



M11 Gorey to Enniscorthy Scheme

Environmental Impact Statement

Volume 3

Appendices

Note on Stage of Design

The consideration and assessment of likely significant effects/impacts and the measures envisaged to avoid, reduce and where possible remedy significant adverse effects/impacts [mitigation measures] are based on the preliminary design of the scheme as detailed in this Environmental Impact Statement.

The preliminary design and the environmental mitigation measures will be further progressed and refined during the detailed design of the scheme, including the mitigation measures contained in such Approval as may be granted.

The detailed design will seek to develop the preliminary design in a manner such that there is no material change in terms of significant adverse effect on the environment. Opportunities may be identified to further reduce the significance of adverse effect/impact and, in some cases, improve the residual effect/impact.

M11 Gorey to Enniscorthy Scheme

ENVIRONMENTAL IMPACT STATEMENT

VOLUME 3 APPENDICES

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M11 Gorey to Enniscorthy Scheme

Environmental Impact Statement

Appendix 1.1

M11 Gorey to Enniscorthy Scheme Scoping Report
for an Environmental Impact Statement 30th March 2009

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M11 Gorey to Enniscorthy Scheme

Scoping Report for an Environmental Impact Statement

30th March 2009

Issue/revision	Final		
Remarks			
Date	30 th March 2009		
Prepared by	Aebhin Cawley		
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1.0 INTRODUCTION

Wexford County Council (WCC), in association with the National Roads Authority (NRA), proposes to realign the N11 between Clogh (south of Gorey) and Oilgate (south of Enniscorthy) in County Wexford as part of the N11 Strategic Corridor Upgrade Scheme between Dublin and Wexford.

The scheme is referred to as the M11 Gorey to Enniscorthy Scheme (or the Proposed Scheme).

The current proposal for the Proposed Scheme, which is being progressed towards submission to An Bord Pleanála for development consent, comprises the provision of :- approximately 27 km of motorway / dual carriageway to the east of the existing N11, which will bypass Camolin, Ferns and Enniscorthy (referred to as the M11 / N11 Mainline); approximately 4 km N80 link road that will connect the proposed M11 Mainline to the existing N11 / N80 junction in Clavass (referred to as the N80 Link Road); and approximately 8 km of single carriageway to bypass Enniscorthy to the west by linking the existing N11 to the existing N30 (referred to as the N30 Mainline). The location of the Proposed Scheme is shown on Drawing No.1942/EIASR/001.

This document outlines details of the Proposed Scheme as developed to date, work already undertaken, and any information known on the condition of the subject lands. The Proposed Scheme may be subject to change as design development progresses to take account of information arising from further engineering and environmental studies. In doing so, this report identifies the known likely significant environmental impacts (direct, indirect, cumulative and interactive), both positive and negative, associated with the Proposed Scheme. Based upon the identification of likely impacts; the direction, extent, emphasis and level of detail of each aspect of the Environmental Impact Assessment (EIA), often referred to as the “scope” of the EIA has been devised by the EIA team, Wexford County Council, the NRA and other consultees.

This Scoping Report is being circulated to the consultees listed in Section 3.4 at the end of this report as part of an informal scoping process.

1.1 EIA Screening – the Need for an EIA

The requirements for carrying out an EIA of a road scheme is set out in Article 8 of the *Roads Regulations 1994* (Road development prescribed for the purposes of Section 50 (1) (a) and (b) of the 1993 Act - as amended by the Roads Act 2007) and Article 24 (Specified development) of the *European Communities (Environmental Impact Assessment) Regulations, 1989 (S.I. No. 349 of 1989)*.

Comprising four lanes over a stretch of 31km (M11 / N11 Mainline and N80 Link Road) plus a further 8km stretch of two lanes and with a bridge potentially greater than 100m in length, the Proposed Scheme exceeds the threshold limit for requiring an EIA of:

Construction of a new road of four or more lanes, or the realignment or widening of an existing road so as to provide four or more lanes, where such new, realigned or widened road would be 8 km or more in length in a rural area or 500m or more in length in an urban area;

and

Construction of a new bridge or tunnel which would be 100m or

more in length.

and as such an EIA for the Proposed Scheme is mandatory.

1.2 EIA Contributors and Experts

The preparation of the EIA will be project managed by Ryan Hanley WSP (RHWSP), *Consulting Engineers*, and co-ordinated by Scott Cawley, *Environmental Consultants*, on behalf of Wexford County Council. Specialist input will be provided by those listed in the table below.

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Specialist Consultants	EIS Contributions
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1.3 Rationale for the Proposed Scheme

The N11 National Primary route is an important link in the South Eastern Region connecting Wexford to Dublin via Enniscorthy and Gorey. This road forms part of the strategic Euroroute E01 linking the ports of Rosslare in Wexford to Larne in Belfast. The N11 Arklow / Gorey Bypass was opened to traffic in September 2007 and Wexford County Council and the NRA are now progressing the next stage to provide the continuation of this route from Gorey to Enniscorthy.

The NRA published the National Road Needs Study in 1998. This document outlines the development needs of the network of National Roads for the period 2000-2019. The study recommended a number of works on the N11 as part of the N11 strategic route upgrade between Dublin and Wexford. Major improvements of the N11 will cater for existing and future predicted traffic. The Proposed Scheme will contribute to development of the link to the Dublin Gateway, hub link to Wexford, and also improve accessibility to the strategic eastern corridor of Dublin, Wexford and Rosslare Europort. The N25 links to the N11, which is the main route from the South East to Dublin. Both the N11 and N25 form part of the developing Euroroutes E01 (Larne-Belfast-Dublin-Rosslare Europort) and E30 (Rosslare Europort – Wexford - New Ross-Waterford-Cork) respectively. These contribute to Wexford's accessibility from both the north and south of the country.

Significant investment funds will be made available through the National Development Plan 2007 - 2013 for national roads development with an emphasis on the completion of the Trans-European Networks (TENS1) and major inter urban routes. A number of major projects are identified for County Wexford including further major improvements on National Primary Routes including the N11 Wexford / Dublin (Euroroute E01).

The N11 improvements are needed, as noted in the submission to the National Development Plan by the South East Regional Authority, and in the Wexford County Council submission, to complete this strategic corridor route to Dublin and Belfast. Having regard to existing major road infrastructural needs and the Government's Transport 21 Plan, Wexford County Council recognises the strategic role of roads. Investment in road development will continue to be a priority as part of the Wexford County Development Plan (2007-2013), which is consistent with the National Development Plan (2007-2013) (NDP).

The current and continuing investment in Ireland's road and public transport systems under the NDP will enhance potential for achieving more balanced regional development, as required by the National Spatial Strategy (NSS). To further enhance this potential in the future on an all-island basis, the NSS recognises that more emphasis will need to be placed on developing an improved network of road and public transport linkages.

The completion of the radial routes to and from Dublin (of which the M11 Gorey to Enniscorthy Scheme is a major part), will be required to achieve this. As such one of the key recommendations in the NSS is that the national spatial structure be supported by a national transport framework, providing an improved network of roads and public transport services, enhancing access and connections throughout the country. The N11 Dublin to Wexford route is identified in the NSS as a Strategic Radial Corridor, which through NDP funding should be improved to provide good quality road and public transport connections between Dublin and the South East.

The South East Regional Authority Planning Guidelines translates national policy laid out in the National Spatial Strategy to a regional level. These Guidelines

state:

To achieve balanced regional development, the Gateway, Hubs and County Towns will require an improved level of physical connectivity. Also, the region will need to ensure that strategic national transportation corridors passing through it are developed to facilitate linkages between the region and the rest of the country. The key Strategic Goal in this regard is to progress towards an accessible region with efficient and fully integrated transport systems.

The Wexford County Development Plan 2007-2013 recognises that it is a specific objective of the overall National Roads development programme to improve the N11, which this M11 Gorey to Enniscorthy Scheme will assist in delivering, together with the N11 Arklow / Gorey Bypass which is now complete.

The Enniscorthy Town and Environs Development Plan 2008 – 2014 recognises the importance of improving the standard of transportation infrastructure in Enniscorthy. The provision of good quality infrastructure is essential to the economic, social and cultural development of the town. The plan states that patterns of economic growth, which can be achieved with maximum transport efficiency and the least possible environmental impact should be encouraged through planning policies.

The designation of Enniscorthy as a Moderate Growth Town within the South East Region necessitates the improvement of links to and from Enniscorthy for all trip purposes by all modes of transport. It is vital that links with Dublin, Waterford and Wexford and surrounding areas are maximised not only to attract business development into the town but also to provide for leisure and other trips to and from the surrounding area.

Enniscorthy, at present is bisected by the N11 (Euroroute E01) and as a result suffers from the effects of increased traffic flows. When the Proposed scheme is opened (anticipated opening date of 2013), it is envisaged that the flow of traffic in the town will substantially reduce. This is particularly true of through-traffic which has no destination in the town and is currently a major contributor to congestion and the degradation of environmental amenity in the town.

An improvement in the environmental quality of the town is also dependent on the reorganisation of the town's system of traffic circulation. The Enniscorthy Town and Environs Development Plan 2008 – 2014 notes that car usage should be reduced through the promotion of other modes of transport, such as cycling, walking and public transport in planning and transport policies.

Some of the specific objectives within the Enniscorthy Town and Environs Development Plan 2008 – 2014 include:

To integrate land use and transportation to ensure that, in the future, travel to and within Enniscorthy is carried out using the most convenient and appropriate modes of travel.

To minimise car access and direct through traffic in the town centre by the development of key road links.

To maximise pedestrian and cycle movements between residential areas, the town centre, schools, industrial estate and the railway station.

To support delivery of the Enniscorthy By-pass (Objective T1)

Improved N11 infrastructure, in particular for Enniscorthy, Ferns and Camolin, will directly reduce travel time on this route, reduce congestion and travel time within the towns and in general lower travel costs, for public and private operators. Road investment benefits private and public users and any road improvement scheme has the potential to complement road public transport. Completion of this M11 Gorey to Enniscorthy Scheme, which will include the bypassing of Camolin, Ferns and Enniscorthy, will aid the development of an efficient strategic transport and communication system facilitating the movement of people, goods and services that is essential to the future economic and social development of County Wexford.

The proposed bypassing of Enniscorthy town will be of particular significance and benefit. Enniscorthy town and its environs have a population of approximately 9,538 which is predicted to rise to 13,520 by 2011 and to 15,718 by 2016. The environs of Enniscorthy have a further population of approximately 31,797 as the town provides services for a large hinterland.

Traffic information available to the EIA team, indicates that the existing N11 route through Enniscorthy Town is deficient. Traffic congestion affects the town centre through inconvenience, delay and reduced safety in addition to the environmental impacts of heavy traffic in a confined area.

On a national level, a high percentage of through traffic is travelling on business and consequently time delays translate to financial losses. The Proposed Scheme was initially proposed and examined:

- because of deficiencies in the existing road network from the point of view of capacity, safety and pavement strength;
- to remove strategic national / through traffic from the town with consequential environmental benefits;
- to have a modern transport network in order to facilitate continued economic development of the area;
- because a properly designed scheme will, of its own accord, have a positive net benefit to the economy in terms of savings on time, fuel and improved safety; and
- because, on the social and community front, the reduction in traffic volumes through the centre of Enniscorthy Town will enhance the quality of urban life.

The completion of the M11 Gorey to Enniscorthy Scheme will offer benefits to both the road user and local community as follows:

- remove through traffic, including heavy commercial vehicles from Enniscorthy Town;
- reduce journey times and improve road safety for traffic travelling along the N11 and N30; and
- reduce congestion, thereby improving the environment of Enniscorthy Town.

The national routes (N11, N30 and N80) account for by far the greatest proportion of accidents in the area with far fewer accidents recorded on smaller routes. This can be attributed to the greater number, and higher speed of vehicles on national routes. Road Traffic Accident data available for the period between 1996 – 2004 indicates a dispersion of accidents of varying severity along the existing N11 between Clogh (south of Gorey) and Scurlocksbush (south of Enniscorthy). The majority of accidents recorded involved minor injury, however the section of the N11 between Camolin and Enniscorthy shows a higher degree of serious injury and fatal accidents than the section of the N11 south of Enniscorthy to

Scurlocksbush.

Enniscorthy town centre has a high tendency for accidents with the majority being accidents resulting in minor injury. However, serious injury accidents have also been recorded.

The Ferns Urban Area is another location with a high tendency for accidents with a fatal accident within the town and approximately four fatalities on the southern approach to Ferns along the N11. Five serious accidents have been recorded along the non-national routes approaching Ferns.

Based on the information available, the severity of accidents on the N30 is less than that on the N11 with minor and serious injury accidents being recorded in lesser numbers.

2.0 DESCRIPTION OF THE PROPOSED SCHEME

2.1 Proposed Scheme Background

Ryan Hanley WSP was awarded contracts to progress the Proposed Scheme in various stages from Phase 2 through to Phase 4 (Constraints Study, Route Selection, and Preliminary Design, EIA and Land Acquisition Procedures) as per the *Project Management Guidelines* (NRA, 2000).

The route selection process for the Proposed Scheme commenced with investigating potential routes to bypass Enniscorthy, which was referred to as the N11 Enniscorthy Bypass Scheme. Subsequently, potential routes to connect this Enniscorthy Bypass to the N11 Gorey Arklow Bypass were investigated, which was referred to as the N11 Clogh to Enniscorthy Scheme.

An EIS is being prepared for the M11 Gorey to Enniscorthy Scheme, referred to in this document as the Proposed Scheme.

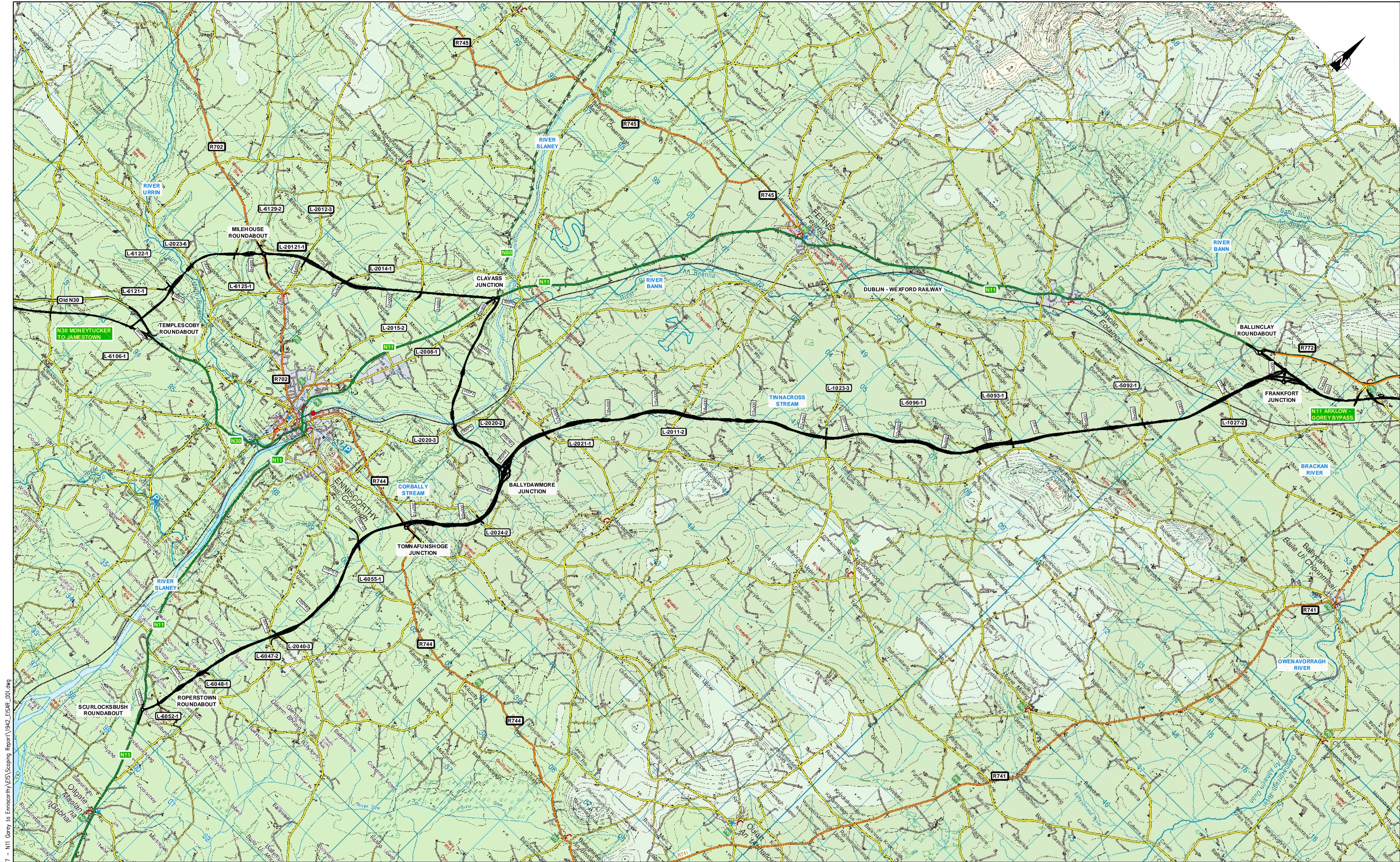
The N11 Enniscorthy Bypass Constraints Study Report was produced in 2001 and at the public consultation four route corridor options were proposed and presented to the public in April and May of 2001. These route corridor options were referred to as the Blue, Green, Gold and Red Routes. As the Route Selection phase progressed it became clear that no single route corridor seemed to fulfil all the project criteria and so a fifth route corridor was developed to cater for dominant traffic movements and arising ecological constraints. This fifth route corridor was called the Purple Route and was presented at the Preferred Route Public Consultation (May 2002). The Purple Route is a combination of sections of the Green, Gold and Red Routes. The Purple Route emerged as the Preferred Route corridor option on the basis that it was the most preferable from a traffic, engineering and economic perspective and was the second most preferable from an environmental perspective.

The N11 Clogh to Enniscorthy Constraints Study Report was produced in August 2007 and following on from public consultation, seven route corridor options were proposed and presented to the public in February 2008.

When identifying route corridor options for the N11 Clogh to Enniscorthy Scheme one of the major influences was where the proposed route corridors would tie back into the national road network. At the northern end the route corridor options needed to tie into the completed N11 Arklow / Gorey Bypass, at a geometrically appropriate point that would vary depending on whether the options passed to the west or the east of the existing N11. At the southern end the Preferred Route for the proposed N11 Enniscorthy Bypass needed to be taken into account. The southern terminal point for the N11 Clogh to Enniscorthy Scheme was located at the proposed Tomnafunshoge Junction, where the proposed Enniscorthy N11 Eastern Bypass connects to the R744 Enniscorthy to Blackwater Regional Road approximately 3km east of Enniscorthy. This terminal point was used as a common base point for all seven of the route corridor options.

Initially six route corridor options were identified and are referred to as Orange, Magenta, Gold, Red, Cyan and Yellow Routes. As the Route Selection phase progressed it was decided to add a seventh route corridor option referred to as the Blue Route to attempt to avoid some identified environmental impacts through this additional route option.

2.1.1 Environmental Considerations of the Proposed Scheme



ORIGINAL SIZE A1
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14/04/2007 10:00:00



progress in motion



National Development Plan 2007-2013



Department of Transport



National Roads Authority
An tÚdarás um Doiteir Náisiúnta



WEXFORD COUNTY COUNCIL
County Hall
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Rev	By	Date	Description

Project: N11 Gorey to Enniscorthy Realignment Scheme

Component: ENVIRONMENTAL IMPACT ASSESSMENT - SCOPING REPORT

Title: SCHEME LOCATION & LAYOUT

Designed: TD	Date: 08-01-2009	File Name: 1942_EIASR_001	Drawing No:
Drawn: TD	Date: 09-01-2009	Original Scale: 1:35,000 @ A1	1942/EIASR/001
Checked: TD	Date: 08-01-2009	Date: 08-01-2009	

The Constraints and Route Selection Reports identified the principal environmental constraints within the study areas for the Proposed Scheme and along each of the route corridor options considered. Those relating to what is now the Proposed Scheme are summarised below.

Agriculture

The land quality in the general area is considered good with the land undulating ranging in height from less than 100 meters to 200 meters above sea level. Agriculture in this area is intensive in nature due to the relative high quality of the soil type with tillage, horticultural and livestock enterprises present.

County Wexford has a total Utilisable Agricultural Area (U.A.A.) of 184,584 hectares (CSO Census of Agriculture, June 2000). This represents approximately 4.3% of the national agricultural land area. There are 4,613 farms in County Wexford with the average farm size in the county being 40.16 hectares. This is substantially higher than the national average farm size of 33.2 hectares.

Grassland based livestock farming is particularly important in County Wexford. The predominant farm enterprise is specialist dairy with mixed grazing livestock, beef, sheep and tillage also being important. The majority of the farmland in the area in question is in tillage and grassland. Forestry and a number of horticultural enterprises are also located within the area.

