate Assessment of Policies and Objectives that may result in deterioration in water quality. 	<ul style="list-style-type: none"> <input type="checkbox"/> Amendments to Objectives TAC1 and TAC2; and to Policy TAC1-1 of Section 11.0 of the Town Plan.
Annex I habitat: 'floating river vegetation'	<ul style="list-style-type: none"> <input type="checkbox"/> Unaltered, natural hydrological system. <input type="checkbox"/> Good water quality. 	<ul style="list-style-type: none"> <input type="checkbox"/> Changes to hydrological regime. <input type="checkbox"/> Reduction in water quality as a result if increased inputs from manmade sources. 	None known	<ul style="list-style-type: none"> <input type="checkbox"/> Appropriate Assessment of Policies and Objectives that may result in increased disturbance to riverbank habitats. <input type="checkbox"/> Appropriate Assessment of Policies and Objectives that may result in deterioration in water quality. 	<ul style="list-style-type: none"> <input type="checkbox"/> Amendments to Objectives TAC1 and TAC2; and to Policy TAC1-1 of Section 11.0 of the Town Plan.

Table 4.1: Potential Impacts on the Conservation Features of Blackwater River (Cork / Waterford) cSAC Resulting From the Policies and Objectives of Malloy Town Development Plan 2010 – 2016 (continued)

Qualifying Features (Conservation Objectives)	Conditions that support the qualifying feature (conservation objectives) which might be potentially affected by the Town Plan	Possible Impacts of the Town Plan	Possible 'in combination' Impacts From Other Plans and Projects	Avoidance and Mitigation Measures Required	Actions Required
Annex II mammal species: otter, which is likely to occur on all watercourses and water bodies in the area.	<ul style="list-style-type: none"> <input type="checkbox"/> Healthy fish populations (for food). <input type="checkbox"/> Suitable, undisturbed riverbanks, flood plain and other areas. 	<ul style="list-style-type: none"> <input type="checkbox"/> Increased disturbance and damage due to increased local population and increased access. <input type="checkbox"/> Pollution of the river from the town. 	None known	<ul style="list-style-type: none"> <input type="checkbox"/> Appropriate Assessment of Policies and Objectives that may result in increased disturbance riverine habitat. <input type="checkbox"/> Appropriate Assessment of Policies and Objectives that may result in deterioration in water quality. 	<ul style="list-style-type: none"> <input type="checkbox"/> Amendments to Objectives to TAC1 and TAC2; and to Policy TAC1-1 of Section 11.0; and to Policies T5 and T8 of Section 4.0 of the Town Plan.
Annex II mollusc species freshwater pearl-mussel	<ul style="list-style-type: none"> <input type="checkbox"/> Very good water quality. <input type="checkbox"/> Suitable riverine habitat. <input type="checkbox"/> Healthy Salmonid fish populations. 	<ul style="list-style-type: none"> <input type="checkbox"/> Pollution of the river from the town. <input type="checkbox"/> Changes to the structure of the river channel, flow or bankside vegetation, as a result of flood-control measures. <input type="checkbox"/> Reductions in Salmonid fish populations (see 'Atlantic salmon' below). 	None known	<ul style="list-style-type: none"> <input type="checkbox"/> Appropriate Assessment of Policies and Objectives that may result in alteration of riverside vegetation. <input type="checkbox"/> Appropriate Assessment of Policies and Objectives that may result in deterioration in water quality. 	<ul style="list-style-type: none"> <input type="checkbox"/> Amendments to Objectives to TAC1 and TAC2; and to Policy TAC1-1 of Section 11.0; and to Policies T5 and T8 of Section 4.0 of the Town Plan.

Table 4.1: Potential Impacts on the Conservation Features of Blackwater River (Cork / Waterford) cSAC Resulting From the Policies and Objectives of Mallow Town Development Plan 2010 - 2016 (continued)

Qualifying Features (Conservation Objectives)	Conditions that support the qualifying feature (conservation objectives) which might be potentially affected by the Town Plan	Possible Impacts of the Town Plan	Possible 'in combination' Impacts From Other Plans and Projects	Avoidance and Mitigation Measures Required	Actions Required
Annex II fish species: sea lamprey	<ul style="list-style-type: none"> <input type="checkbox"/> Suitable riverine habitat. <input type="checkbox"/> Good water quality. 	<ul style="list-style-type: none"> <input type="checkbox"/> Pollution of the river from the town. <input type="checkbox"/> Changes to the structure of the river channel, flow or bankside vegetation, as a result of flood-control measures. 	None known	<ul style="list-style-type: none"> <input type="checkbox"/> Appropriate Assessment of Policies and Objectives that may result in alteration of riverside vegetation. <input type="checkbox"/> Appropriate Assessment of Policies and Objectives that may result in deterioration in water quality. 	<ul style="list-style-type: none"> <input type="checkbox"/> Amendments to Objectives TAC1 and TAC2; and to Policy TAC1-1 of Section 11.0; and to Policies T5 and T8 of Section 4.0 of the Town Plan.
Annex II fish species brook lamprey	<ul style="list-style-type: none"> <input type="checkbox"/> Suitable riverine habitat. <input type="checkbox"/> Good water quality. 	<ul style="list-style-type: none"> <input type="checkbox"/> Pollution of the river from the town. <input type="checkbox"/> Changes to the structure of the river channel, flow or bankside vegetation, as a result of flood-control measures. 	None known	<ul style="list-style-type: none"> <input type="checkbox"/> Appropriate Assessment of Policies and Objectives that may result in alteration of riverside vegetation. <input type="checkbox"/> Appropriate Assessment of Policies and Objectives that may result in deterioration in water quality. 	<ul style="list-style-type: none"> <input type="checkbox"/> Amendments to Objectives TAC1 and TAC2; and to Policy TAC1-1 of Section 11.0; and to Policies T5 and T8 of Section 4.0 of the Town Plan.