The area is typical of farming in Wexford in terms of cropping and of the various EU support schemes available to farmers. The level of uptake of the Rural Environmental Protection Scheme, a scheme designed to protect the environment, is approximately 31% of the farmers of this area compared to the national uptake of 32%¹.

The Proposed Scheme has emerged from the various route corridor options on the basis of achieving, insofar as possible, a balance between route length, landtake area, number of landowners affected and degree of land severance caused. Nonetheless it is inevitable on a road scheme of this nature that impacts on landowners will arise and these will need to be thoroughly investigated and assessed at EIA stage with appropriate mitigation measures proposed where necessary.

Socio-Economic Issues

The key urban centres include Enniscorthy, Ferns and Camolin. A key component of the settlement strategy in the County Wexford Development Plan 2007 – 2013 is to encourage population growth to locate in existing towns and villages that have the necessary social, community and physical infrastructure.

The settlement strategy is divided into a number of hierarchical layers that have been chosen to reinforce the policy objectives of the National Spatial Strategy. Enniscorthy town is designated as a Secondary Growth Area which will attract investment and employment activities additional to those that need to be located near the Wexford Hub and the Waterford Gateway. The plan envisages a high level of employment activity, high order shopping and a full range of social and educational facilities so that Enniscorthy should be self sufficient and not develop into a dormer town for Wexford town.

¹ Department of Agriculture REPS Facts and Figures 2007

The villages of Ferns and Camolin are identified in the county development plan as Strategic Growth Areas being villages with good quality road and rail transport links which will underpin future development in these settlements. In addition to good transport links these settlements also provide good infrastructural facilities and services combined with a good population base to maintain them. Wexford County Council has set an objective in their new strategy period (2007-2013) to prepare Local Area Plans for Camolin and Ferns.

The Wexford County Development Plan 2007 – 2013 settlement strategy recognises Enniscorthy as an important urban centre in County Wexford providing a range of services and opportunities for employment whilst the smaller towns and villages like Ferns and Camolin will act as a focus for social and economic activity. Enniscorthy provides a strong supporting role to Ferns and Camolin providing employment opportunities within commuting distance of these settlement areas. The provision of good quality infrastructure is essential to the economic, social and cultural development of these towns. It is vital that links from Enniscorthy to Dublin, Waterford, Wexford and Rosslare Europort and surrounding areas are maximised not only to attract business development into the area but also to provide for leisure and other trips to and from the surrounding area. The provision of good quality access and minimising severance to Ferns and Camolin are likewise essential factors supporting the employment and economic growth of these urban centres.

Wexford has historically had a very high dependence on the agricultural sector, which has experienced increasingly difficult economic conditions in more recent times. Industrial employment is concentrated in traditional sectors, such as metals and engineering, where productivity growth is weak. Manufacturing industries have shown a decrease in the percentages employed over the years which has resulted in the closure of several manufacturing companies within the County, especially within the Enniscorthy and Wexford town areas. In contrast there has been a rise in employment in the commercial, financial and professional services which is now the largest employment sector accounting for 24% of the County's employment. The building and construction sectors have also performed well in recent years accounting for 13% of employment although employment in this area is likely to have declined given the recent economic downturn in this sector.

In 2002 the unemployment rate for County Wexford was 10.5%. This was higher than the unemployment rate for the state, which was 8.8%. The majority of employment in Wexford was formerly heavily concentrated in the agriculture sector. In 1986 the agriculture sector represented 24.8% of all employment. By 2002 this figure had declined to 10.5% of total employment. In relation to the rest of the state there is still a comparatively large proportion of people employed in the agriculture sector and the agriculture sector is likely to remain an important aspect of Wexford's employment profile into the future.

The selection of the alignment of the Proposed Scheme from a socio-economic perspective took into consideration criteria such as scheme length, the number of road crossings and closings, and the impact on community facilities.

In general, a shorter route length is desirable as benefits to a community are shorter journey times with reduced transport costs. Shorter routes normally have lower construction related impacts which is preferable for minimising nuisance effects on local communities and residents.

The underlying principle in selecting the Proposed Scheme was to seek to maximise the likely socio-economic benefits of the scheme for the community while at the same time minimising negative socio-economic impacts for the

various communities along each of the route corridor options. It is anticipated that the Proposed Scheme will bring significant benefits in terms of traffic relief in the main urban centres of Enniscorthy, Ferns and Camolin and significant economic benefits to the region in terms of improved access and transport infrastructure. However it is inevitable that a road scheme such as this would have potential to impact on the local community for example through construction related disturbance or road closure and access issues. All of these potential impacts will need to be fully identified and assessed at EIA stage.

Archaeological, Architectural and Cultural Heritage Constraints

The Constraints Study and Route Selection assessments found that there is a large archaeological resource within the area and a substantial amount of built heritage sites. The assessments identified in excess of 150 Recorded and Protected Monuments (RMPs) within the study area illustrating the importance and often unique historical identity that the area possesses. As with most riverine areas there is a high frequency of sites of varying dates along the banks of both the River Bann and the River Slaney indicating a continuance of activity and settlement in the region. A substantial number of these sites can be ascribed to the early medieval period, with ringforts, enclosures and early ecclesiastical sites dominating, equally there is an abundance of Anglo-Norman moated sites indicating a steady continuance of settlement despite the changes in the political and demographic make-up of the area.

Several of the sites located within the area are of national importance as well as local. These have been recognised with the designation of National Monument status and consist of a complex at Ferns (WCC0778), comprising a Cathedral (WX015-003), an Augustinian Monastery (WX015-003), St. Peters church (WX015-003) and several crosses and the Barrow at Loftushall in Ferns (WCC0767).

Previously unrecorded archaeological sites have also added historical character to the study area, and a Survey of the Excavations Bulletin revealed the nature of some of the recent excavations that have taken place, most of which have been undertaken in and around the town of Ferns. Furthermore chance finds and early excavations within the area have contributed more to the prehistoric character of the area.

The Proposed Scheme is located within the rich fertile landscape of the River Bann and River Slaney valleys that proved desirable areas to settle. When compared to the relative lack of Neolithic Megaliths, the abundance of Bronze Age burials may indicate an increase in settlement and affluence at this time. The multitude of cist burials and cremated remains, often with grave goods, discovered in this area testifies to a continuity of activity throughout the Bronze Age period.

An analysis of the built heritage within the area revealed the presence of a substantial number of vernacular structures, bridges and country houses belonging to the later years of the post medieval period. Structures that are architecturally and socially important, such as these, are listed as protected within the development plan for County Wexford. These receive statutory protection that helps to ensure their preservation for the future. There are various individual and groups of Recorded and Protected Structures within the study area, broadly dominated by bridges and country houses.

The Proposed Scheme has potential to impact on this rich archaeological resource and a careful and detailed assessment of this will need to be made at EIA stage. In general, the range of site types is relatively typical of the region as

a whole although one site was deemed to have additional importance as it is considered a rarity and a cluster of sites at Solsborough, including Solsborough House have some historical associations. Two sites of built heritage of note include the Ballymore School House in Ballymore and Rockspring Lodge at Rockspring and a holy spring at Mountgeorge is also of interest.

Any potential to impact on these identified features of interest, as well as a range of other identified features of archaeological interest which have been identified, will need to be carefully considered at EIA stage. Appropriate mitigation measures will need to be developed where necessary to reduce impacts.

Landscape

The undulating and broad river valley landscapes of the River Slaney and River Bann dominate most of the study area. The lands to the north west of the River Bann valley rise steeply and appear as foothills towards the Blackstairs Mountains.

The lands to the south-east of the River Bann consist of rolling farmland, and include one significant area of higher ground at Carrigroe Hill. A dramatic backdrop to the area is provided by the Blackstairs Mountains to the north and by Carrigroe Hill and Oulert Hill to the east. Long distance views to these features from within the study area lend a sense of wide scale to the landscape.

The agricultural fields within the area are medium to large in scale and are enclosed by hedgerows which are either low or in places are overgrown and punctuated with numerous mature trees. These hedgerows in combination with belts and blocks of large areas of woodland give localised sense of enclosure within the landscape.

Other significant features within the landscape include; the N11 Road, the Dublin to Rosslare railway line, electricity pylons and numerous one-off housing and farm outbuildings within the rural areas.

Outside of the N11 corridor and settlements of Enniscorthy, Camolin and Ferns, the majority of the landscape within the area is tranquil and is perceived as peaceful.

The Wexford County Development Plan 2007-13 Landscape Character Assessment divides the lands within the area into two general areas Upland and Lowland respectively and further classifies distinct character sub-areas within these two general areas.

The Uplands Character Area is divided into one sub-area known as Policy Area 1: Uplands. The Landscape Character Assessment for the Wexford County Development Plan 2007-2013 gives no specific description for Policy Area 1.

The Lowlands Character Area within the area is divided into three sub-areas which are described as follows - "The lowlands character area contains predominately fertile lands with high levels of population and intensive land management (agriculture). The slope and topography in the area occurs in a shallow / gradual transition. Agricultural lands tend to be characterised by extensive views across large fields as a result of the generally low trimmed hedges. This character in it may be generally classified as robust to normal; however sensitive areas of landscape factors can be found at specific locations."

Features within the area which fall into these categories include Carrigroe Hill which on account of its high elevation visually dominates the local countryside,

and the River Slaney Valley landscape which is highly scenic due to a combination of farmland, woodland, pasture and rolling topography. Other areas are predominately fertile lands with high levels of population and intensive land management (agriculture). These lands tend to be characterised by extensive views across large fields as a result of the generally low trimmed hedges.

The Wexford County Development Plan 2007-2013 Landscape Character Assessment includes the following Policy Objectives for the Lowland Character Areas;

- Recognise that these areas are made up of a variety of working landscapes and contain the vast proportion of the County's population within principle towns and on rural holdings. These also incorporate all of the major national primary and regional roads, and railways;
- Continue to permit development that can utilise existing infrastructure, whilst taking account of absorption opportunities provided by the landscape and prevailing vegetation.
- Encourage development that will not unduly result in detrimental impacts on the landscape at a local or micro level as viewed from areas of the public realm;
- Continue to facilitate appropriate development in a progressive manner that respects the scale, character and sensitivities of the landscape;
- Recognise that in this low lying open environment, tall and bulky development sometimes can have a disproportionate impact against the landscape particularly when viewed from the predominately low lying areas of the public realm; and
- Encourage development that will not have a disproportionate effect on the existing character of the landscape in terms of location, design and visual prominence.

The Proposed Scheme has been selected to minimise potential for landscape and visual impacts. For example a significant benefit of the alignment of the Proposed Scheme was the avoidance of a crossing of the River Slaney at an area that is designated as 'sensitive landscape'.

The Constraints Study and Route Selection assessments have however identified potential for negative impacts associated with Carrigroe Hill which on account of its high elevation visually dominates the local countryside. It has been identified that the Proposed Scheme will travel through a quiet sensitive and tranquil rural landscape cross the entire Lowlands Character Area and will introduce significant lengths of new road through elevated and open landscape which will be visible from a wide area of landscape to the north west and south east, intruding negatively into views from a very large area of surrounding landscape, including Carrigroe Hill.

It should be noted at this point that in order to address this potential impact an alternative route corridor option in the area around Carrigroe Hill was assessed in an attempt to provide an option which met all of the other environmental preferences for low impacts while also achieving a lesser landscape and visual impact. This variation alignment however ranked poorly in many of the other environmental disciplines and consequently was dismissed as a viable option.

These potential landscape and visual impacts will need to be fully assessed at EIA stage and appropriate mitigation measures will need to be developed where necessary to reduce impacts.

Ecology

The ecological character of the area has been influenced by human settlement and agricultural patterns as well as by the watercourses in the area. The main watercourses include the Rivers Slaney, Bann, Urrin and Boro along with their many tributaries. These watercourses and their tributaries are generally considered to be of high ecological value and most are salmonid watercourses.

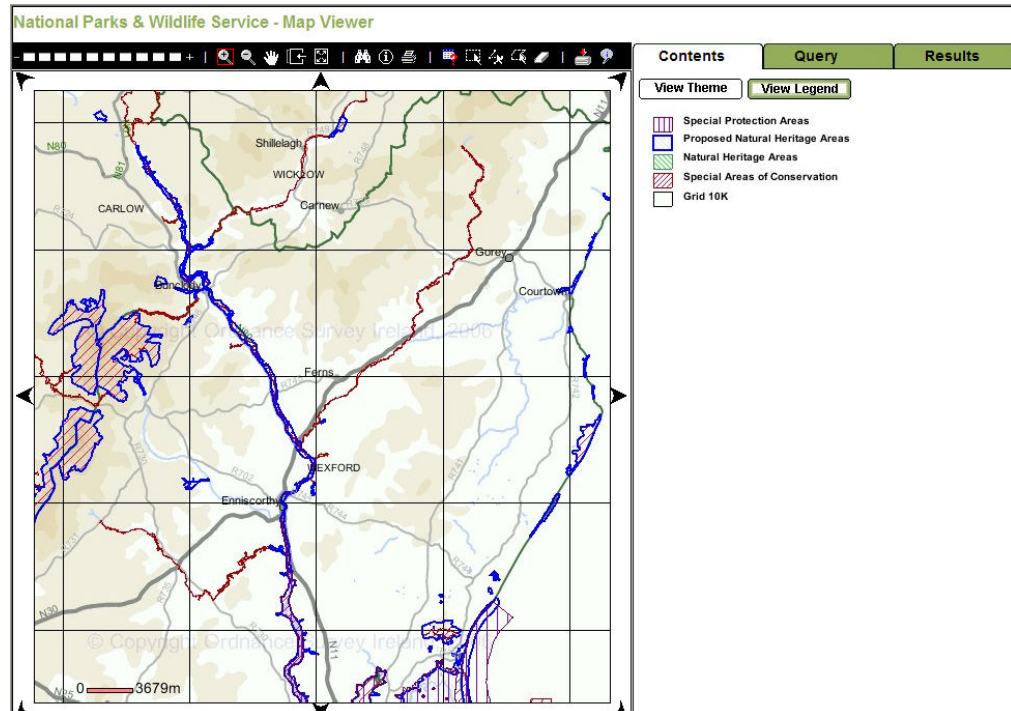
The area in question is generally characterised by undulating pasture and arable fields with boundaries defined by hedgerows, many of which are substantial with mature vegetation. There are a number of pockets of broadleaf woodland and a smaller number of conifer plantations. There are some avenues with mature trees associated with a number of old estates and demesnes in the area.

A number of areas designated for wildlife importance and conservation fall within the area and are illustrated on the map below. These include:

- The Slaney River Valley candidate Special Area of Conservation (cSAC) and proposed Natural Heritage Area (pNHA)
- The River Bann pNHA
- Clone Fox Wood pNHA
- Ballynabarney Wood pNHA
- Leskinfere Church pNHA

A number of records of protected flora exist within the general area. These include white dead-nettle (*Lamium album*), which is the only site in Ireland where this species is found, narrow leaved helleborine (*Cephalanthera longifolia*), lesser snapdragon (*Misopates orontium*), a starwort (*Callitriche truncata*) and opposite-leaved pondweed (*Groelandia densa*).

Fauna species either known or likely to occur in the area include pygmy shrew (*Sorex minutus*), hedgehog (*Erinaceus europaeus*), fox (*Vulpes vulpes*), rabbit (*Oryctolagus cuniculus*), wood mouse (*Apodemus sylvaticus*), Irish hare (*Lepus timidus hibernicus*), badgers (*Meles meles*), otter (*Lutra lutra*), common frog (*Rana temporaria*) as well as a number of bat species. Most of these species are offered protection under the *Wildlife (Amendment) Act 2000* and some are also afforded protection under the *EU Habitats Directive*.



(Taken from www.npws.ie)

The Leskinfere church in Clogh is designated as a pNHA for Natterers bat. This bat roost is unique in that it is one of the few bat roosts given a pNHA designation in Ireland due to its status as being of national significance. Bat Conservation Ireland (BCI), has records of Leisler's bats, soprano pipistrelle, common pipistrelles, Daubentons and unknown myotis species within the area. Recordings of Daubentons were made at the Scarawalsh Bridge north-east of Enniscorthy, and Margerrys Bridge approximately 4km north-west of Clogh. A number of additional bat roosts throughout the area were identified during Constraints and Route Selection Stages.

A range of bird species make use of the area and those of particular note include those likely to make use of the watercourses (swans, herons, kingfisher and dippers, moorhen, coot and a range of duck species) as well as buzzards, long eared owl and barn owl which are known to occur in the area. Yellowhammer is also known in the area.

The River Slaney and the River Bann are both designated cSAC rivers due to the presence of species protected under the EU Habitats Directive such as salmon (*Salmo salar*), river lamprey (*Lampetra planeri*), brook lamprey (*Lampetra planeri*), freshwater pearl mussel (*Margaritifera margaritifera*), and twaite shad (*Alosa fallax fallax*). Excellent stocks of brown trout and sea trout also occur in these rivers. The River Slaney is a designated river under the *European Communities (Quality of Salmonid Waters) Regulations 1978*, with the entire main channel of the river designated as a cSAC. The River Bann is one of the more important spawning / nursery areas for salmon on the Slaney system. The river's main channel from Pallis Bridge to its confluence with the Slaney is a cSAC because of its importance as a salmon spawning / nursery river. There are records of freshwater pearl mussel within the River Slaney with a small population of mussels recorded in the River Bann between Bann bridge to the railway bridge (Moorkens *et. al.* 2004). Such a small population of mussels in the River Bann makes this species vulnerable to expiration, particularly as the current water quality levels have unsustainable levels of phosphate and nitrate for this species.

One of the main ecological impacts identified for the Proposed Scheme is the proposed crossing of the River Slaney cSAC by the N80 Link Road. However the identification of the need for a clear span structure has already assisted in minimising the potential impact at this location. Construction related impacts will need to be minimised and carefully controlled. The proposed crossing of the River Urrin will similarly require careful mitigation.

The Eastern Regional Fisheries Board (ERFB) has expressed that their preferred option is for clear span bridges / culverts at any river / stream crossings in order to minimise the impact on the aquatic habitat. The ERFB also recommends the following: -

- In salmonid catchments, all in stream works should be carried out during the Annual Close season (timing to be agreed with the ERFB);
- In the event that these waters contain Lamprey it is necessary to contact National Parks and Wildlife Service for their requirements;
- No in stream works shall be carried out without the written approval of the ERFB. A method statement must be agreed well in advance;
- There must be no significant impacts on watercourses as a result of discharge of suspended solids or any other deleterious matter; and
- Fish passage conditions must be maintained at all times.

The severance of hedgerows and agricultural lands by the Proposed Scheme is likely to have impacts on the range of bird and mammal species present and impacts on these, especially badgers, otters and bats, will need to be fully

addressed at EIA stage. Areas which are either known or likely to support a range of species of interest along the Proposed Scheme include the demesnes, estates and lands of Solsborough, Ballycourcy, Ballynabarney and Rockspring.

All of these potential impacts will need to be carefully assessed at EIA stage with particular attention paid to any potential impacts on the designated sites and protected species which occur in the area. Where any such impacts are unavoidable appropriate mitigation measures will need to be recommended. Close consultation with the National Parks and Wildlife Service and the Eastern Regional Fisheries Board will be essential during EIA stage.

Soils and Geology

While the topography of the area is varied, it is characterised by an undulating topography. The area is bisected by two watercourses - the River Bann in the northern area which flows in the south westerly direction, and the River Slaney which flows from north to south.

The River Slaney valley floor is between 300m and 500m wide and the channel is flanked by floodplains composed of alluvial sediments. Either side of the valley floor the ground rises steeply from approximately 5mOD to between 30mOD and 50mOD. Sediments laid down during the Quaternary (the last 1.6 million years) cover the entire area. These sediments principally comprise Glacial Till and have given rise to the smooth local geomorphology of the study area. The valley floor of the River Slaney and River Bann are covered by Glacial Outwash sediments, some of which are overlain by recent Holocene (last 10,000 years) Alluvium characterised by flat areas on the valley floor.

The River Bann follows a north-east to south-west trending structural syncline, the Courtown-Tramore Fault (GSI 1994) which is at the contact of the Campile and Ballyhoge Formations rocks. The Campile Formation geology runs between the towns of Enniscorthy and Gorey and largely comprises later (or upper) Ordovician age rhyolitic volcanics with grey brown slates. Within the Campile Formation, there are likely to be many minor intrusions (dykes and sills), principally comprising felsic and intermediate acid volcanics, but with some Dolerite also. The volcanic rocks are described as being 'hard, very resistant' (GSI 1994).

To the south and east of the Campile formation, the bedrock geology predominantly comprises the early Ordovician age dark grey to black slaty mudstone of the Ballyhoge Formation. To the north and west of the Campile formation, the bedrock geology predominantly comprises early Ordovician age green, red-purple and/or buff coloured slate and siltstone of the Oaklands Formation.

There are few rock outcrops within the area as it is almost everywhere mantled by Glacial Till. The solid geology was only observed at a handful of locations within the area.

The subsoil deposits within the area comprise glacial till deposits with glacio-fluvial gravels and river alluvium along the River Slaney and River Bann. Alluvial deposits also occur along smaller river channels within the area. Elsewhere within the area, bedrock is close to (<1m) or outcrops at the surface.

The glacial till deposits in the area are principally derived from Shale and Sandstone bedrock, except for a small area in the north-east where Limestone glacial till derived from the Irish Sea Basin occurs. The limestone derived till is colloquially termed 'Macamore Clay' and was deposited during the last

(Midlandian) glaciation, whereas the shale and sandstone derived till is understood to have been deposited during the previous (Munsterian) glaciation.

The glacio-fluvial sand and gravel deposits along the Rivers Bann and Slaney were deposited by glacial meltwater at the end of the last glaciation as the Midlandian ice sheets retreated and form outwash kame and terrace landforms. The glacio-fluvial sand and gravel deposits have been worked in the past but only on a small scale.

Three significant Quaternary geomorphological features were identified in the area, an area of outwash sediments around Garr and Clough townlands, south west of Enniscorthy town, a meltwater channel at Corbally Bridge, 4km east of Enniscorthy town and a small glacial meltwater channel at Coolroe townland, 2km to the north-east of Ferns. The meltwater channel at Coolroe forms a narrow steep sided valley which is aligned in a north-west to south-east direction, is approximately 1.5km long and is between 20m and 30m at its deepest. The meltwater channel at Corbally Bridge forms a very significant geomorphological feature in the study area, and is occupied by a tributary of the River Slaney at the present day. At Corbally Bridge, the meltwater channel forms a gorge approximately 200m wide and 40m deep for a distance of approximately 750m. Upstream and downstream from the gorge, the valley floor is approximately 0.75km to 1km wide, with a local vertical relief of approximately 30m.

Superficial deposits in the area are generally considered to describe uncemented particulate soils and subsoil deposits which overly solid bedrock geology. These superficial deposits are termed Quaternary (subsoil) deposits and have generally been formed during the last 2 million years.

Two sites in the vicinity of Enniscorthy town, in Greenville and Kiltrea townlands, have been recommended for designation as Natural Heritage Areas on account of their potential value as a source of Precambrian to Devonian age palaeontology. The site at Greenville (NGR T 963 414) lies 1km north of Enniscorthy town. Dr Matthew Parkes of the Geological Survey of Ireland advises that a number of interesting Ordovician fossils have been located in Greenville and Moyne townlands and that fossils from these locations have been housed in the National Museum of Ireland and in the Geological Survey of Ireland. The site at Kiltrea townland (NGR T 919 405) is located further west. The Geological Survey of Ireland has requested notification of any significant rock exposures to be opened up during construction of the proposed of Enniscorthy, as they may reveal important new fossil finds.

Areas of soft ground conditions (apart from the river valley area) identified within the constraints stages are relatively small although it is probable that localised areas of soft clay and peat are also likely to be encountered. Backfilled streams, old millraces and areas of made ground may also be present. Therefore, the road design and construction may have to incorporate special measures to address the following issues:

- Potential instability of embankments founded on soft, relatively impermeable, cohesive soils;
- Long term settlement resulting from secondary consolidation (creep) effects within peat soils;
- Differential settlement resulting from a variable soil profile across and along the road alignment;
- Logistic and construction difficulties occurring during site operations;
- Any related environmental impacts; and
- Re-use of Materials (Superficial Deposits).

It is unlikely that any soft Alluvial / Estuarine silts or clays, peat or marl excavated in construction can be re-used in engineered fill structures (embankments etc) along the Proposed Scheme. However, it may be possible to re-use some of this material for landscaping purposes. It would be expected that a high proportion of the Glacial Till (Munsterian / Midlandian) excavated during construction can be re-used as an engineered fill to structures, though this will primarily be dependent on clay and moisture content of the clay at the time of excavation and placing.

Foundations for structures located over softer material, particularly over the Alluvial / Estuarine soils along the banks of the River Slaney and possibly the Rivers Bann, Boro and Urrin are likely to require piled foundations. In addition special measures to prevent excessive settlement / differential settlement or bearing capacity failure may be required at the transitions from piled structures onto approach embankments.

It is likely that a combination of excavation methods will be required using standard excavation plant or ripping techniques as well as hydraulic breaking or blasting for excavations in stronger, more competent volcanic rocks within the Campile Formation.

It is considered that conventional design methods can be adopted in designing pavements that run over granular glacial outwash sediments, glacial tills and bedrock. In areas of softer ground, particularly the Alluvial / Estuarine soils along the banks of the River Slaney, specialist measures are likely to be required for pavement design and construction. These could include, but are not limited to, excavation and replacement, surcharge and enhanced drainage, ground improvement (soil stabilisation or vibroreplacement) and structural support (i.e. piles). In assessing which of the above is the most appropriate solution, allowance will need to be made for variations in the composition and strength of the underlying softer material along and across the proposed road alignment.

The major impact of the road construction works will be the creation of spoil from the cutting excavations and the subsequent hauling and placing of the material generated at embankment locations. Design of the road profile will aim to have a balanced cut and fill volume with respect to re-useable material with haulage distances between cut and fill locations kept to a minimum.

All of the potential soils and geology related impacts will need to be carefully assessed at EIA stage with particular attention paid to any potential impacts on the two NHA sites. Consultation will need to take place with the Geological Survey of Ireland. Appropriate mitigation measures will need to be recommended to minimise construction related impacts.

Hydrology

The Proposed Scheme is within the catchment of the River Slaney, which dominates the hydrological environment of the area. There are three large tributaries that flow into the Slaney namely; the River Bann, the River Urrin and the River Boro.

The River Slaney is a tidal river and becomes the Slaney Estuary just downstream of Enniscorthy. At its mouth it is divided into the Upper Slaney Estuary and the Lower Slaney Estuary and it feeds into the Wexford Nature Reserve which is a Special Protection Area (SPA) designated under the EU Birds Directive (79/409/EEC) for the protection of certain species birds. The Slaney River Valley has also been designated a Special Area of Conservation (SAC) under the EU Habitats Directive (92/43/EEC) which lists priority habitats and species which must be conserved. Both of these sites are also designated

Natural Heritage Areas (NHAs). The Slaney is also designated under the European Communities (Quality of Salmonid Waters) Regulations 1988 (S.I. No. 293, 1988) and according to the Eastern Regional Fisheries Board is an important spring salmon and sea trout fishery.

The River Slaney is part of the South Eastern River Basin District (SERBD), which is one of the River Basin Districts formed as part of the implementation of the EU Water Framework Directive (2000/60/EC). The SERBD covers an area of approximately 14,000 km² (including coastal and transitional waters).

The River Slaney rises in the Lugnaquilla Mountains, flowing in a southerly direction through the towns of Tullow and Bunclody before reaching Enniscorthy. Just south of the town it becomes the Slaney Estuary (Upper and then Lower) and is tidal, flowing in a southerly direction through Wexford Town before discharging into Wexford Harbour.

The River Urrin rises on the southern slopes of Black Rock Mountain and flows in a south-easterly direction towards Enniscorthy Town. The River Slaney / River Urrin confluence is approximately 0.5km southwest of Enniscorthy Town.

The River Boro rises in the Blackstairs Mountains to the northwest of Enniscorthy and its confluence with the River Slaney is approximately 3km south of the town. Each of these rivers has minor tributaries which drain the surrounding area.

The River Bann rises in Croghan Mountain and flows from the north-east in a south-westerly direction through Hollyfort, Craanford, Camolin and Ferns until it merges with the River Slaney at Killabeg. The River Slaney / Bann confluence is approximately 4km upstream of Enniscorthy Town.

There are also a number of tributaries, which drain directly into the River Slaney and River Bann. These include:

- the Tinnacross Stream;
- the Corbally Stream;
- the Camolin Stream; and
- the Brackan River.

All of these, with the exception of the Brackan River, are located within the hydrometric area of the River Slaney. The Brackan River is within the catchment area for the Owenavorrhagh River.

Environmental Protection Agency (EPA) water quality data indicates that the Lower Slaney Estuary is currently classed as Potentially Eutrophic and the Upper Slaney Estuary is classed as Intermediate, i.e. between Unpolluted and Potentially Eutrophic. The most recent data available for the Slaney Estuary is from the 2005 report *Water Quality in Ireland Assessment*, which indicated that the Upper Slaney Estuary showed improvement between the monitoring periods 1995 – 1999 and 2000 – 2003, where the status changed from Eutrophic to Intermediate status. The Lower Slaney water quality improved from Eutrophic status to Potentially Eutrophic. This improvement was marked by a decrease in chlorophyll levels.

The EPA biological data indicates that the water quality in the River Bann, River Slaney, Camolin Stream, Corbally Stream, Tinnacross Stream and Brackan River is generally of good quality. In general, the water quality in these surface water bodies ranged from unpolluted to slightly polluted during the most recent sampling events in 2004 / 2005.

Historically, water quality was found to be moderately polluted during some of the

previous monitoring events at Milshoge Bridge, Bay Bridge, Doran's Bridge, upstream of the River Slaney confluence and Brackan River. The former three EPA monitoring stations are situated in the vicinity of an urban area (Camolin and Ferns). The slight previous deterioration of surface water quality, where encountered in the past, may be due to potentially contaminated runoff from urban areas such as car parks, agricultural runoff, sewage discharge to the surface water bodies and diffuse pollution from septic tanks.

Based on the EPA water quality data, surface water quality within the general area is considered to be of general good quality and would be susceptible to potential, adverse impacts that may be associated with the construction and operational phases of a new road. The construction and operational phases of the Proposed Scheme would have the potential to adversely impact on the water quality within streams and rivers that are traversed unless appropriate mitigation measures are implemented.

The high fisheries potential of the watercourses within the study area makes them sensitive to changes in pollution levels and liaison with the EPA and Eastern Regional Fisheries Board (ERFB) should take place to minimise the impact on the watercourses. Due to the substantial number of watercourses within the study area, a comprehensive assessment of the impacts on these including affected riparian zones will need to be undertaken at EIA stage. Specific assessment of the potential impact at specific crossing points when they are defined will be required. Appropriate mitigation will need to be devised in consultation with the ERFB.

There will be an increase in stormwater runoff due to the increased hardstanding as a result of the Proposed Scheme. This water will need to be controlled and adequately treated prior to discharge to the water catchment. During EIA stage particular attention will need to be paid to potential impacts of surface water runoff discharge on key spawning or angling segments.

Access to riverbanks for anglers and recreational purposes must be maintained or alternative arrangements made should sections be inaccessible during construction operations.

The EIA will need to assess in detail the potential impacts from the construction stage which will give rise to potential for run-off to be contaminated with hydrocarbons and silt. Measures will need to be devised to protect local watercourses from excess sediment loads and to reduce the risk of hydrocarbon contamination.

Water Supply

According to information available from Wexford County Council public water supply schemes are in place in Ferns and Camolin, and also Monagear and Scarawalsh.

The well card data supplied by the Geological Society of Ireland (GSI) indicates that a number of wells in the vicinity of Clogh, Camolin and Ferns are used for public water supply, agricultural or domestic use, which is likely to be attributable to the good water yields from wells in this area. A well at Camolin Park is used to supply industrial use and a well at Bolacheer near Ferns is used for a group water scheme.

With the exception of one groundwater well at Balloughter (used for public water supply) and one well at Bolacaheer (used for group water scheme), the remaining wells within the area, which are registered on the GSI well card

database, are mainly used for domestic or agricultural water supply.

It should be noted that the well use is not recorded, in general, by the GSI in the area around Enniscorthy (with the exception of one well in the townland of Blackstoops, which is used for agricultural / domestic purposes).

The information available on groundwater wells suggests that most of the water supply for residences within the area located outside of the towns / villages is via private bored wells as opposed to public water supply. Water supply within the towns and the immediately surrounding area is likely to be from public water supply schemes.

Where the Proposed Scheme is located within or next to areas where wells are used for public water supply schemes or domestic water supply, there is the potential that the construction phase could impact on the underlying and surrounding groundwater sources unless appropriate mitigation measures are implemented. This will need to be fully assessed at EIA stage.

The impact of the operational scheme on water supplies is considered to be minimal.

Flooding

Based on information from the Office of Public Works (OPW) National Flood Hazard database, flood hazards have been identified:

- to the south of Ferns on both sides of the River Bann;
- to the north of the existing N11 at Camolin Park;
- at the confluence of the River Bann and River Slaney; and
- where the River Slaney flows through Enniscorthy town.

In particular the lower lying areas close to the banks of the River Bann and River Slaney, would be considered susceptible to flooding in the event that the river would flood its banks.

As the Proposed Scheme will traverse the River Slaney and River Urrin, the risk of flooding in these areas will need to be assessed at EIA stage. Appropriate mitigation measures may be required, in order to minimise and help manage the risk of flooding at these or other vulnerable locations.

Hydrogeology

The Proposed Scheme falls within the catchment area for the River Bann and the River Slaney. Therefore, groundwater at the subject site is likely to be hydraulically connected to these rivers or their tributaries.

The direction of groundwater is likely to be influenced by the topography of the surrounding area with the discharge of groundwater to the River Bann and River Slaney, the most likely scenario.

The Aquifer Map of Ireland classifies the volcanic rocks of the Campile Formation around Enniscorthy to be designated as 'Major Aquifer'. The aquifer underlying the area is a bedrock aquifer and therefore the primary characteristic of this aquifer is defined by fissure permeability as opposed to intergranular permeability which would apply in the case of quaternary aquifer.

The bedrock geology of the site is quite complex, consisting of grey and brown slates of Late Ordovician age intruded by volcanics to the north of the Proposed

Scheme and dark grey slates of Early Ordovician age to the south of the Proposed Scheme, which are separated by a major fault system.

The Proposed Scheme is largely underlain by a Regionally Important Aquifer. The major bedrock aquifer underlying the section of the Proposed Scheme which bypasses Enniscorthy town to the west, as well as the section of the Proposed Scheme which bypasses Enniscorthy town to the north east, have been classified by the Geological Society of Ireland (GSI) as a Regionally Important Aquifer. Similarly a Regionally Important Aquifer is present within fissured bedrock to the north and, in particular, to the south of the River Bann.

A Poor Aquifer is located beyond the Regionally Important Aquifer further north of Enniscorthy, although this aquifer is not traversed by the Proposed Scheme. The primary characteristic of the bedrock aquifer is defined by fissure permeability, as opposed to intergranular permeability, which would apply in the case of a quaternary aquifer.

A Locally Important Aquifer, which is described as bedrock that is moderately productive only in local zones, is present in the northern section of the Proposed Scheme.

According to the GSI National Draft Generalised Bedrock Map, the Regionally Important Aquifer is underlain by Ordovician Volcanics with some intrusions of granites and other igneous rocks. The Locally Important Aquifer and the Poor Aquifer are underlain by Ordovician metasediments.

There are no gravel aquifers, nor any groundwater source protection zones within the general area nor along the area affected by the Proposed Scheme. Groundwater source protection zones are zones defined by the GSI within which development is limited in order to protect groundwater from potential pollution.

Reference to the GSI South-Eastern Interim Vulnerability data indicates that the aquifer vulnerability across the section of the scheme which bypasses Enniscorthy town to the east, is mainly classified as High to Low because only an interim study has taken place and this section of the site has not been sufficiently classified. Minor sections are classified as Extreme, in places due to the presence of rock near the surface.

For the section of the Proposed Scheme which bypasses Enniscorthy town to the west, the vulnerability of the aquifer beneath the majority of this area is classified as High to Low. However, up to 40% of the aquifer is classified as Extreme, mainly due to the presence of rock near the surface.

The aquifer vulnerability across the area in the vicinity of the River Bann and its confluence with the River Slaney, is classified as extreme (due to the presence of rock near the surface).

A number of wells fall within the area including around Clogh, Camolin and Ferns. There are groundwater wells at Balloughter, Camolin Park, in the townland of Blackstoops, north of Enniscorthy and at Bolacheer near Ferns. These wells are used for public water supply, agricultural or domestic use and have good yields. In the case of the well at Camolin Park this supply is for industrial use. The well at Bolacheer is used for a group water scheme.

Any impacts on the groundwater environment will need to be fully assessed at EIA stage.

Where groundwater sources and wells, which are used for public, domestic and

agricultural water supply, are affected by the construction and operation of the proposed road scheme, potential impacts should be minimised and appropriate mitigation measures implemented. Any impacts will need to be fully assessed at EIA stage with appropriate mitigation devised where necessary.

There is the potential for the construction and operational phases of the proposed road scheme to adversely impact (for example deterioration of the groundwater quality, alteration of groundwater flows and reduction in groundwater yields in down-gradient wells due to dewatering activities) on the underlying regionally important and locally important aquifers unless appropriate mitigation measures are implemented.

Appropriate mitigation measures must be implemented during the construction phase of the proposed road scheme in order to ensure that groundwater quality is not compromised during dewatering activities or by the spillage / leakage of chemicals, for example. This is particularly important for those areas where the groundwater vulnerability is high.

Any potential for impacts from the discharge of surface water runoff from roads to groundwater during the operation of the proposed road scheme needs to be assessed, in particular in areas where aquifer vulnerability is extreme or high. This impact would require mitigation in order to prevent the pollution of groundwater supplies in the area.

Air

The highest levels of air pollution are experienced along the existing N11 (including Enniscorthy, Ferns and Camolin), N30, R745 and R702 with the remainder of the area generally experiencing rural background concentrations of pollutants. There are clusters of new housing developments around Enniscorthy although the remainder of the study area contains houses sporadically distributed within the landscape. Those houses closest to the Proposed Scheme will be worst affected due to the current rural nature of the setting.

The most sensitive receptors within the area are located along the existing N11 and R745, in particular, clusters of residential housing around Enniscorthy as well as at Scarawalsh Bridge, Ferns, Broadford Bridge and Camolin. Additional sensitive receptors would include schools at Camolin and Ferns and Broadford Bridge and a number of schools, hospitals and churches in Enniscorthy.

The centres of Enniscorthy, Camolin and Ferns currently experience elevated pollution levels from traffic queuing on the existing N11 under congested traffic conditions. One of the functions of the Proposed Scheme will be to reduce traffic levels along the existing N11 and thus the Proposed Scheme will lead to an improvement in air quality at the sensitive locations of Enniscorthy, Ferns and Camolin. This is due to the redirection of through traffic from the existing N11 alignment to the Proposed Scheme bypassing these urban settlements. This will result in an improved environment for pedestrians, residents and other users of these urban centres.

Receptor locations in the remainder of the area are less sensitive to an increase in pollutant levels as they generally experience rural background levels of pollutants.

The most sensitive receptors with respect to air quality impacts on ecology in the area include

- The Slaney River Valley candidate Special Areas of Conservation (cSAC) which covers both the Rivers Slaney and Bann;

- The Slaney River Valley proposed Natural Heritage Area (pNHA) which covers the River Slaney only;
- Clone Fox Covert pNHA (which is also included within the Slaney River Valley cSAC designation);
- Ballynabarney Wood pNHA;
- Killoughrum Forest pNHA;
- Leskinfere Church pNHA; and
- Wexford slob and harbour cSAC and SPA which covers the River Slaney as far north as Enniscorthy.

The Proposed Scheme crosses the River Slaney and hence the first and second of those receptors listed above. The remainder will not be directly impacted on by the Proposed Scheme although they are listed as they fall within the general area and air quality impacts on them may need to be considered.

Assessment of air quality (particularly focusing on PM₁₀ and NO₂) at the most sensitive receptors in the area will need to be carried out at EIA stage. Should predicted air pollutant concentrations be close to their ambient limit values, then appropriate mitigation will need to be recommended.

Noise

The most sensitive receptors within the area are located along the existing N11 and regional roads including the R745. In particular, these include clusters of residential housing concentrated on roads approaching the towns of Enniscorthy, Ferns and Camolin as well as the smaller villages of Monageer, Balleyvogue and The Harrow. Monageer in particular has a high density of new homes recently built or under construction and there are also clusters of houses at Scarawalsh Bridge and Broadford Bridge.

The majority of these noise-sensitive receptors are one and two-storey private dwellings that are located along existing roads.

Other noise sensitive receptors in the area include

- schools at Enniscorthy, Camolin, Ferns, Monageer, Balleyvogue and Broadford Bridge;
- churches in Enniscorthy, Ferns, Camolin, Monageer, Balleyvogue and Ballymore Demesne;
- hospitals in Enniscorthy;
- two sports grounds located near Ferns – one on the R745 and another approaching Ferns from the south west;
- a sports grounds in the village of Balleyvogue;
- sports fields off the existing N11 near Camolin; and
- guesthouses near the Ferns Athletic Football Club.

Away from the towns and urban centres, the remainder of the study area contains houses sporadically distributed within the landscape.

The dominant noise source in the area is road traffic noise from the existing N11 route. However, many of the identified noise-sensitive receptors are located some distance from this road. Away from the existing N11 the noise climate is typical of a rural environment with birdsong and the occasional use of agricultural machinery audible.