Table 4.1: Potential Impacts on the Conservation Features of Blackwater River (Cork / Waterford) cSAC Resulting From the Policies and Objectives of Mallow Town Development Plan (continued)

Qualifying Features (Conservation Objectives)	Conditions that support the qualifying feature (conservation objectives) which might be potentially affected by the Town Plan	Possible Impacts of the Town Plan	Possible 'in combination' Impacts From Other Plans and Projects	Avoidance and Mitigation Measures Required	Actions Required
Annex II fish species: river lamprey,	<ul style="list-style-type: none"> <input type="checkbox"/> Suitable riverine habitat. <input type="checkbox"/> Good water quality. 	<ul style="list-style-type: none"> <input type="checkbox"/> Pollution of the river from the town. <input type="checkbox"/> Changes to the structure of the river channel, flow or bankside vegetation, as a result of flood-control measures. 	None known	<ul style="list-style-type: none"> <input type="checkbox"/> Appropriate Assessment of Policies and Objectives that may result in alteration of riverside vegetation. <input type="checkbox"/> Appropriate Assessment of Policies and Objectives that may result in deterioration in water quality. 	<ul style="list-style-type: none"> <input type="checkbox"/> Amendments to Objectives TAC1 and TAC2; and to Policy TAC1-1 of Section 11.0; and to Policies T5 and T8 of Section 4.0 of the Town Plan.
Annex II fish species: Atlantic salmon	<ul style="list-style-type: none"> <input type="checkbox"/> Suitable riverine habitat. <input type="checkbox"/> Good water quality. 	<ul style="list-style-type: none"> <input type="checkbox"/> Pollution of the river from the town. <input type="checkbox"/> Changes to the structure of the river channel, flow or bankside vegetation, as a result of flood-control measures. 	None known	<ul style="list-style-type: none"> <input type="checkbox"/> Appropriate Assessment of Policies and Objectives that may result in alteration of riverside vegetation. <input type="checkbox"/> Appropriate Assessment of Policies and Objectives that may result in deterioration in water quality. 	<ul style="list-style-type: none"> <input type="checkbox"/> Amendments to Objectives TAC1 and TAC2; and to Policy TAC1-1 of Section 11.0; and to Policies T5 and T8 of Section 4.0 of the Town Plan.

6 REQUIRED ACTIONS FROM THE ORIGINAL APPROPRIATE ASSESSMENT OF THE DRAFT TOWN PLAN AND DETAILS OF SUBSEQUENT AMENDMENTS

As a result of this Appropriate Assessment, the following amendments should be made to the Policies and Objectives of Volume 2 of the Town Plan, in order to mitigate and avoid potential negative impacts on the conservation objectives of, *Blackwater River (Cork / Waterford)* cSAC.

6.1 SECTION 4.0 'TRAFFIC AND MOVEMENT'

The original AA Report (RPS, 2008) required that Objective T8 should be amended to read as follows:

"Subject to Appropriate Assessment of the potential for impacts on the *Blackwater River (Cork / Waterford)* cSAC under Article 6 of the EU Habitats Directive, facilitate a new extension of the Park Road to link with the N20 and ultimately the N72."

In the 'Proposed Material Amendments' and subsequently, Objective T8 has been amended to read:

"Facilitate a new extension of the Park Road to link with the N20 and ultimately onto Navigation Road westwards subject to the relevant assessment."

Policy T5 should be amended to read as follows:

"Subject to Appropriate Assessment of the potential for impacts on the *Blackwater River (Cork / Waterford)* cSAC under Article 6 of the EU Habitats Directive, the provision of a new combined pedestrian/cycle route across the River Blackwater connecting with the townpark / Park road and Mill Street area shall be required through private led development(s) within the town centre expansion quarter."

6.2 SECTION 11.0 'TOURISM ARTS AND CULTURE'

Objective TAC-1 should be amended to read as follows:

"In consultation with NPWS and SWRFB, provide a slipway and fishing stands at suitable locations on the River Blackwater to facilitate boating and fishing within the town."

Objective TAC-2 should be amended to read as follows:

"Subject to Appropriate Assessment of the potential for impacts on the *Blackwater River (Cork / Waterford)* cSAC under Article 6 of the EU Habitats Directive, provide a pedestrian trail along the northern and southern banks of the River Blackwater and facilitate implementation of the identified heritage trails on the tourism arts and culture spatial plan."

In the 'Proposed Material Amendments' and subsequently, Objective TAC-2 has been amended to read:

"Provide a pedestrian trail along the northern and southern banks of the River Blackwater and facilitate implementation of the identified heritage trails on the tourism arts and culture spatial plan subject to the appropriate level of assessment."

Policy TAC1-1 should be amended to read as follows:

“The development of tourist facilities on lands by the banks of the River Blackwater shall be linked to the leisure and recreational development of the riverside area. The risk of flooding along the banks of the river, however, has the effect of substantially restricting development to water based sports such as fishing; and the designation of the river and the banks within the *Blackwater River (Cork / Waterford)* cSAC imposes additional restrictions on development.”

REFERENCES

RPS (2008). Appropriate Assessment of the Potential for Mallow Town Development Plan 2010 – 2016 to Negatively Impact Upon the Conservation Objectives of Natura 2000 Sites. RPS Group (Cork).