There will inevitably be sensitive receptors, such as residential properties, affected by the Proposed Scheme and those in closest proximity to it will be worst affected due to the current mainly rural nature of the setting which it travels

through. These impacts will need to be fully identified and assessed at EIA stage.

Levels of noise generated by the Proposed Scheme will largely depend on the volume of traffic flow and the speed at which the traffic travels. The degree of impact on each receptor will be affected by the distance from the road and the 'aspect' onto the road from each location, i.e. how much of the road can be 'seen'.

The main noise related impacts which are likely to arise from the Proposed Scheme can be separated into two components:

- Engine noise; and
- Tyre / road interface noise.

The engine noise is the primary noise source where traffic conditions prohibit free flow and the overall noise emission level is dependent on the engine speed and not the vehicle speed.

The tyre / road interface noise is dependant on the vehicle speed and is the primary noise source under free-flowing traffic conditions and at high speeds.

The overall noise emission level is also dependent on external factors such as the weather, particularly the amount of moisture on the road surface.

Factors that influence the basic traffic noise level include:

- Traffic flow;
- Speed;
- Road gradient;
- The percentage of the overall traffic made up of heavy goods vehicles; and
- Road surface make up.

The noise levels experienced at a defined reception point will be influenced by factors located between the source, i.e. the road and the reception point itself. These factors may include:

- Distance;
- Presence of obstructions; and
- Intervening ground cover.

The Constraints Study and Route Selection phases have identified that the Proposed Scheme is likely to give rise to an adverse impact at a number of properties. This is due to the combination of the introduction of road traffic to areas not currently trafficked with relatively low background noise levels. These low background noise levels are typical for rural areas away from major noise sources.

On the other hand, large numbers of sensitive receptors adjacent to existing roads will either benefit from a significant decrease in road traffic noise, or would be subject to either no change or an imperceptible change.

Within Enniscorthy town, all of the roads examined at Constraints Study and Route Selection phases, will benefit from small decreases in road traffic noise. These decreases, although theoretically beneficial, would not be readily perceptible to the majority of the population.

A detailed assessment of these predicted noise related impacts, both positive and negative, will need to be made at EIA stage. The requirements for noise

mitigation will be determined using the criteria as set down in the National Roads Authority's *Guidelines for the Treatment of Noise and Vibration in National Road Schemes (2004)*.

Mitigation in respect of noise may be required when a scheme passes close to noise-sensitive receptors. However, the elevation of the road with respect to the receptor must also be considered, as noise from elevated sections of the scheme will propagate further than noise from those sections located in a cutting.

Under these guidelines, noise mitigation measures are deemed necessary whenever the following three conditions are satisfied:

- (a) the combined expected maximum traffic noise level, i.e. the relevant noise level, from the proposed road scheme together with other traffic in the vicinity is greater than the design goal, and;
- (b) the relevant noise level is at least 1dB more than the expected traffic noise level without the proposed road scheme in place, and;
- (c) the contribution to the increase in the relevant noise level from the proposed road scheme is at least 1dB.

Mitigation measures will typically consist of one or a combination of the following measures:

- Consider locating the route away from sensitive receptors in order to avoid the need for further mitigation measures;
- Contain the road in a cutting to provide acoustic and visual screening;
- Where acoustic screening is required consideration should be given to the use of natural materials such as earth mounds / berms with appropriate levels of planting;
- Where mounds / berms are not possible consideration should be given to the use of proprietary noise barriers. In certain circumstances it may be required to upgrade the barrier to an absorptive noise barrier; and
- The use of low-noise pavements should also be considered where appropriate as a viable mitigation option.

2.1.2 Engineering Considerations of the Proposed Scheme

The Constraints Study and Route Selection Reports identified the principal engineering constraints within the study area for the Proposed Scheme and along each of the route corridor options considered. Those relating to the Proposed Scheme are summarised below.

N11 Clogh to Enniscorthy Scheme

Seven route corridor options were identified during the Route Selection phase. Each route corridor option developed for N11 Clogh to Enniscorthy scheme was assessed under eight criteria, including geometry; junction strategy / access; earthworks; soils and geology; drainage; structures; service diversions; and construction issues.

Following completion of the route corridor options assessments, the Cyan Route emerged as the Preferred Route for the scheme. The principal engineering constraints identified for the scheme are as follows: -

- Requirement to provide an appropriate connection to the existing N11 Arklow / Gorey Bypass and the N11 Enniscorthy Bypass;
- Dublin - Wexford railway at Ballygullen; and
- 110kV overhead power lines at Carrigeen and Crane.

N11 Enniscorthy Bypass

Five route corridor options were identified during the Route Selection phase. The route corridor options identified for N11 Enniscorthy Bypass were assessed under nine criteria, including alignment constraint; geometry, earthworks balance; maximum cut; maximum embankment; drainage; minor roads; structures; and service diversions.

Following completion of the route corridor options assessments, the Purple Route emerged as the Preferred Route for the scheme. The principal engineering constraints identified for the scheme are as follows: -

N11 Mainline

- Requirement to provide an appropriate connection to the existing N11 at Scurlocksbush; the existing N11 / N80; R744 at Tomnafunshoge; and proposed N30 at Clavass;
- River Slaney crossing at Kilcannon;
- Dublin - Wexford railway at Ballynabarny;
- 110kV overhead power lines at Ballynabarny and Tomnafunshoge;

N30 Mainline

- Requirement to provide an appropriate connection to the existing N11 at Clavass; R702 at Milehouse; and existing N30 at Templescoby;
- River Urrin crossing at Bessmount;

2.1.3 Consultation

Public Consultation

Public consultations in respect of the N11 Clogh to Enniscorthy Scheme and N11 Enniscorthy Bypass were undertaken in accordance with the *Project Management Guidelines* (NRA, 2000) during the Constraints Study and Route Selection phases.

N11 Clogh to Enniscorthy Scheme

The Constraints Study public consultation was undertaken in April 2007 with a presentation of the scheme to the elected officials of the local authorities, local TDs and Transportation SPC on the 23rd April 2007. The public exhibition was opened to members of the public on 23rd and 24th April 2007 at the Riverside Park Hotel, Enniscorthy. Staff from Wexford County Council, Tramore House Regional Design Office and Ryan Hanley WSP were in attendance to address queries from members of the public. Following the public exhibition, the exhibition material was available at the Wexford County Council Enniscorthy District Office for viewing by members of the public who were unable to attend the exhibition. Constraints Study brochures containing a response questionnaire and a freepost envelope were provided for interested parties to submit comments on the proposed scheme. The response period was open until 11th May 2007.

The Emerging Preferred Route public consultation was undertaken in February 2008. A presentation was given to elected members of the local authorities on 18th February 2008 with a public exhibition held on the 19th February 2008 at the Riverside Park Hotel, Enniscorthy. Again staff from Staff from Wexford County Council, Tramore House Regional Design Office and Ryan Hanley WSP were in attendance. The exhibition materials were subsequently made available at Wexford County Council Enniscorthy District Office for viewing by members of the public who were unable to attend the exhibition. Brochures and freepost questionnaires were provided and the response period was open until 4th March

2008.

N11 Enniscorthy Bypass

The Constraints Study public consultation was undertaken in April and May 2001 with a presentation of the scheme to the elected officials of the local authorities on the 19th April 2001. The public exhibition was open to members of the public on the 20th of April 2001 and the 10th of May 2001 at Treacy's Hotel, Enniscorthy. Staff from Wexford County Council, Tramore House Regional Design Office and Ryan Hanley WSP were in attendance to address queries from members of the public. Following the public exhibition, the exhibition material was available at the Wexford County Council Enniscorthy District Office for viewing by members of the public who were unable to attend the exhibition. Constraints Study brochures containing a response questionnaire and a freepost envelope were provided for interested parties to submit comments on the proposed scheme. The response period was open until 31st July 2001.

The Emerging Preferred Route public consultation was undertaken in May 2002. A presentation was given to elected members of the local authorities on 27th May 2002 with a public exhibition held on the 30th and 31st May 2002 at the Wexford Farm Centre, Enniscorthy. Again staff from Staff from Wexford County Council, Tramore House Regional Design Office and Ryan Hanley WSP were in attendance. The exhibition materials were subsequently made available at Wexford County Council Enniscorthy District Office for viewing by members of the public who were unable to attend the exhibition. Brochures and freepost questionnaires were provided and the response period was open until the 29th June 2002.

Statutory Bodies

Consultation has taken place with statutory consultees as part of the Constraint Study and Route Selection assessments. Comments and information were sought from the following list of consultees: -

- Eastern Regional Fisheries Board
- Wexford County Council
- Environmental Protection Agency
- Teagasc
- Irish Peatland Conservation Council
- Coillte
- National Parks and Wildlife Service
- Botanical Recorder for Wexford
- Wexford County Council's Heritage Officer
- Birdwatch Ireland
- The Irish Wildlife Trust
- Bord Na Mona
- Geological Survey of Ireland

In cases where consultees failed to respond to letters, the EIA team found the required information from alternate sources wherever feasible. A summary of the responses received to date is contained within Appendix A.

Information was also gathered from the various relevant development plans for Enniscorthy town and Wexford County as well as by independent survey work.

2.2 Description of The Proposed Scheme

In light of the strong engineering and environmental favour the Preferred Route corridors were approved by the National Roads Authority and adopted by Wexford County Council as follows: -

1. N11 Enniscorthy Bypass – 2002
2. N11 Clogh to Enniscorthy Scheme – May 2008

However it is important to note that the Preferred Route for the Proposed Scheme, which was drafted during the Route Selection phases, is subject to change as part of an iterative design process which is being informed by the on-going engineering and environmental assessments and site surveys.

Drawing no. 1942/EIASR/001 illustrates the Proposed Scheme.

M11 / N11 Mainline

The M11/N11 Mainline is approximately 27km in length and is of standard dual motorway standard. It connects the existing N11 in Frankfort at the north, approximately 19 kilometres north-east of Enniscorthy, to the existing N11 in Scurlocksbush at the south, approximately 7km south of Enniscorthy. The existing N11 in Frankfort comprises a Type 1 dual carriageway and is part of the N11 Arklow / Gorey Bypass which opened to traffic in September 2007. The existing N11 in Scurlocksbush comprises a single carriageway.

The M11 / N11 Mainline departs from the N11 Arklow / Gorey Bypass in a southerly direction, and at this location the Proposed Scheme includes the provision of a grade separated junction referred to as the Frankfort Junction. From the Frankfort Junction the M11 Mainline continues in a generally south-south-west direction through Ballinclay and into Ballygullen where it crosses Local Road L-1027-2, the Dublin – Wexford railway and the Brackan River. It continues into Balloughter where it bears south-west. Exiting Balloughter the route continues through Tullabeg, Ballyeden where it crosses Local Road L-5092-1, Medophall, Knockrobin Lower and Upper. Travelling through Ballymore, the M11 Mainline crosses Local Road L-5093-1 continues in a south-westerly direction through Rockspring where it crosses the L-5096-1 and into Quarry where it crosses the Tinnacross Stream. The route then continues in a south-westerly direction through Mountgeorge, Ballycarrigeen Lower where it crosses the Local Roads L-10241 and L-1023-3, Carrigeen and into Knockavocka where it crosses the Tinnacross Stream. Exiting Knockavocka the route progresses in a generally south-westerly direction through Efferenoge where it crosses the Tinnacross Stream, Myaugh, Tinnacross where it crosses the Local Road L-2011-2 and the Tinnacross Stream, Tomsallagh, Oulartard and back into Tomsallagh crossing the Tinnacross Stream on two more occasions. Entering Crane the M11 Mainline straightens in a south-south-west direction, crosses the Tinnacross Stream and Local Road L-2021-1 before entering Toom where it turns south-eastwards, crosses the Ballydawmore Stream and continues into Ballydawmore. In Ballydawmore the M11 Mainline connects to the N80 Link Road via a grade separated junction, referred to as the Ballydawmore Junction. After the Ballydawmore Junction, the M11 Mainline continues initially south-eastwards and then begins to turn south westwards, entering Corbally where it crosses the Local Road L-2024-2. The route continues to turn to a south-westerly direction crosses the Corbally Stream and then passes into Tomnafunshoge where it crosses the R744 Enniscorthy to Blackwater road at a grade separated junction approximately 3km east of Enniscorthy, referred to as

the Tomnafunshoge Junction.

From the Tomnafunshoge Junction the M11 Mainline passes into Drumgold where it crosses the Local Road L-6055-1 and turns south-east entering Cooladine where it crosses the Drumgold Stream. The route then turns to a generally southerly direction and enters Ballycourcy More where it crosses the Local Road L-6054-4. The M11 Mainline continues generally southwards passing through Knockrathkyle where it crosses local road L-6047-2, Ballybanoge, Monroe, Craanroe, Glenteige where it crosses the Local Road L-6048-1 and the Monroe Stream, Riverview and Roperstown. In Roperstown the standard dual motorway standard section of the M11 Mainline terminates at an at grade roundabout, referred to as the Roperstown Roundabout.

From the Roperstown Roundabout the M11 / N11 Mainline continues in a southerly direction as a standard single carriageway into Scurlocksbush, crossing the Local Road L-6052-01. The M11 / N11 Mainline connects to the existing N11 at an at grade roundabout in Scurlocksbush, referred to as the Scurlocksbush Roundabout.

N30 Mainline

The N80 Link Road is approximately 4km in length and is of type 2 dual carriageway standard. It connects the existing N11 and existing N80 in Ballynahallin at the east and to the M11 Mainline in Ballydawmore at the west. The existing N11 and N80 in Ballynahallin each comprise a single carriageway.

The N80 Link Road commences at a proposed at grade junction referred to as the Clavass Junction. This junction comprises a dumbbell roundabout layout, which provides connectivity between the existing N80, existing N11, existing Old Dublin Road, N80 Link Road, and N30 Mainline. From the Clavass Junction the N80 Link Road travels in a generally southerly direction through Ballynahallin where it crosses the Kilcannon Stream and into Kilcannon. In Kilcannon the route begins to turn to a generally easterly direction and crosses the River Slaney at a point approximately 3km upstream of Enniscorthy. To the east of the River Slaney the N80 Link Road passes through Ballynabarny where it crosses the Dublin – Wexford railway and Local Road L-2020-2 before completing the turn to a generally easterly direction. The route continues through Ballynabarny and connects to the M11 Mainline at the Ballydawmore Junction in Ballydawmore.

N30 Mainline

The N30 Mainline is approximately 8km in length and is of standard single carriageway standard. It connects the existing N11 and existing N80 in Clavass at the north and to the existing N30 in Templescoby at the south. The existing N30 in Templescoby comprises a standard single carriageway.

The N30 Mainline commences at the Clavass Junction and travels in a south-westerly direction through Clavass where it crosses the Clavass Stream, Coolnahorna where it crosses the Local Road L-2015-2 and into Ballyorrl. The route continues in a south-westerly direction entering Moyne Middle before passing back into Ballyorrl where it turns to head in a westerly direction crossing the Local Road L-2014-1 and the Hollyfort Stream along the way. The N30 Mainline continues in a westerly direction through Killalligan North where it crosses the Local Road L-2012-3, Askunshin where it turns to a generally south-westerly direction and Milehouse where it crosses the Regional road R702 at a proposed at grade junction referred to as the Milehouse Roundabout .

After the Milehouse Roundabout the N30 Mainline continues in a south-westerly direction through Monart East where it crosses the Local Road L-6125-1 and into Bessmount where it turns south before crossing Local Road L-2030-6 and the River Urrin. The N30 Mainline continues in a southerly direction through Templescoby where it crosses the local roads L-6122-1 and L-6121-1 and continues into Dunsinane. In Dunsinane the N30 Mainline crosses the Old N30 before continuing to connect to the existing N30 in Templescoby at a proposed at grade junction referred to as the Templescoby Roundabout.

2.2.1 Construction Phase

Subject to the satisfactory completion of the statutory procedures, the availability of finance and the programming requirements of the successful Contractor it is anticipated that main construction works will begin on site during 2011. The overall construction period for the Proposed Scheme is anticipated to be in the region of 2½ years.

2.2.2 Traffic

The town of Enniscorthy and the villages of Ferns and Camolin currently experience significant traffic congestion at peak periods, with Enniscorthy and Ferns being particularly badly affected on occasions. It is currently estimated that the Proposed Scheme will reduce traffic levels on key routes within Enniscorthy Town, when compared to the situation where no scheme is built, by between approximately 30% and 90% in the design year of 2028. It is further estimated that the Villages of Ferns and Camolin will experience a drop in traffic of approximately 65%, when compared to the situation where no scheme is built, in the design year of 2028.

2.2.3 Earthworks

Between 2006 and 2008, 3 No. preliminary site investigations have been carried out along the line of the Proposed Scheme. The information from these investigations, and other assessments, will be used during the preliminary design phase of the Proposed Scheme to develop vertical alignments that will facilitate achievement of an overall balance between the cut and fill requirements, where feasible. The preliminary earthworks design will be further progressed and refined during the detailed design of the Proposed Scheme, which may result in some changes to the preliminary design as published in the EIS. The detailed design will seek to develop the preliminary design in a manner such that there is no material change in terms of significant adverse effect on the environment. Opportunities may be identified to further reduce the significance of adverse effect/impact and, in some cases, improve the residual effect/impact.

The site does however contain areas of soft materials such that material considered unsuitable for re-use in the construction works are likely to be generated. Therefore, whilst it is anticipated that it will be feasible for a significant percentage of the excavated materials to be re-used on site during the construction of the Proposed Scheme, it is also considered likely that waste material will need to be disposed of off site. Any such disposal of waste will be undertaken in accordance with the requirements of the Waste Management Acts, 1996-2008 and the Planning Acts.

2.2.4 Drainage

The proposed road drainage systems for the national routes will be developed in

accordance with the NRA DMRB HD 33/96 and will comprise either:- a sealed drainage system; an open drainage system; or a combination of the two. Sealed drainage systems include systems such as kerbs and gullies and surface water channels, which direct surface water into sealed carrier drains which in turn direct the water to an outfall location. Open drainage systems are ones in which the surface water passes over the edge of the paved area and is either intercepted by a filter drain located at the back of the verge or by an interceptor ditch located at the base of an embankment. The filter drain or interceptor ditch directs the intercepted water to an outfall location.

Also, interceptor ditches or filter drains will be included within the Proposed Scheme where appropriate to provide continuity for existing field ditches intercepted by the Proposed Scheme and to control runoff from adjoining land to maintain the integrity of the road construction. Generally, such ditches and drains will follow the existing ground profile and outfall into existing watercourses. At outfall locations, the proposed road drainage systems for the national routes will flow via petrol / oil bypass interceptors into balancing ponds before discharging into watercourses, at approved locations and approved rates of rates of flow. The design of the balancing pond will be undertaken in accordance with United Kingdom Highways Agency Design Manual for Roads and Bridges (UK DMRB) HA 103/06 and will be based on a 100-year storm event with a duration of 48 hours. The design will also include for a 20% increase in rainfall intensity, to account for climate change in accordance with current best management practice of the UK DMRB HD 33/06.

Road carriageway runoff from Side Roads affected by the Proposed Scheme will generally be connected into the existing road drainage systems. Where this is not feasible, the runoff will be connected into the proposed road drainage systems for the national routes.

The road drainage systems will be designed by the Contractor during the detailed design and implementation phases of the M11 Gorey to Enniscorthy Scheme and will comply with the above principles and with the specific requirements identified in Chapters 9 and Chapter 11 of this EIS.

2.2.5 Services Infrastructure

Conflicts between the Proposed Scheme and existing services infrastructure have been identified via consultation with the relevant utilities companies and authorities.

ESB

ESB have provided details of their existing power line networks and plant along the Proposed Scheme. The Proposed Scheme is likely to have a direct impact on several overhead electricity lines and also pass close to some others. The electricity lines affected by the Proposed Scheme range from low voltage lines (less than 38kV) up to 110KV ESB Lines.

Eircom

The Proposed Scheme will cross Eircom lines at several locations. There are 3 No. crossings involving fibre optic cables, which are located on the N80 Link Road at approximate chainage N80:2,840m, on the M11 Mainline at approximate chainage M11/N11:28,050m and on the N30 Mainline at approximate chainage N30:6,300m.

Water and Sanitation

The Proposed Scheme is likely to have a direct impact on a number of watermains and sewerage / foul pipes. These will be identified and assessed in detail in the EIS.

2.2.6 Structures

A range of proposed structures will be required for the Proposed Scheme. The current design for the Proposed Scheme includes:

Number of road structures ⁽¹⁾	53
Number of combined river / rail / road structures ⁽²⁾	1
Number of rail structures	1
Number of river structures	1
Number of watercourse culverts ⁽³⁾	44

- Note: (1) Overbridges and underpasses for junctions, Side Roads and Access Roads.
 (2) Structure over the River Slaney / Dublin-Wexford Railway / Local Road L-2020-2.
 (3) All culverts, including those classified as structures..

Overbridges, underpasses and culverts will be required to carry the Proposed Scheme over and under the existing and proposed features and infrastructure. Overbridges will carry a Side Road or Access Road over a proposed national route, an underpass will carry a proposed national route over a Side Road or Access Road. All such structures will be compliant with the relevant DMRB and approval procedures listed therein.

Culverts are required where a proposed road passes over an open drain or watercourse and are described further in Section 3.7 of this EIS.

The River Slaney / Ballynabarney Railway / Local Road L-2020-2 Structure

A bridge with a main, central span of approximately 70m is the option chosen to cross over the River Slaney. This main span also crosses over the Dublin – Wexford railway in Ballynabarney, thus providing a clear span over the Slaney River Valley candidate Special Area of Conservation (cSAC) and the railway. The total length spanned at this location is approximately 153m. This total span length includes two side spans, each of approximately 42m. One is over Local Road L-2020-2. The other facilitates uninterrupted flow of flood waters immediately adjacent to the western bank of the river channel. The span arrangement avoids the River Slaney and its banks, thereby avoiding impact on a sensitive ecological area.

On the western approach to this bridge is an earthworks embankment, which takes the N80 Link Road over an area of the River Slaney flood plain. Included within this embankment are a series of flood relief culverts. These culverts, together with the bridge side span on the western bank of the river channel, will facilitate the continued migration of flood waters down the River Slaney. The bridge together with the adjacent flood relief culverts will cause minimal changes

to the existing flood regime and will produce a low hydraulic impact on flood levels upstream of the proposed bridge crossing. With respect to a 1 in 100 year flood event plus a climate change uplift of 20%, such hydraulic impact will be less than 50mm on flood levels within 200m upstream of the proposed bridge crossing.

The flood relief provisions comprise 10 No. flood relief culverts, 4.8m wide by 3.0m high placed at 14.4m centres.

3.0 PROPOSED CONTENT OF THE EIS

3.1 Outline Framework

The proposed structure of the Environmental Impact Statement will be formulated in accordance with the following relevant legislation and guidance.

- Planning and Development Act 2000.
- Planning and Development Regulations 2001 (S.I. No. 600 of 2001).
- Roads Act, 1993.
- Roads Regulations, 1994 (S.I. No. 119 of 1994).
- European Communities (EIA) Regulations, 1989 (S.I. No. 349 of 1989).
- European Communities (EIA) (Amendment) Regulations, 1999 (S.I. No. 93 of 1999).
- *Environmental Impact Assessment of National Road Schemes – A Practical Guide* (NRA, 2006).
- *NRA Environmental Assessment and Construction Guidelines*, (NRA, 2006).
- *Guidelines on the Information to be Contained in Environmental Impact Statements* (Environmental Protection Agency, 2002).
- *Advice Notes On Current Practice (in preparation of Environmental Impact Statements)* (Environmental Protection Agency, 2003).
- *National Roads Project Management Guidelines* (NRA, 2000).

The EIS will describe the likely significant effects, direct, indirect, cumulative and interactive, on the environment by reference to impacts on: -

- Socio-economic;
- Agriculture;
- Ecology;
- Soils and Geology;
- Hydrology and Hydrogeology;
- Air and Climate;
- Noise and Vibration;
- Landscape and Visual Character;
- Archaeology and Cultural and Architectural Heritage;
- Waste;
- Material Assets; and
- The interaction between any of the foregoing.

A timescale indicating the proposed timing of surveys are provided in Appendix B.

3.2 Proposed Structure of the EIS

The EIS will be systematically organised and prepared to provide: -

- Preamble
- Introduction
- Description of the proposed development
- Examination of alternatives
- Forecast Traffic Volumes
- Itemised description of the receiving environment
- Itemised likely significant impacts of the proposed development
- Specific measures to mitigate adverse impacts
- Interactions between the various likely significant impacts

- Residual impacts
- Non-technical summary
- Summary of mitigation and enhancement measures

The layout of each specialist section (Socio-economic, Agriculture, Ecology, Soils and Geology, Hydrology and Hydrogeology, Air and Climate, Noise and Vibration, Landscape and Visual Character, Archaeology, Cultural and Architectural Heritage, Waste, and Material Assets) within the EIS will be as follows: -

Introduction:	To include an introduction to the section and the issues to be discussed, and a description of the context of the subject lands solely as they relate to the particular discipline. The first four chapters of the EIS (Preamble, Introduction, Description and Alternatives) will provide the generic information about the project and will not be repeated within these specialist sections.
Study Methodology:	A description of works carried out and a list of sources of information. Where complex methodologies are used, a full description of these will be attached as an appendix to the EIS. This will include the methodologies for both the collection of data, and the ultimate analysis of that data, and will highlight, where necessary the reliability of such information.
Receiving Environment:	A description of the receiving environment solely as it relates to the specific area of study including an assessment of the major environmental parameters within the study area.
Characteristics of the Proposal:	A description of the nature of the Proposed Scheme. Once again this will apply solely to those aspects of the Proposed Scheme that relate to the area of discipline, i.e. the frequency and magnitude of traffic for air and noise, or the land-take for ecology and archaeology.
Potential Impact of the proposal:	A detailed description of the likely significant impacts for each area of specialty that could arise from the Proposed Scheme. This will include potential likely significant impacts at both construction and operation stages and will also provide an assessment of potential cumulative impacts.
Do Nothing Scenario:	An assessment of the likely significant impacts if the Proposed Scheme were not constructed.
Mitigation Measures:	A detailed description of the type of mitigation measures, which may be taken to reduce the impacts of the Proposed Scheme.
Residual Impact of the Proposal:	A statement of the likely resultant impacts after mitigation measures have been applied. These will include predictions of both construction and operation related impacts as well as any predicted cumulative impacts.
Residual Impact:	A detailed discussion of the likely residual impacts.
Monitoring:	Advice on any monitoring required.

3.3 Scoping of the Environmental Impact Statement

Based upon the environmental information gathered to date through the Constraints Study and Route Selection Reports, the EIS team, in consultation with Wexford County Council and the NRA, have set out the proposed scope of works for the Proposed Scheme. This exercise was undertaken to ensure that all available efforts were directed in a constructive manner towards elucidating and mitigating the likely significant environmental impacts arising from the Proposed Scheme. To this end, the EIS team have specified both areas that do not require any further investigation as well as those areas that do warrant further analysis.

As far as possible, each specialist has outlined the extent, emphasis and level of analysis that their assessment will take in order to satisfactorily identify the likely significant impacts, of both a positive and negative nature (direct, indirect, cumulative and interactive), that the Proposed Scheme will have on the environment of Enniscorthy town and its environs.

3.3.1 Non-Technical Summary and Drawings

The EIS will contain the detailed assessment of the individual environmental criteria such as socio-economic, ecology and the like.

A Non-Technical Summary will be provided as a separate document which will summarise the main issues raised within the various sections of the EIS as described hereunder.

A copy of the Non-Technical Summary will also be included within the EIS.

Drawings and Maps forming part of the EIS will be provided to appropriate scale in accordance with the guidance contained in *Environmental Impact Assessment of National Road Schemes – A Practical Guide*.

3.3.2 Preamble

The preamble will establish the background and terms of reference for the EIS.

The project team will be introduced and specialist sub-consultants and their input to the EIS will be listed.

Any technical difficulties or lack of data encountered in compiling the EIS will be outlined.

3.3.3 Introduction

This section will provide a brief description of the legislative requirements, purpose and scope of the EIS.

The scoping exercise undertaken will be described. Each section of the EIS will also be briefly described.

The results of the consultation undertaken will be summarised.

The format of the EIS will be outlined.

3.3.4 Examination of alternatives

A description of the various route and design options considered for the Proposed scheme will be described explaining how the scheme has evolved

through Constraints Study and Route Selection phases up to the preliminary design as assessed in the EIS. A description of how the environmental studies have influenced the preliminary design and location of the Proposed Scheme will be provided.

In addition to alternatives in design, alternatives concerning some of the more peripheral issues such as; minimising earthworks balance, realignment of services infrastructure, timing of works, construction materials and methodology and the like will also be discussed.

Where applicable, any design alternatives concerning environmental matters will be cross-referenced to the appropriate specialist section.

3.3.5 Description of the proposed development

This section will describe the Proposed Scheme in terms of its location, layout and function. This will take into account the local context, setting, surroundings and the existing road infrastructure.

As per the *Environmental Impact Assessment of National Road Schemes – A Practical Guide* (NRA, 2006) the following information will be provided: -

- overall length and direction
- road type(s)
- major junctions and structures
- improvements to associated link roads
- interaction with the road network or other proposed schemes
- location map / drawing
- direction (describe the scheme from where it starts, the general directions it takes, major features passed/crossed and its terminal point)
- major settlements being bypassed
- cutting / fill
- rivers being crossed

Physical Characteristics of the Proposed Scheme

- Main line:
 - Design
 - General description of the cross section
- Ancillary Roads
 - Description of proposed alterations to ancillary roads
- Junctions
 - Location and description of junctions
- Structures
 - Number of structures
 - Number of culverts
- Bridges/Tunnels over 100m in length
- Reference will be made to watercourses being crossed and visual impact issues
- Material Requirements and Soil Handling and Disposal
 - Quantity of material being excavated
 - Fill requirement (if relevant)
 - Fill deficit/surplus (if relevant)
 - Reference to need for borrow pits (if relevant) – the EIS should include a statement here to the effect that borrow pits will be a matter for the contractor who will be required to comply with relevant legislation.
 - Quantity of material to be disposed of (if relevant) - the EIS should include a statement here to the effect that material disposal will be a

matter for the contractor who will be required to comply with relevant legislation.

- Management of topsoil
- Utilities
 - Description of utilities affected, both temporary and permanent
- Construction Activities
 - List of pre-construction activities
 - List of construction activities
 - Description of major construction activities such as earthworks and structures including duration
- Land Use Requirements Construction Phase
 - List of requirements
- Land Use Requirements Operational Phase
 - List requirements including toll operations where relevant
- Geometric Design Measures to Mitigate Significant Adverse Effects
 - List and brief description of measures

3.3.6 Traffic

This section will provide a summary of the traffic conditions and effects of the Proposed Scheme. Traffic modelling data will be presented for the proposed national routes and other key roads in the surrounding existing road network. Predicted future traffic flow data will be provided for an Opening Year (2013) and Design Year (2028), and will be provided for scenarios both with and without the Proposed Scheme.

3.3.7 Socio-economic

The socio-economic impact assessment will deal with issues relevant to the people and populations in the surrounding area under the following headings: -

- Economic Activity – will the Proposed Scheme stimulate additional development and / or reduce economic activity?
- Social Consideration – will the Proposed Scheme change accessibility, patterns and types of activity?
- Land Use – will there be severance, loss of rights of way or amenities, conflicts, or other changes likely to ultimately alter the character and use of the surroundings?
- Health and Safety – will there be risks of death, disease, discomfort or nuisance?

As per Environmental Protection Agency (EPA) guidance this chapter will not deal with commercial competition, zoning or other socio-economic issues which are provided for separately under the broader planning legislation.

A description of the receiving environment with regard to human impacts, under the four headings listed above, will be provided. This will indicate the location of sensitive neighbouring premises likely to be directly affected as well as other premises which may be located further away but which will experience indirect or secondary impacts such as alteration of traffic flows or increased urban development. An indication of the numbers of occupants likely to be directly affected will be provided. Any transient populations identified such as drivers, walkers or tourists will be described. The following will be noted in particular; homes, hospitals, hotels, holiday accommodation, schools, rehabilitation centres and commercial premises. Any significant concerns, fears or opposition to the development known to exist amongst local populations and which relate to the four headings listed above will be described.

The likely impact of the upgrade upon the local economy through attention to existing impacts, construction impacts and operational impacts provided by the road, potential temporary and permanent severance, and temporary and permanent diversion will be assessed.

Any proposed social impacts arising from alterations to land use patterns and activities, potential temporary and permanent severance, and temporary and permanent diversion will be assessed.

Any potential safety risks / benefits will be discussed.

The likely temporary and permanent nuisance impacts from air, noise and vibration reports will be summarised.

The predicted direct, indirect, secondary and cumulative impacts of the proposed development on human beings during both the construction and operational phases will be identified under the four headings listed above.

Any possible positive impacts on human beings associated with the development will be described.

Details of proposed mitigation measures will be provided in relation to the likely significant impacts identified.

The interaction between Human Beings and other facets of the environment will be detailed.

A list of any ameliorative measures will be described.

3.3.8 Ecology

The Constraints Study and Route Selection phases have identified that there would be potential to impact on one cSAC / pNHA and a range of additional features of terrestrial and aquatic ecological interest. These stages have identified a range of protected species as well as others which are not protected but are of conservation concern, exist within the general area and are likely to occur at various points along the Proposed Scheme.

In order to adequately assess the likely significant impacts on ecology identified at Constraints and Route Selection stages, the methodology for the proposed ecological impact assessment will be as described below.

This section will deal with issues relevant to the natural habitats and their fauna along the route and in the surrounding area. This chapter will deal with both flora and fauna and they will not be separated into individual chapters. It will closely follow the *Guidelines for Assessment of Ecological Impacts of National Road Schemes* (NRA, 2006).

The EIS team have examined the work undergone to date for the Constraints Study and the Route Selection phases and have advised that the following items will need to be updated; revisit IWeBS database and National Parks and Wildlife Service (NPWS) protected flora listings and protected area database, consult the Environmental Protection Agency's database on river and lake water quality, the National Biological Records Centre and the Heritage Council's biological datasets. In addition to this consultation will reconvene with NPWS head office and the NPWS local staff, the Eastern Regional Fisheries Board local staff, the local authority's Heritage and Biodiversity Officers, the Botanical Society of the

British Isles' county recorders, BirdWatch Ireland, Bat Conservation Ireland, the Irish Wildlife Trust and An Taisce.

A description of the receiving environment with regard to the natural habitats present and details of their flora and fauna will be provided. This will encompass field walkovers of the entire landtake² of the Proposed Scheme in addition to any adjacent habitats that at the time of survey could potentially be affected by the Proposed Scheme. Habitat surveying will be undertaken according to the Heritage Council's *Habitat Survey Guidelines (Draft 2005)* and mapping as per *A Guide to Habitats in Ireland* (Fossitt, 2000) for the entirety of the landtake will be provided. In addition to these maps, general ecological descriptions will be provided for each type of habitat encountered. These descriptions will be general, describing the flora and fauna which characterise habitats. During these field walkovers, preliminary badger and otter surveys will also be conducted. Any potential badger or otter areas that are found will be noted and a return survey of the area will be carried out in more detail.

All ecological habitats encountered will be evaluated according to the criteria set out in Appendix 3 of *Guidelines for Assessment of Ecological Impacts of National Road Schemes* (NRA, 2006). Those habitats encountered which show potential for the presence of rare or protected species or general habitats will be surveyed in greater detail, complete with full species lists and specific description. Particular attention will be paid to those pNHAs, cSACs or SPAs which have been identified by the Constraints Study and Route Selection Reports as being within the area. Special attention will also be paid to those sites which have been identified as being of ecological value and sensitivity in the Constraints Study and Route Selection Reports.

An indication of the sensitivity and significance of the flora and fauna present within these areas of heightened ecological interest will be provided based upon their ecology, species diversity, population sizes, density and status, rarity / scarcity, importance at local, regional, national, European or international levels (including any designations at these levels), use made of the site, and whether they are native or invasive introduced species.

The possible presence of any species listed in the EU Habitats Directive, including in any watercourses (such as sea lamprey, river lamprey and brook lamprey, otter, salmon, freshwater crayfish, freshwater pearl mussel etc.), will be assessed.

For most river crossings, macroinvertebrate analysis of the water quality of the river will be carried out; both at the proposed crossing, and also at appropriate upstream and downstream distance of the proposed crossing.

Descriptions of fauna can be particularly difficult due to survey time restrictions, the seasonal nature of many fauna species, and the mobile, nocturnal and elusive nature of many fauna species. To this end many specialist ecology surveys will be spread over a year's surveying to capture a range of breeding, hibernating, migrating and other important times.

The descriptions of fauna will not be limited to direct sightings alone but will also be based upon the detection of field signs such as tracks, markings, feeding signs, and droppings. Food-chain relationships, territorial requirements and

² Landtake is defined as Land necessary for the road (including accommodation access and working space especially at bridge sites, including settlement ponds where necessary), Land necessary for construction staging, Link roads and realigned roads, Land necessary for post construction maintenance, Land necessary for mitigation measures such as settlement ponds, Land necessary for amenities associated with the scheme (i.e. viewing areas, site compound / maintenance depot, where relevant).

movement corridors will be identified where relevant and their significance described.

The predicted direct, indirect, cumulative and interactive impacts of the Proposed Scheme on the local flora and fauna during both the construction and operational phases will be identified based on:

- The number / population / area, type and location of habitats and fauna species affected;
- Any changes in species diversity;
- Any changes in the eco-system balance; and
- Any habitat loss, replacement or degradation.

Any possible positive impacts as a result of habitat regeneration associated with the Proposed Scheme will be described.

The interaction between Ecology and other facets of the environment will be detailed.

It is proposed that the project's ecologists will work closely with the design team to ensure that, to the greatest extent practicable, the identified residual impacts are ameliorated.

A list of the ameliorative measures will be described, complete with methodologies for their implementation.

3.3.9 Soils and Geology

The potential soils and geology related impacts identified in the Constraints Study and Route Selection phases will need to be addressed at EIA stage and it is proposed to follow the methodology below.

This section will deal with issues relevant to the soils and geology within the site and in the surrounding area.

A detailed desktop assessment of the soil and geology of the area will be conducted. The relevant Geological Survey Ireland (GSI) records will be inspected with respect to bedrock, quaternary geology and hydrogeology. Historical and current Ordnance Survey mapping and aerial photography will also be inspected, as will GSI well records and the GSI karst database. Geological and geotechnical data from ground investigation borehole and trial pit logs will also be reviewed. If deemed necessary, on the basis of visual and olfactory assessment, soil samples will be taken.

As the Proposed Scheme will pass through a large area, it is important to establish, as part of the baseline assessment, whether the site may have possible contaminated material (through dumping or impacts from adjacent sites) within its boundaries. This assessment will be conducted by a site walkover. Should potential contamination or adjacent contaminating uses be identified, it will be recommended that an intrusive contamination site investigation with soil sampling and contaminant analysis be undertaken.

An assessment will be made of site history and land use for the Proposed Scheme, and also land use in the areas adjoining the Proposed Scheme, to determine if there are any potential soil contamination issues arising from these activities. Engineering design information from the preliminary design team will be reviewed and an assessment made of the quantities of peat, soil and bedrock to be excavated and either re-used within Proposed Scheme or removed off-site.

Any direct or indirect impacts associated with off-site disposal and recovery of the excavated materials in accordance with the *Waste Management Acts 1996-2008* and associated regulations will also be considered.

The Proposed Scheme will be assessed, during both construction and operational phases, with respect to their potential impact on the soil and geological environment.

Appropriate mitigation measures during both construction and operational phases will be proposed to ensure the Proposed Scheme has no significant impact on the soil and geological environment.

The Environmental Impact Assessment will be undertaken in accordance with the NRA (Draft) Guidelines on the Assessment and Treatment of Geology, Hydrology and Hydrogeology.

Monitoring requirements during construction and operational phases will be identified.

The interaction between Soils and Geology and other facets of the environment will be detailed.

Consultation will be carried out with GSI, EPA and the Irish Peatland Conservation Council. In the unlikely event that any caves are identified along the Proposed Scheme, consultation will also be undertaken with the Heritage Council and Arts Council. Should the Proposed Scheme have any impacts on existing or permitted quarries, consultations will also be undertaken with quarry operators.

A list of the ameliorative measures described will be provided, complete with methodologies for their implementation.

3.3.10 Hydrology and Hydrogeology

In order to address the likely significant hydrological and hydrogeological impacts identified at Constraints and Route Selection stages it is proposed that the methodology for the impact assessment will be as set out below.

It is of key importance to establish a baseline water quality for the receiving surface water environment (this includes the water environment beyond the footprint of the Proposed Scheme). This will be accomplished by a site walkover and assessment of the hydrology of the site and surrounding area and by reference to relevant EPA databases, and Wexford County Council records, or in more sensitive cases by water sampling and analysis. In addition on-site analysis for key water quality parameters will be carried out.

All watercourses that will be crossed will be noted and assessed. The watercourse crossings that have been identified will be examined. The macroinvertebrate data collected by the ecology team will be of use in preparing this report. Potential receiving watercourses for surface water runoff will be assessed during this baseline study.

The data compiled will be used to define the context, character and sensitivity of the surface water environment. The team will consult with the Eastern Regional Fisheries Board in order to establish the possible impact of any watercourse crossings, both during the construction phase and the operation phase. The EIS team will also liaise with the design team to discuss each of the watercourse crossings and the proposed options for engineered solutions.

It is also of key importance that a baseline be defined for the groundwater environment and the quality of the groundwater be adequately assessed. This is accomplished by reference to GSI databases and, if the proposed development is likely to impact significantly on groundwater (for example if material which is likely to contaminate groundwater were to be stored on the site during the construction phase), additional sampling and analysis of groundwater, using United States Environmental Protection Agency (USEPA) and American Society for Testing and Materials (ASTM) methodology may need to be carried out.

Groundwater sampling / monitoring will be carried out as part of the Site Investigation for the scheme. The Groundwater Protection Scheme for the area will be inspected to determine aquifer status, vulnerability and quality in the area of the development.

Site precipitation and evapotranspiration rates will be obtained from Met Éireann and runoff rates for the scheme will be obtained from the design team. From this data, a water balance for the site will be constructed.

The likely significant impacts of the Proposed Scheme on the water environment will be assessed. Particular attention will be paid to the potential impact of the change of land use on the water environment (in terms of water quality and hydrology) and recommendations will be made as to the most appropriate way in which to minimise the impact on the water environment.

Any monitoring requirements during construction and operation phases will be provided.

The interaction between Water and other facets of the environment will be detailed.

Consultation will be carried out with the Geological Survey of Ireland, the Environmental Protection Agency, the Eastern Regional Fisheries Board, the South Eastern River Basin District Office and Wexford County Council.

A list of the ameliorative measures will be provided, complete with methodologies for their implementation.

3.3.11 Noise and Vibration

In order to address likely significant noise impacts in the EIS it is proposed that the noise impact assessment would follow the methodology set out below.

In relation to advice contained within the NRA guidance document “*Guidelines for the Treatment of Noise and Vibration in National Road Schemes*” a monitoring programme has been developed. Monitoring that will be carried out will consist of a 24-hour monitoring (i.e. unattended) location with six associated attended measurement locations. As part of the guidance the 24-hour monitoring is linked to the unmanned measurements. It is envisaged that eight periods of this monitoring will have to be undertaken in order to obtain sufficient data to satisfy the noise monitoring requirements of the relevant NRA guidance document.

Where possible, the EIS team will predict construction noise levels at the facades of the closest noise-sensitive locations along the route of the proposed relief road. All predictions will be conducted in accordance with the guidance contained in ISO 9613:1996: *Acoustics – Attenuation of sound outdoors – Part 2: General method of calculation*. Source noise levels will be obtained from BS 5228:Part 1: 1997. It has been assumed that detailed predictions will be required

in respect of no more than 10 noise-sensitive locations.

The EIS team will predict traffic noise levels at the facades of the closest noise sensitive locations. All predictions will be free field, and done in accordance with guidance contained in the *Calculation of Road Traffic Noise* and the NRA Guidance document using a proprietary noise modelling package, i.e. Brüel & Kjaer Type 7810 Predictor. This represents a state-of-the-art assessment method for road traffic noise. The use of a computer based noise model lends itself to ongoing evaluation of proposals and provides output that is detailed and extensive.

Relevant NRA Circulars and Irish Standards, such as ISEN 1793 and 1794, will inform the noise assessment.

The results obtained from the prediction calculations will be used to assess the likely noise impact of both the construction and operational phases of the Proposed Scheme. Where necessary, we will consider practical noise control measures, including both proprietary and non-proprietary barriers.

The EIS team will consider the generation and propagation of vibration during both construction and operational phases of the development. The likely significant impacts and practicable vibration control measures will be considered.

The interaction between noise and vibration and other facets of the environment will be detailed.

The noise consultants will work closely with the design team to ensure that, to the greatest extent practicable, the identified residual impacts are ameliorated.

A list of the ameliorative measures will be provided, complete with methodologies for their implementation.

3.3.12 Air Quality and Climate

A detailed air impact assessment will be required at EIA stage to fully assess any likely significant impacts and where appropriate and necessary mitigation measures. It is proposed that the air impact assessment to be included in the EIS will follow the methodology set out below.

The Air Section will encompass the following;

- Review of baseline air quality data representative of the location.
- Site-specific monitoring and predictive modelling of baseline conditions - to assess current air quality along the Proposed Scheme and in Enniscorthy Town.
- Predictive modelling with and without the Proposed Scheme - to assess the likely significant impacts of the scheme on air quality and climate in future years along the proposed routes. The likely improvement in air quality in Ferns, Camolin and Enniscorthy will also be assessed.
- Define impact of construction dust and preventative measures to avoid dust nuisance.
- Mitigation measures necessary to reduce/eliminate impacts on air quality.

The air quality assessment will follow the NRA "*Guidelines for the Treatment of Air Quality During the Planning and Construction of National Road Schemes*". The baseline survey will focus on NO₂ (Nitrogen Dioxide), benzene and PM₁₀ as indicators of general traffic-derived air quality in the region. An initial screening assessment has indicated that SO₂, smoke, CO (Carbon Monoxide) and lead are very unlikely to be exceeded and thus do not require site-specific monitoring to

be carried out. Reference to EPA monitoring data will be sufficient to indicate no issues in regards to these pollutants.

The NRA Guidelines state that the monitoring periods for PM₁₀ and NO₂ should “wherever possible should extend for at least 3 months, and should not be less than one month”.

NO₂

EU Directive 1999/30/EC (S.I. No. 271 of 2002) has set annual and one-hour limit values for NO₂. A baseline survey for NO₂ has been completed. The survey used nitrogen dioxide passive diffusion tubes, over a three month period at twenty representative locations near the proposed scheme.

Benzene

EU Directive 2000/69/EC (S.I. No. 271 of 2002) has set annual limit value for benzene. A baseline survey for benzene has been completed. The survey used passive diffusion tubes, over a one month period at ten representative locations near the proposed scheme.

PM₁₀

EU Directive 1999/30/EC (S.I. No. 271 of 2002) has set annual and 24-hour limit values for PM₁₀. A baseline survey for PM₁₀ has been completed. Monitoring was carried out using a portable air sampling unit, over thirty 24-hour periods at two representative locations near the proposed scheme.

In addition, long-term monitoring for NO₂, PM₁₀ and benzene carried out by the EPA will be reviewed.

Summary of Monitoring Schedule

Pollutant	Monitoring Methodology	Number of Locations	Schedule	Data Points
NO ₂	Passive Diffusion Tubes	20	3 × monthly samples at 20 locations	60 Monthly results
Benzene	Passive Diffusion Tubes	10	Monthly samples at 10 locations	10 Monthly results
PM ₁₀	Air Sampling Unit	2	30 x 24-hour samples at 2 locations	60 × 24-hour results

Peak hour concentrations of CO, benzene, nitrogen dioxide, PM₁₀ and PM_{2.5},³ during baseline year and scheme year, with and without the proposed scheme, will be determined for the most sensitive residential receptor points along both the existing and proposed route using the UK DMRB screening model (*Design*

³ The notation PM₁₀ is used to describe particles of 10 micrometers or less and PM_{2.5} represents particles less than 2.5 micrometers in diameter.

Manual for Roads and Bridges, 2003). The model will assess the likely significant impacts of the development in relation to the following pollutants:

- Carbon monoxide (CO)
- Nitrogen Dioxide
- PM₁₀
- PM_{2.5}
- Benzene

In addition, long-term monitoring for NO₂, PM₁₀ and benzene carried out by the EPA will be reviewed.

Concentrations of carbon monoxide, benzene, nitrogen dioxide, PM₁₀ and PM_{2.5} during opening year and design year, both with and without the Proposed Scheme, will be determined for the most sensitive residential receptor points in the vicinity of both existing routes and the Proposed Scheme. The predicted pollutant concentrations will be converted into the appropriate format for comparison with the EU limit values (Council Directives 1999/30/EC and 2000/69/EC).

In accordance with NRA guidelines, an assessment of the impact of the scheme on any European designated habitats (i.e. cSACs / SPA) within 200m of the proposed scheme will be carried out.

The EIS team will provide a qualitative assessment on the potential for dust nuisance and the remediation measures to be employed.

Climate impacts will be addressed as per the guidance provided in the NRA *"Guidelines for the Treatment of Air Quality During the Planning and Construction of National Road Schemes"*. The climate impact assessment will involve an assessment of the impact of the proposed scheme on greenhouse gas (GHG) emissions by quantifying the GHGs emissions for the "do minimum" and "do something" scenarios. Modelling will be carried out using the UK DMRB screening assessment model.

The interaction between air quality and climate and other facets of the environment will be detailed.

The air consultants will work closely with the design team to ensure that, to the greatest extent practicable, the identified residual impacts are ameliorated. Provide a list of the ameliorative measures described, complete with methodologies for their implementation.

3.3.13 Landscape and Visual Impact

The study area used for the landscape and visual impact assessment will be based on the visual envelope of the Proposed Scheme i.e. the areas from which any part of the Proposed Scheme is likely to be visible.

An update of the assessments already provided in the Route Selection Reports will be carried out. This will update data, research and the compilation of relevant information prior to the assessment.

Landscape Character and Impact Assessment

A Landscape Character and Impact Assessment will be carried out. This will assess the likely significant impacts on landscape and will consider the effect of the proposals on attributes of landscape character as defined in Transport Analysis Guidance UK (TAG) work sheets. These attributes are defined as:

- Pattern - the expression of the relationship between topography and form, elevation and degree of enclosure and scale
- Tranquillity - the remoteness and sense of isolation, or lack of it, within the landscape
- Cultural - how landscape elements of an historic or traditional nature contribute to character
- Land cover - how the way in which the land is farmed or managed contributes to character

For each of the above attributes, the value will be described in terms of the scale at which it matters, its rarity, importance and substitutability. The impact on the attribute is then summarised and any recommendations for further mitigation set out.

The assessment of landscape impact will be based on the division of character areas derived from the county landscape character assessment and / or baseline descriptions of existing character. For each character area, the impact is assessed in terms of the effect on key features, taking into consideration the capacity of the landscape to accommodate the type of change generated by the proposals.

Significance Criteria

The effect of the Proposed Scheme on the individual character areas will be considered in the context of local landscape quality to derive an overall impact score for the proposals. The seven point scale will be used to judge significance as Slight, Moderate or Large Beneficial or Adverse plus Neutral.

Visual impact assessment method

The likely significant impacts of the Proposed Scheme will be examined for both opening year (pre-establishment of mitigation planting) and Design Year (15 years post-establishment of mitigation planting) for the following receptors: -

- Dwellings and public buildings (the assessment of views from buildings includes the immediate curtilage and garden)
- Amenity areas
- Public footpaths
- Commercial premises
- Archaeological sites and listed buildings

The following aspects of the Proposed Scheme will be considered in the assessment of likely significant visual impacts: -

- the relationship of the proposed roads with the existing geographical location and arrangement and scale
- road signs, gantries and other structures for driver communication
- lighting
- overbridges
- traffic on the road (height of 4m above the road represents the tops of HGVs).
- loss of trees, other vegetation and buildings, where these stand between the observer and the road
- earth mounding and re-graded landform
- environmental barriers
- proposed sedimentation and attenuation pond features
- proposed planting (Design Year only)

The site survey will be undertaken by walking as close as possible to the centreline of the proposed roads and noting visible buildings and gardens within views of the Proposed Scheme and taking into account the features listed above.

Features acting as significant visual barriers between receptors and the Proposed Scheme will be recorded and illustrated on plans. These features include;

- ridge lines
- tree belts
- woodland
- hedgerows
- intermittent trees
- intervening buildings or structures
- cuttings and embankments.

For each receptor identified in both opening (pre-establishment of mitigation planting) and design years (post-establishment of mitigation planting) scenarios, the impact score will be recorded in the Visual Impact Schedule. The visual changes will be categorised according to the following scale:

Criteria for Assessing Visual Impact

Substantial Adverse Or Beneficial Impact –	Where the Proposed Scheme would cause a significant deterioration or improvement in the existing view.
Moderate Adverse Or Beneficial Impact –	Where the Proposed Scheme would cause a noticeable deterioration or improvement in the existing view.
Slight Adverse Or Beneficial Impact –	Where the Proposed Scheme would cause a barely perceptible deterioration or improvement in the existing view.
No Change Neutral –	No discernible deterioration or improvement in the existing view.

Consideration will also be given to the effect of lighting on view, and comment on the proposed lighting will be included in the assessment.

An overall visual impact score will be determined for the Proposed Scheme by considering the balance of impacts on all receptors in both opening and design years.

Mitigation measures to negate or minimise any likely significant landscape and visual impacts, both during the phases of development and on completion of the works will be proposed. These will be incorporated within comprehensive landscape proposals with guideline specifications for the proposed roads. Mitigation measures will be proposed and summarised for ease of reference.

Any monitoring required will be described.

The interaction between Landscape and other facets of the environment will be detailed.

It is not proposed to use photomontages as an aid to the visual impact assessment at this stage. However depending on the findings of the EIA it may

be determined as the work progresses that it would be beneficial to produce them.

3.3.14 Material Assets

An assessment of Material Assets in the area and the impact of the Proposed Scheme will be presented and any necessary mitigation measures proposed. This section will include an assessment of utilities (gas, electricity, water and sewage), covering areas such as existing supply, layout, and possible constraints and mitigation measures.

This section will not include an assessment of property prices.

The interaction between Material Assets and other facets of the environment will be detailed.

The design team will work closely to ensure that, to the greatest extent practicable, the identified residual impacts are ameliorated.

The EIS will provide a list of the ameliorative measures described.

3.3.15 Archaeological, Architectural and Cultural Heritage

In order to adequately assess the likely significant impacts on archaeology identified at Constraints and Route Selection stages, the methodology for the proposed archaeological impact assessment will be as described below.

The existing archaeological environment and the cultural and Architectural heritage of the area will be described and characterised, following *Guidelines for the Assessment of Archaeological & Architectural Heritage Impacts of National Road Schemes* (NRA) and "Policy and Guidelines on Archaeological Excavation, DAHGI, 1999 – from the Government Publications Office). The Principal aim of the assessment is to anticipate and avoid impacts on the archaeological resource.

The existing archaeological database will be updated through a desktop study involving the consultation of local and county histories, local and National Museum records, aerial photos and cartographic records. The Record of Monument and Places will be consulted along with local and county development plans and other resources identified as being relevant to the cultural heritage of the routes.

The likely significant impacts of the Proposed Scheme on the cultural heritage, built heritage and archaeology of the area will be assessed by a walkover study. This will be concerned with the location of previously unrecorded sites along the Proposed Scheme, and the identification of areas of high potential due to their proximity to natural features like bogs and river crossings. Likely significant impacts on recorded monuments and protected structures will also be assessed. The assessment will involve walking each stretch of road twice, checking on impacts on known monuments and identifying new potential impacts.

Mitigatory measures will be proposed for any likely significant impacts on the cultural heritage of the project area. Mitigatory measures will be determined by the particular circumstances of each site that may be identified.

Communication with other EIS team specialists and in particular the NRA archaeologist will be crucial to the efficient and accurate production of the assessment. Close liaison with the project manager and the supply of relevant

maps and aerial photographs in digital and hard copies for field walking would also progress the project. These will aid the field collection of data and their subsequent presentation in the report.

Consultation will take place with The National Monuments Service, The Architectural Advisory Unit, The Arts Council, The Heritage Council, An Taisce, and Fáilte Ireland.

Any monitoring required will be described.

The interaction between Archaeology and other facets of the environment will be detailed.

The archaeological consultants will work closely with the design team to ensure that, to the greatest extent practicable, the identified residual impacts are ameliorated. A list of the ameliorative measures described will be provided, complete with methodologies for their implementation.

3.3.16 Agriculture

In order to assess the likely significant impacts identified at Constraints Study and Route Selection phases the agricultural impact assessment carried out as part of the EIA will be as per the methodology below.

The preliminary design of the Proposed Scheme corridor will be reviewed and the plans marked up with details of suggested scheme modifications, for consideration for the design team, that could reduce the likely significant impacts of the scheme. Information available for the aforementioned exercise includes: -

- Land and property ownership details within the Proposed Scheme.
- Mapping – including 1:2500 digital OS and 1:50,000 Discover series, ortho photography.
- Preliminary horizontal and vertical alignment details.
- Route Selection and Constraints Study Reports.

Field work and Consultation with Land/ Property Owners

Landowner consultation incorporates three main objectives:-

- Gathering information for incorporation into EIS report.
- Gathering information which will be used at a later stage as part of the land acquisition process.
- Consultation with property owners in accordance with the NRA's *Guide to Process and Code of Practice for National Road Project Planning and Acquisition of Property for National Roads* (NRA, June 2005).

The landowner consultation will involve meetings with landowners of both agricultural and non-agricultural properties. Agricultural properties will consist of residential and non-residential farm holdings where an amount of land will be acquired by the proposed development. Non-agricultural properties will consist of all other properties where an amount of land will be acquired by the proposed development.

Type A : Agricultural Properties

Stage 1 - Preparation of file for farm visit

This stage will involve assembling the appropriate information for each landowner before visiting the farm. The file will include: -

- Land ownership map for each landowner with the Proposed Scheme overlaid to display the impact of the scheme on the farm.

- Any other relevant data supplied by the design team in relation to the landowner.

Stage 2 - Visit to Landowner

This stage of the project will involve visiting the landowner to discuss the impact of the Proposed Scheme on the farmers enterprise. This stage will involve the following: -

- Locating the landowner.
- Meet or make a suitable appointment with the landowner to meet to discuss the impact of the Proposed Scheme.
- Discuss impact on farming enterprise of the Proposed Scheme with the aid of land ownership map, aerial photography and a farm walk. The EIS Team will take note of: -
 - a. Size & Quality of the farm
 - b. Type of Enterprise and Stock Numbers
 - c. Current Access
 - d. Details of Rural Environmental Protection Scheme (REPS) & other grants
 - e. Details of Turbary rights.
 - f. Complete brief questionnaire with landowner on farming system.
- Discuss the farmers' desires in relation to access required to severed portions of land.
- Draw conclusions in relation to the most appropriate access to provide the farmer to mitigate against the impact of the Proposed Scheme.

Stage 3 - Preparation of Report

This stage will involve assembling the data gathered during the farm visit and presenting it in a manner suitable for interpretation by the project team. The preparation of this brief report will include the following: -

- A copy of the field map used during site visit.
- Brief summary in relation to: -
 - Details of any REPS or agricultural grants affected
 - Total Farm area and boundaries for each holding and impact on buildings / yards etc.
 - Type of husbandry / enterprise carried out on each farm and details of livestock units per farm affected
 - Impacts from both permanent and temporary land take and severance of land holdings and any re-organisation of land parcels
 - Existing access and the effect of disruption of access on the management and performance of the farm
 - Likely impact of the Proposed Scheme on agriculture and changes in agricultural enterprises as a result of the scheme
 - Level of dependency on agriculture of the landowners, and likely future viability of the farm
 - Major accommodation works for access, water supply and drainage
 - Develop other mitigation measures, where appropriate
 - Identify options for consideration by the design team as to what is required in terms of access and to mitigate against the impact of the Proposed Scheme.

Type B: Non-Agricultural Properties

Stage 1 - Preparation of file for property visit

This stage will involve assembling the appropriate information for each property owner before visiting the property. The file will include: -

- Individual property ownership map for each landowner with the Proposed Scheme overlaid to display the impact of the scheme on the property.
- Zoning Details relating to each property.
- Any other relevant data supplied by the design team in relation to the property owner.

Stage 2 - Visit to Property Owner

This stage of the project will involve visiting the property owner to discuss the impact of the Proposed Scheme on the holding. This stage will involve the following: -

- Locating the property owner.
- Meet or make a suitable appointment with the property owner to meet to discuss the impact of the Proposed Scheme.
- Review each property in detail assessing the impact on the remaining property following acquisition and disturbance caused to the holding or property as a result of the Proposed Scheme.
- Complete brief questionnaire with the property holder.
- Provide options, for consideration by the design team, in relation to the most appropriate mitigation against the impact of the Proposed Scheme.

Stage 3 - Preparation of Report

This stage will involve assembling the data gathered during the property visit and presenting it in a manner suitable for interpretation by the project team.

Assessment and Reporting

The assessment and reporting will be carried out in accordance with the publication entitled "*Guidelines on the information to be contained in Environmental Impact Statements*" published by the Environmental Protection Agency (March 2002) and the associated publication entitled "*Advice Notes on current practice in the preparation of Environmental Impact Statements*" (September 2004) and also *NRA Guidelines for Environmental Impact Assessment of National Road Schemes*, 16 March 2005. The EIS team will also adhere to all relevant NRA Best Practice Guidelines. This section will include: -

- Non-Technical Summary
- The Proposed Development and Alternatives
- The Existing Environment
- The Likely Significant Impacts of the Proposed Development
- The Measures to Mitigate Adverse Impacts
- Report of Impacts during the Construction Phase. This element of the study will be dependent on the level of disruption during construction. It will deal with all aspects relating specifically to the period in which the Proposed Scheme is under construction. It will cover such aspects as;
 - Noise
 - Dust
 - Restricted Access to Severed Land Parcels
 - Disturbance of Drainage Works
- Recommendations will also be provided to reduce the extent of impacts on agricultural activities during the construction phase. Mapping as required will be included.
- Report of Impacts during the Operational Phase, including;
 - Permanent Land Take
 - No. of Landowners Impacted
 - Noise & Traffic
 - Change in Farm Practice
 - Access Arrangement

- Severance
- The following areas will be discussed with regard to mitigation:
 - Noise & Dust
 - Provision of Access
 - Drainage Disturbance

3.3.17 Waste

A review, based on available geotechnical investigation information, will need to be carried during the preliminary design phase out to assess the likely volume and nature of excavated materials that will need to be removed from the Proposed Scheme during the construction phase for off-site disposal. It is important that excavated material removed from the site is classified for waste disposal purposes in accordance with the relevant legislation. It should be noted however, that the preliminary earthworks design will be further progressed and refined during the detailed design of the Proposed Scheme, which may result in some changes to the preliminary design as published in the EIS. The detailed design will seek to develop the preliminary design in a manner such that there is no material change in terms of significant adverse effect on the environment. Opportunities may be identified to further reduce the significance of adverse effect/impact and, in some cases, improve the residual effect/impact.

Reference will be made to Local and National waste legislation, plans and guidelines. Mitigation measures will be put in place to ensure waste storage facilities during the construction phase and operational phase (if required) comply with all applicable waste management measures.

The quantities of waste for off-site disposal will be minimised through the use of excavated materials were appropriate for fill, landscape / noise bunds and other engineering / environmental purposes.

A description of the likely types and quantities of hazardous and non – hazardous wastes to be generated by the Proposed Scheme, during both construction and operational phases will be provided.

Relevant information will be taken from the soils and geology assessment, particularly with respect to the identification of any contaminated material present (e.g. through dumping or impacts from adjacent sites). Results from any intrusive contamination site investigation will be referenced if any such work is undertaken during the soils and geology assessment.

The GSI have not identified any working quarries within the study area.

The interaction between Waste and other facets of the environment will be detailed.

The waste consultants will work closely with the design team to ensure that, to the greatest extent practicable, the identified residual impacts are ameliorated. A list of the ameliorative measures described will be provided, complete with methodologies for their implementation.

3.3.18 The Interaction of the Foregoing

The interactions between the various specialist sections of the EIS will be assessed and cumulative impacts identified and additional mitigation measures proposed, if required. This section will be guided by *Guidelines for the Assessment of Indirect and Cumulative Impacts as well as Impact Interactions* (European Commission, 1999).

Interactions between the following will be discussed:

- Socio-economic / Water
- Soil and Water Quality / Flora and Fauna
- Landscape / Flora and Fauna
- Socio-economic / Landscape and Visual impacts
- Socio-economic and Archaeological and Architectural heritage
- Material Assets / Air, Climate, Noise and Water
- Socio-economic / Air quality and Noise / Flora and Fauna
- Socio-economic / Soil and Water Quality / Flora and Fauna

3.3.19 Mitigation

Measures to mitigate any residual impacts of the Proposed Scheme will be summarised in a comprehensive final chapter.

3.4 Consultation

Throughout the preparation of the EIS, consultation will be held by each specialist with relevant government departments, agencies and bodies, and where necessary non-governmental organisations, according to the needs of the particular area of specialism. Where appropriate, additional consultation will be undertaken on an ongoing basis with appropriate groups. Below is a list of the consultees which is it proposed will be contacted by the EIS team.

An Taisce – National Trust for Ireland
 The Arts Council
 Bat Conservation Ireland
 Birdwatch Ireland
 Bord Gáis
 Bord na Mona
 Botanical Society of the British Isles' County Recorder for Wexford
 Central Statistics Office
 Coastwatch Ireland
 Coillte
 Department of Agriculture, Fisheries and Food (Head Quarters, Wexford Office and Fisheries Section)
 Department of the Environment, Heritage and Local Government (Development Applications Unit, Heritage Policy and Architectural Protection Unit, National Monuments Service, National Parks and Wildlife Service, Environment, Building Standards and Environmental Assessment, Planning, Spatial Policy, and Water Quality)
 The Eastern Regional Fisheries Board
 Enniscorthy Town Council (Planning and Roads Sections)
 Enterprise Ireland
 Environmental Protection Agency
 Fáilte Ireland
 The Geological Survey of Ireland
 The Health and Safety Authority
 Health Service Executive (Head Quarters and Wexford Local Health Office)
 Electricity Supply Board (Head Quarters, ESB Customer Supply and ESB Networks)
 The Heritage Council
 The Irish Peatland Conservation Council
 The Irish Wildlife Trust
 Local Group Water Schemes
 Met Éireann
 National Biodiversity Data Centre

National Roads Authority (Environmental Unit)
The Office of Public Works
The South Eastern River Basin District Office
Teagasc
Wexford Chamber of Commerce
Wexford County Council (Roads, Planning, Environment, and Recreation and Amenity)

Please note that a number of formal and informal meetings will be held with the members of the public throughout the preparation of the EIS as per both NRA guidelines and the direct needs of the EIS.

APPENDIX A – CONSULTEE RESPONSES DURING CONSTRAINTS AND ROUTE SELECTION STAGES

BORD GÁIS ÉIREANN

Distribution Business Unit
B2 Anna Road,
Sandymount Business Park
Dublin 18
Telephone: 802 1354
Telefax: 802 1375
Email: gasinfo@bge.ie
Website: <http://www.bge.ie>



BORD GÁIS

Ms Eithne Barrett
Ryan Hanley WSP Ltd
Highways and Transportation Consulting Engineers
The Villa
The Crescent
Galway

16 January 2001

Re: Enniscorthy Bypass Scheme

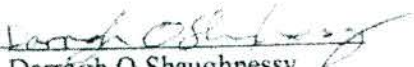
Dear Ms Barrett

I refer to the above and your letter to Mr Joe McMahon in connection with the location of gas mains in the Area of Interest marked on your map.

Bord Gais presently have no mains in Enniscorthy or anywhere in the marked Area of Interest.

It is possible we will run a gas main to Enniscorthy in the future, however it will be a number of years from now.

Yours Sincerely


Darragh O Shaughnessy
Project Engineer
Distribution Design Department

RYAN HANLEY WSP LTD	
GALWAY OFFICE	
DATE RECEIVED	18/1/01
ISSUED TO	DATE
EE	
REPLY REQUIRED	
DATE RECD	DATE SENT
FILE REF: 1608/16/0250	

Ryan Hanley WSP Ltd
Highways and Transportation Consulting Engineers

The Villa
The Crescent
Galway

Tel: + 353 (0)91 587116

Fax: + 353 (0)91 587102

E-mail: rhc@ryanhanley.ie

Our Reference 1608/0216/EB
Your Reference

Date: 11 January 2000

Mr. Richard King,
ESB,
Kilcannon,
Enniscorthy,
Co. Wexford

LINES MARKED AS REQUESTED.

Re : Enniscorthy Bypass

Dear Mr. King,

Following our telephone conversation earlier today, I would be grateful if you could provide details of existing plant and equipment in the Enniscorthy area.

At present, we are reviewing the various constraints within the area and are looking to develop a database of information, which can then be utilised as a framework around which the new road alignment will be fitted.

We understand that the area is large and the exercise is time consuming and as agreed, at this stage, only items of 38 KVolts or larger are to be marked up.

We would be grateful if you could provide us with this information, as soon as is convenient to you.

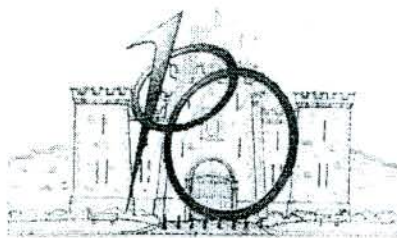
Please do not hesitate to contact me if you have any queries on the above.

Yours sincerely,

Eithne Barrett
Eithne Barrett

Encls.

RYAN HANLEY WSP LTD	
GALWAY OFFICE	
DATE RECEIVED	13/03/01
FILED	FILED
REPLY SENT	
DATE RECEIVED	DATE SENT
FILE REF:	1608/0216/0405



Rialtas Aitiúil
Local Government

March 29, 2001

mhairle Chontae
Ch Garman

Wexford County Council
County Hall
Wexford

053 42211

053 43406

postmaster@wexfordcoo.ie

Sharon Connolly,
Ryan Hanley WSP.

Dear Sharon,

Attached please find 3 No. sketches showing, in so far as I'm aware, infrastructural elements of a Sanitary nature that are affected by the proposed alignment shown in your drawing,

Including :-

- (1) Existing drinking water distribution mains.
- (2) Foul Sewer / treatment plant.
- (3) General sketch showing geology of Co. Wexford. (refer to G.S.I for more detailed information)

Yours Sincerely,

Paul Wilson

Paul Wilson,
Senior Executive Engineer, Sanitary Dept.

RYAN HANLEY WSP LTD	
GALWAY OFFICE	
DATE RECEIVED	14/05/01
ISSUED TO	DATE
SC	
REPLY REQD BY (date)	
DATE REQD	DATE SENT
FILE REF	1608/16/0519

100 Years of Community Service
Céad bliain ag tabhairt scríbhíse don phobal

Private & Confidential

Ms. Eithne Barrett
Ryan Hanley WSP Ltd
The Villa
The Crescent
Galway

Blackthorn House
Sandyford Industrial Park
Dublin 18 Ireland

Tel +353 1 203 7667
Fax +353 1 203 7629
Mobile +353 87 233 0636

16 January 2001

Dear Ms. Barrett

Re: Enniscorthy Bypass

I refer to your letter sent to me on the 15/1/01.

With regard to Eircell infrastructure, we have no major existing or proposed items of equipment within the area outlined on your map.

Once a route has been defined, Eircell would undertake an assessment of this route to ensure that our coverage requirements are met by either existing sites or if necessary plan new sites to give the required coverage.

I look forward to receiving the route options for this road when they become available.

Yours sincerely

Richard Godley
Executive Engineer

Registered in Ireland at
Unit 9 Richview Office Park Clonskeagh
Dublin 14 Ireland
Number 236930
VAT Reg no IE 82369301
Web <http://www.eircell.ie>
Eircell Ltd Directors: SJ Brewer Chief Executive (UK), AT Corbett, A Kane, L Michaelsson (Sweden), M Fallon

Tel: +353 (0)91 587116
Fax: +353 (0)91 587102
e-mail: janet.armitage@wspgroup.com

Our Ref: 200923/R
Your Ref:

10 January 2001

Re: N11 Enniscorthy Bypass, Ireland – Ecological Data Request

Dear Lady FitzGerald

Further to our telephone conversion on 05/01/01, enclosed is the draft ecology drawing for the above scheme. As advised we have highlighted the ecologically sensitive areas along the Boro and Urrin rivers, please can you inform us if these areas are sufficient. Please can you also recommend any additional information or amendments to be made to the drawings.

The contact address for WSP Environmental is:

Intec 4
Wade Road
Basingstoke
Hampshire
RG24 8NE

We look forward to hearing from you.

Yours sincerely

Janet Armitage
Senior Environmental Consultant
For **WSP Environmental Limited**
Direct line 01256 318874

Enc.

DIRECTORS: Michael J Gannon BE CEng FIEI MCIWEM MIHT MConsEI; Damian P Hanley BE MSc (London) MBA CEng MIEI MICE MConsEI
Michael J O'Brien Eurling DipTech CEng FICE; Anthony G Zandona FIHT
SECRETARY: M C Cahill
REG BUSINESS NO.: 309296

An Ghníomhaireacht um Chaomhnú Comhshaoil



Ms Janet Armitage
WSP Environmental Limited
Intec 4, Wade Road
Basingstoke, Hampshire
RG24 8NE
England

PO Box 3000
Johnstown Castle Estate
County Wexford
Ireland

Tel.: +353 53 60600
Fax: +353 53 60699
Website: www.epa.ie

Date

29/01/01

Our ref.

04-13-04-01

Your ref.

Re: Constraint Study for N11 Enniscorthy Bypass

Dear Ms Armitage,

I acknowledge your letter to the Agency of 13 December 2000 regarding the N11 Constraints Study.

I would draw your attention to the register of EPA licensed activities on our website. General water and air quality information can be obtained from the relevant EPA publications. The Agency recently published Water Quality in Ireland 1995-97 and produced an accompanying diskette, which contains a Statistical Compendium of River Quality Data. These publications are available from our publications office (tel. 01-6674474).

I would also draw your attention to two documents the EPA have published on the preparation of Environmental Impact Statements: 'Advice Notes on Current Practice in the Preparation of Environmental Impact Statements' and 'Draft Guidelines on the Information to be Contained in Environmental Impact Statements'. These guidelines set out the issues that the Agency consider need to be addressed in the preparation of an EIS and, where necessary, in the subsequent development.

In relation to the specific project, I refer you to section 3 of 'Advice Notes on Current Practice in the Preparation of Environmental Impact Statements' which provides guidance on the topics which would usually be addressed when preparing an EIS for developments of a specific project class. Road developments are addressed under Project Type 29. These documents are currently under revision due to recent legislative changes in EIA law; further details on this can be obtained from the EPA website.

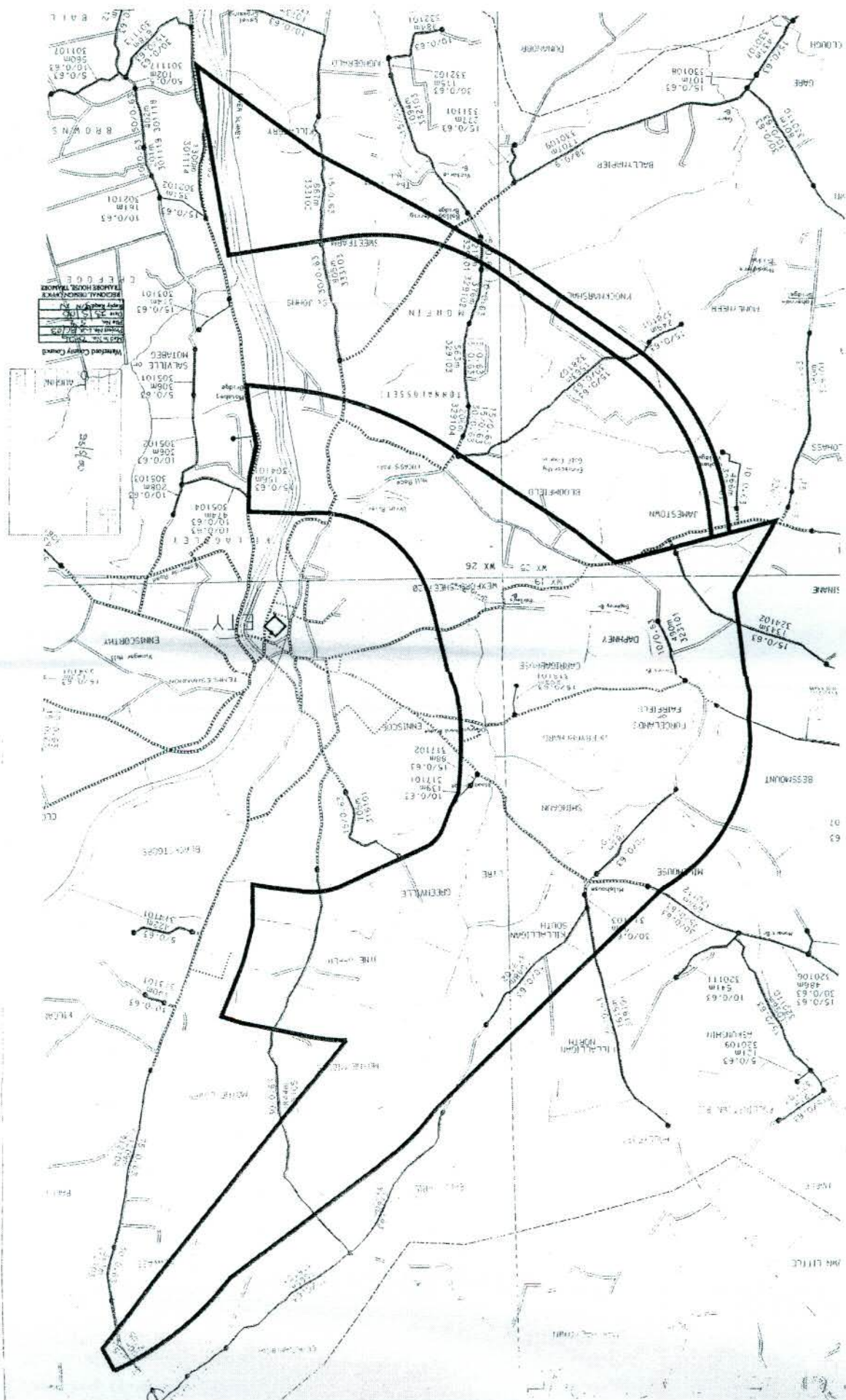


I would refer you to the relevant local authority for further identification of constraints and to the relevant fisheries board. Dúchas, The Heritage Service, National Parks and Wildlife, can provide information on conservation designated sites.

Yours sincerely



Dr Conor Clenaghan
Environmental Management and Planning



CONSULTEE RESPONSES

Statutory Bodies

Consultee	Date Received Response	Comments
Eastern Regional Fisheries Board	22 June 2001	The River Slaney is designated under the European Communities (Quality of Salmonid Waters) Regulations 1978. It is also a candidate Special Area of Conservation, it supports several species listed in Annex 2 of the European Habitats Directive. Having examined the Route Corridor Options it would appear that whatever option is preferred, the project will involve river crossings. It is vital, in our opinion, that these crossings take the form of bridges which have the minimum impact on fisheries habitats.
Geological Survey of Ireland	30 November 2000	The GSI hold information on two potential NHA's in the vicinity of Enniscorthy. They are located at Kiltrea 919 405 and Greenville 963 414, Neither will be directly impacted by any of the route corridors but the blue route is in close proximity to the one at Kiltrea. The GSI would like to be informed when construction begins so they can observe the area for potential geological discoveries.
	24 January 2002	A meeting was held between WSPE and the GSI to further assess the potential impacts of the proposed routes on areas of geological significance. The GSI have no objections to any of the routes. They again expressed a desire to be notified when construction begins.
	1 st February 2002	Letter received to verify the above comments. The site at Kiltrea is now being proposed as an area of County significance rather than a national one. They recommend that any exposed bedrock be left

		exposed where it is safe to do so.
Coillte	29 May 2001	Information was provided regarding the location of Coillte property within the study area and a GIS map was provided of these sites. The Blue corridor is the preferred route however they would like consultation when the route has finally been chosen.
Wexford County Council	N/A	Information has been provided on a continual basis, and on a range of issues, to Ryan Hanley WSP through the County Council offices and through the NRA.
Environmental Protection Agency	21 Feb 2001 29 Jan 2001	The same letter was received twice and outlined information on the EPA licensed activities on their website. Also it mentioned publications such as the water quality in Ireland report 1995-1997 and Advice notes on Current Practice in the Preparation of EIS's and draft guidelines on the information to be contained in EIS's. It refers the reader to the EPA website for any further information.
Duchas The Heritage Service	Jan 2001 16 April 2001 19 Sep 2001 21 Sep 2001 23 Jan 2002	<p>Maps were purchased for the extent of the SAC and NHA.</p> <p>A meeting was held with Gerry Browner of Duchas with regard to Archaeology, Architecture and Built Heritage. He also sent a written submission to confirm the protected status of St. Johns Manor.</p> <p>A further meeting was held between representatives of Duchas' Archaeology and Ecology sections and Ryan Hanley WSP, WSP Environmental Ltd, Martin Byrne the sub-consultant archaeologist and James Eogan the Wexford County Council archaeologist. Preferred route options in terms of both Ecology and Archaeology were discussed and suggestions made for mitigation of potential impacts.</p>

Non Statutory Bodies

Irish Peatland Conservation Council	N/A	To date no reply has been received
Ecological Recorder for County Wexford. Lady Ro FitzGerald.		Lady Ro Fitzgerald responded via a telephone call and identified areas of ecological importance, which were then placed on a map and assessed during later ecological surveys.
Birdwatch Ireland	N/A	To date there has been no reply
Natural Heritage Office	N/A	To date no reply has been received
Irish Peatland Conservation Council	N/A	To date no reply has been received
Teagasc	4 Jan 2001	Informed that they have SAC/NHA colour maps, Sites and Monuments, Identification of Land areas being farmed to REP's (Rural Environmental Scheme Contract) on 6" maps.
Irish Wildlife Trust	N/A	To date no reply has been received



Patron:
Mr. Pat Falvey

President:
Mr. Gordan D'Arcy

Batline: +353 46 9242882 Website: www.batconservationireland.org Email: batline@eircom.net

Bat Conservation Ireland
Deerpark House,
Tierwurcher,
Kells,
County Meath.

FAO: Leanne Cooke,
Scott Cawley,
27 Lower Baggot Street,
Dublin 2.

23rd April 2007

Re: N11 Clogh to Enniscorthy Road Realignment – Bat Conservation Ireland Consultation

To Whom It May Concern:

I am writing in relation a consultation letter sent by your company in relation to the Constraints Study for the N11 Clogh to Enniscorthy Road Realignment.

The seriousness of the decline of bat population across Europe has led to the establishment of conservation programmes and appropriate legislation to stabilise population numbers. In the Republic of Ireland, flora and fauna are protected by the Wildlife Act 1976. All species of bat and their roosts are protected by the law and it is an offence to kill, disturb, handle, sell or offer any bat whether alive or dead, without an appropriate license. The Wildlife Amendment Act 2000 improves the conservation of both species and their habitats and gives statutory protection to Natural Heritage Areas (NHAs). Potentially the most important legislation for the protection and conservation of flora and fauna and their natural habitat is the EC Habitats Directive 1992 (EEC 92/43), which lists habitats and species of European conservation importance. All bat species, apart from Lesser horseshoe bat which is an Annex II species, are listed as Annex IV species. Member States must achieve a favourable conservation status for bat species. This involves measures that will stabilize the population dynamics of the species, so that it maintains itself on a long-term basis as a viable component of the natural habitat. Therefore, each Member State must prevent the natural range of the species from reducing and thus takes measures to ensure suitable habitat remain in the long-term.

A database search of the Bat Conservation Ireland database was undertaken for a 10km radius of the following towns: Ferns and Camolin. These towns represent two major grid reference points for the database search. The database presents results as either 'Roosts' or 'Transects'. Roosts are dwelling areas for bats and are categories as maternity, hibernation, night or satellite roosts, the first two being high priority sites. Transects represent data collated by 'car transects', 'waterway transects' of walkabout transects'. Results are presented in table below. A total of five species of bat were recorded within the study area with additional records for 'Unidentified bats', *pipistrelle spp.*, and *Myotis* bats. Records are comprised of bats recorded by the Car-based Transect Monitoring Scheme (2003-2006) (recorded by Time Expansion Bat Detector) and the All-Ireland Daubenton's Bat Waterway Survey (2006) (recorded by Heterodyne Bat Detector). Species recorded along 1mile transects within the 30km square T05 are as follows (transects 11-19): Leisler's bats, soprano pipistrelle, common pipistrelle, *Myotis* species, pipistrelle species. Two bridges within the database search areas were survey points for



Patron:
Mr. Pat Falvey

President:
Mr. Gordan D'Arcy

Batline: +353 46 9242882 Website: www.batconservationireland.org Email: batline@eircom.net

Bat Conservation Ireland
Deerpark House,
Tierwurcher,
Kells,
County Meath.

the All-Ireland Daubenton's Bat Waterway Survey (S9837545068 & T1112159219) and Daubenton's bats were recorded along 1km transects at both of these bridges.

An important point to note is that bat species, where records are not currently available, does not mean that this species is not present within the study area. Surveying for species likely to occur in the area is still recommended.

Bat Conservation Ireland recommends that a bat survey following the NRA Guidelines: Best Practice for the Conservation of Bats in the Planning of National Road Schemes and Guidelines for the treatment of Bats during the Construction of National Roads (NRA, 2006a and 2006b) is part of the Environmental Report for the road scheme to determine the roosting, commuting and foraging potential for local bat populations. In general, developments in close proximity to an important roost have a negative impact on the reproductive success of a bat colony. The impacts from developments tend to increase noise and light levels, which are known to negatively impact on bats. The potential of the development to impact on commuting routes and access to foraging areas also needs to be considered. It is, therefore essential, that all survey work is undertaken at the appropriate time of the year and undertaken in appropriate weather conditions to ensure that information gathered provides the appropriate information to make an assessment of the potential impacts of the scheme on local bat populations.

Bat Conservation Ireland officially came into existence in 2004 and now acts as the national umbrella group for all county bat groups. Bat Conservation Ireland is affiliated with the Irish Wildlife Trust and works closely with many NGOs, The Heritage Council and NPWS Conservation Rangers. Bat Conservation Ireland manages the All Ireland Bat Monitoring Programme in conjunction with Bat Conservation Trust UK and under the funding and assistance of the Heritage Council, NPWS (Department of Environment, Heritage and Local Government), EHS (Department of Environment Northern Ireland) and Waterways Ireland. We provide information on the conservation of bats to all public enquires and will assist the general public in their needs in relation to bats. The group is also involved in providing training in the use of bat detectors through organising bat detector workshops. The erection of bat boxes, field surveys and the collection of data on bat distribution in the country are on going group projects.

Yours truly,

Dr Tina Aughney
Conservation Officer, Bat Conservation Ireland



Patron:
Mr. Pat Falvey

President:
Mr. Gordan D'Arcy

Batline: +353 46 9242882 **Website:** www.batconservationireland.org **Email:** batline@eircom.net

Bat Conservation Ireland
Deerpark House,
Tierwurcher,
Kells,
County Meath.

BIBLIOGRAPHY

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Eastern Regional Fisheries Board Bord Iascaigh Réigiúnach an Oirthir

Leanne Cooke,
Scott Cawley,
27 Lower Baggott Street,
Dublin 2.



Fisheries Ireland
Our Natural Heritage

Our Ref: MK/Wx

30th April, 2007

Re: Proposed N11 Clogh to Enniscorthy Road Realignment

Dear Ms. Cooke,

We refer to your letter dated 16th April last in relation the above mentioned project.

The study area contains the main channel and tributaries of both the Slaney River and the River Bann. Both rivers are important from a fisheries perspective as they hold excellent stocks of Salmon, Brown Trout and Sea Trout, River Lamprey, Sea Lamprey and Brook Lamprey. The River Slaney is a designated River under the European Communities (Quality of Salmonid Waters) Regulations 1978. The entire main channel of the river is a candidate Special Area for Conservation (SAC) under the European Habitats Directive. The Bann River is one of the more important spawning / nursery areas for salmon on the Slaney system. The River Bann main channel from Pallis Bridge to its confluence with the Slaney is a candidate SAC because of its importance as a salmon spawning / nursery River.

In relation to the proposed road realignment clear span bridges are our preferred option at any of the river crossings in order to minimise the impact on the aquatic habitat.

The Boards general requirements in relation to road projects include the following:

- In salmonid catchments, all instream works should be carried out during the period May to September.
- In the event that these waters contain Lamprey it is necessary to contact National Parks and Wildlife Service for their requirements.
- No instream works shall be carried out without the written approval of the Board. A method statement must be agreed well in advance.
- There must be no discharge of suspended solids or any other deleterious matter to watercourses.
- Fish passage conditions must be maintained at all times.

We refer you to our guidelines, which we enclose, entitled *Requirements for the Protection of Fisheries Habitat during Construction and Development Works at River Sites*. These guidelines include practical measures for the avoidance and mitigation of damage during construction and development works.

Please keep us informed of progress with this project.

Yours faithfully,

Pat Doherty,
Acting Chief Executive Officer

Enc

The Eastern Regional
Fisheries Board
15a Main Street
Blackrock
Co. Dublin

T: (01) 278 7022

F: (01) 278 7025

E: info@erfb.ie

www.fishingireland.net





An Taisce – The National Trust for Ireland

Tailor's Hall, Back Lane, Dublin 8

20070907- N11 Clogh to Enniscorthy Realignment

Leanne Cooke
Scott Cawley
27 Lower Baggot Street
Dublin 2
Ireland

7 September 2007

Dear Ms Leahy

Re: Proposed N11 Clogh to Enniscorthy Road Realignment - Route Selection

Thank you for your letter of 19th July 2007 re the N11 Clogh to Enniscorthy Realignment. We note that this is being carried out in accordance with 'National Roads Project Management Guidelines' as set out by the National Roads Authority. Please be advised that these Project Management Guidelines have no legal status under either EU or Irish Law.

Accordingly, as a preliminary matter, we would appreciate if you could advise us as to: how this proposal addresses:

1. Meeting of national targets for reduction of greenhouse gas emissions

Irish greenhouse gas emissions are among the highest in the world per capita, for example Ireland with a population of 4 million has higher emissions than Sweden which has a population of 9 million. The 13% Kyoto limit over 1990 levels is not being met with current levels at 26% over 1990 levels. Transport emissions in Ireland are 160% over 1990 levels.

The current Program for Government has a commitment to reduce greenhouse gas emissions by 3% per annum.

The mounting international scientific consensus is that both Kyoto targets are too low and that a significant reduction in current total levels is required. This means that any transportation proposal which increases road vehicle transport generation and therefore emissions is no longer tenable. There is both a legal and moral responsibility on all engineering, environmental and other consultants to advise political and public administrative decision makers of this.

Furthermore there is a code of practice requirement on members of the engineering, planning and other professions to act ethically and accordingly to refuse to endorse or recommend schemes which increase emissions.

Over recent years the approach which is being used by members of professional planning and engineering bodies endorsing road schemes of isolating the greenhouse gas generation of each individual scheme and presenting a false choice between the proposed road scheme and the "do nothing scenario" of not proceeding with the development and treating traffic growth levels in recent years as a given fact and to be tolerated into the future, is no longer scientifically or ethically tenable.

Any transportation infrastructure proposal must be linked to a transportation management strategy of reducing current levels of road vehicle use and consequently of emissions. This means that in general the only road schemes tenable are small-scale urban bypasses and relief roads, but not inter-urban or inter-regional roads. In relation to bypasses or relief roads any proposal must be linked to an integrated transportation strategy for the urban area as a whole, including reduction of greenhouse gas emissions.

Accordingly please advise as to what calculation of and mitigation of greenhouse gas generation you are providing in relation to this scheme and what professional code of practice is being followed by you and the other professional consultants assessing the justification for this scheme.

2. Strategic Environmental Assessment Directive

1. How this project complies with The Strategic Environmental Assessment Directive, 2001/42/EEC?
2. What is the Strategic Environmental Assessment basis of the proposal
3. Is the N11 Clogh to Enniscorthy Realignment scheme part of a larger scheme affecting the N11?
4. Does it connect with any further schemes?
5. What strategic environmental assessment has been carried out for the N11 Clogh to Enniscorthy Realignment scheme or any larger scheme to which it relates?

3. Environmental Impact Assessment Directive 85/337/EEC, as amended by 97/11/EC, as amended by 2003/35/EC

What action are you taking to ensure that scoping for the N11 Clogh to Enniscorthy realignment scheme complies with Article 2 of the Directives regarding scoping and the 2001 European Commissions Guidelines on scoping?

While we would be pleased to advise on development constraints within the indicated Study Area, it would not be appropriate to expend time and resources evaluating such constraints until the wider issues raised above are first addressed and resolved. Accordingly, we would appreciate your specific and detailed response to all of the questions contained in this submission and the specific questions raised above with regard to your scientific and ethical responsibility to achieve greenhouse gas emission reductions and your preliminary legal obligations under the SEA Directive and EIA Directive.

Yours sincerely



Ian Lumley
Heritage Officer



Eastern Regional Fisheries Board

Bord Iascaigh Réigiúnach an Oirthir



Fisheries Ireland

Our Natural Heritage

Leanne Cooke,
Scott Cawley,
27 Lower Baggott Street,
Dublin 2.

31 July 2007

Re: Proposed N11 Clogh to Enniscorthy Road Realignment – Route Selection Assessment

Dear Ms. Cooke,

With reference to the proposed N11 Clogh to Enniscorthy Road Realignment – Route selection assessment the study area contains the main channel and tributaries of both the Slaney River and the River Bann. The Slaney River is a designated river under the European Communities (Quality of Salmonid Waters) regulations 1978 and is an important Spring Salmon & sea trout fishery. The Slaney system supports several species listed in Annex II of the Directive including Salmon, River Lamprey, Brook Lamprey, Sea Lamprey, Freshwater Pearl Mussel and Otter. The entire main channel of the both the Slaney & Bann Rivers is a candidate Special Area for Conservation (SAC) under the European Habitats Directive, while significant stretches of the lower reaches of the Corbally and Tinnacross (both Slaney tributaries and substantially affected by the various proposed routes) are also Candidate SACs.

Recent survey work on the River Bann found reasonable populations of *Margaritifera margaritifera*, freshwater pearl mussel in the River Bann and it is likely that other populations are to be found in the main Slaney and its tributaries.

The study area also includes sections of the Bracken / Owenavorrach system, an important salmonid catchment with excellent populations of salmon, sea trout & brown trout. The Bracken / Owenavorrach catchment is also known to hold excellent populations of River Lamprey & Brook Lamprey.

We note that there is a potential for significant suspended solids pollution of the Rivers Bann / Slaney and their tributaries in run-off from these works. *Margaritifera margaritifera*, freshwater pearl mussel and juvenile salmonids are especially vulnerable to suspended solids pollution and thus it is imperative that mitigation measures are put in place to prevent the discharge of deleterious matter to watercourses and that such measures are adequate to deal with run-off from the site during prolonged periods of heavy rainfall. It is imperative that these measures are fully addressed at the preparatory / planning stage for this project.

With reference to the various route selections we note that all routes will involve numerous crossing of watercourses. The Board welcomes the selection of a route that minimises the numbers of watercourse crossings, with special attention being given to the reduction in the potential for damage to SAC waters such as the River Bann. Clear span bridges are our preferred option at any of the river crossings in order to minimise the impact on the aquatic habitat.

Other concerns of the Eastern Board include:

**The Eastern Regional
Fisheries Board**

15a Main Street

Blackrock

Co. Dublin

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F: (01) 278 7025

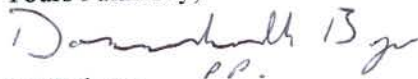
E: info@erfb.ie

www.fishingireland.net

1. No instream works shall be carried out without the written approval of the Board. A method statement must be agreed well in advance, and construction works, especially those involving the pouring of concrete must be carried out in the dry.
2. The free passage of fish must be maintained at all times.
3. The design of any river crossing should be decided upon in consultation with the Fisheries Board and in line with the Eastern Regional Fisheries Board's guidelines **"Requirements for the Protection of Fisheries Habitat during Construction and Development Works at River Sites"**, and a method statement is agreed in advance with regard to the construction of any river crossing.
4. The closed season for instream works (October – April inclusive) must be observed.
5. Angler access along the Rivers edge must be maintained on both sides of the angling watercourses beneath bridges
6. Systems should be put in place to ensure that there shall be no discharge of suspended solids or any other deleterious matter to watercourses during the construction phase and during any landscaping works.
7. The timing of any works should not interfere with passage of migratory fish, with spawning fish and the eggs and fry of fish
8. The fisheries present within the Study area, both private and public should be maintained
9. Bankside vegetation should be conserved where possible.
10. Given the importance of these watercourses as a salmonid nursery / spawning area and as habitat for *Margaritifera margaritifera*, the Board requests that watercourse banks should be left intact in, and if they have to be disturbed all practicable measures should be taken to prevent soils from entering the watercourse
11. Given the proximity of the River the pollution threat from concrete and concrete/cement washings is significant. Good housekeeping is of the utmost importance while using concrete or cement near watercourses.
12. Fuels, oils, greases and hydraulic fluids must be stored in bunded compounds well away from the watercourse. Refuelling of machinery must be carried out in bunded areas.
13. All surface waters from the site and access road should be channelled through adequately sized petrol / oil interceptors and be subject to attenuation prior to discharge to the watercourse.
14. All waste oil, empty oil containers and other hazardous wastes are disposed of in conjunction with the requirements of the Waste Management Act 1996.
15. In the event that these waters contain Lamprey it is necessary to contact National Parks and Wildlife Service for their requirements.

We refer you to our guidelines, which we enclose, entitled *Requirements for the Protection of Fisheries Habitat during Construction and Development Works at River Sites*. These guidelines include practical measures for the avoidance and mitigation of damage during construction and development works.

Yours Faithfully,



Pat Doherty
Acting Chief Executive Officer

RESPONSES FROM SERVICE PROVIDERS

Bord Gais Distribution & Transmission

I confirm that Bord Gáis have no existing or proposed transmission and distribution pipelines in the Clogh to Enniscorthy area,

William Kearney

Distribution Design Manager

From: David Bradish [mailto:bradishd@ryanhanley.ie]
Sent: 12 March 2007 11:11
To: Willie Kearney
Subject: N11 Clogh to Enniscorthy - Bord Gáis Utility Constraints

William,

Thanks for taking the call earlier. Could you please confirm that Bord Gáis have no existing or proposed transmission and distribution lines in the Clogh to Enniscorthy area? I have attached the study area map for your reference.

Many thanks for you assistance

Best Regards

David Bradish

Ryan Hanley WSP Ltd
Highways and Transportation Consulting Engineers

Sherwood House
Sherwood Avenue
Taylor's Hill
Galway

Tel: 00 353 (0)91 587116
Fax: 00 353 (0)91 587102
e-mail: bradishd@ryanhanley.ie

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Thank you for your attention.

ESBi

From: deborah.meghen@eirgrid.com [mailto:deborah.meghen@eirgrid.com]

Sent: 27 July 2007 09:47

To: James McHale

Subject: RE: N11 Clogh to Enniscorthy - Proposed new National Road - EirGrid 220/110kV line

Hi James

Thanks for that, we are planning to start construction on our new Lodgewood 220kV Substation and associated 220kV lines in the late autumn and from your attached drawing there seems to be no conflict with this work. However we hope to have full planning for the 110kV line that runs across the N11 to our existing Crane 110kV substation in October and will then proceed with construction in the New Year. From your attached drawing this 110kV line crosses one of your options at 90deg which should not be a problem but also conflicts with another option where our power line crosses the train line and N11. Obviously as you have not selected your final route I must simply make you aware of these two possible conflicts and ask that you contact us as soon as you have a final route selected so we can take whatever appropriate measures are required.

Thanks again for the update.

Regards

Deborah Meghen

Senior Project Engineer

Grid Development and Commercial

27 Lower Fitzwilliam Street

Dublin 2

Tel: 01 7021126

Mob: 087 2235166

Email: deborah.meghen@eirgrid.com

www.eirgrid.com

-----Original Message-----

From: James McHale [mailto:McHaleJ@ryanhanley.ie]

Sent: 26 July 2007 11:09

To: Meghen. Deborah - EirGrid

Subject: RE: N11 Clogh to Enniscorthy - Proposed new National Road - EirGrid 220/110kV line

Deborah,

For your information, please find attached the current route options under consideration for the N11 Clogh to Enniscorthy road scheme. Completion of the route selection process is anticipated in early Autumn of this year.

Regards,

James McHale,
Senior Design Engineer,

Ryan Hanley WSP Ltd,
Sherwood House,
Sherwood Avenue,
Taylors Hill,
Galway,
Ireland.

Phone: 00353 (0)91 587 116
Fax: 00353 (0)91 587 102

From: deborah.meghen@eirgrid.com [mailto:deborah.meghen@eirgrid.com]
Sent: 17 May 2007 11:46
To: James McHale
Subject: N11 Clogh to Enniscorthy - Proposed new National Road - EirGrid 220/110kV line

Hi James

As discussed please see attached line routes for our proposed new 220/110kV lines from our new Lodgewood 220kV station to Crane 110kV station.

If you require any further information please do not hesitate to contact me and as soon as you have more information on your route selection I would be grateful if you could forward it on so we can appraise its impact.

Regards

Deborah Meghen
Senior Project Engineer
Grid Development and Commercial

27 Lower Fitzwilliam Street
Dublin 2
Tel: 01 7021126
Mob: 087 2235166
Email: deborah.meghen@eirgrid.com
www.eirgrid.com

ESB Networks

From: Darcy. John [mailto:John.Darcy1@esb.ie]
Sent: 23 May 2007 14:08
To: David Bradish
Subject: RE: Attn Noel: N11 Enniscorthy Bypass & N11 Clogh to Enniscorthy Scheme - ESB line details
Importance: High
Sensitivity: Confidential

Attached N11.zip & Ryan Hanley1.zip

-----Original Message-----

From: David Bradish [mailto:bradishd@ryanhanley.ie]
Sent: 21 May 2007 10:01
To: Central Requests
Subject: Attn Noel: N11 Enniscorthy Bypass & N11 Clogh to Enniscorthy Scheme - ESB line details

Dear Noel ,

We are the consulting engineers working on behalf of Wexford Co Co on both of the above schemes. Following consultation with the ESB in the Enniscorthy office, we were referred to central site requests to submit our queries. Details of each scheme are given below.

The **N11 Enniscorthy Bypass** scheme is at the Preliminary Design stage and as such an initial design has been carried out. The route of the proposed bypass is shown on the attached PDF (*N11_Enniscorthy Bypass-Route Plan Sept06*). If possible and at your earliest convenience, could you please provide us with details of any existing or proposed ESB lines in the Enniscorthy area that may be affected by the proposed route?

The **N11 Clogh to Enniscorthy** scheme is at Constraints Study stage and as such no route has yet been identified. We are in the process of gathering a database of information within a study area, around which a route will be fitted. A PDF of the study area is attached (*N11_CLOGH_Constraints Study Map(1)*). Could you please forward us details of existing or proposed ESB plant/utilities within the study area so that we can identify any ESB constraints?

If it was at all possible to obtain the above information in electronic format, we would be most grateful.

Should you have any further queries, or require further information please do not hesitate to contact us.

Regards

David Bradish

Ryan Hanley WSP Ltd
Highways and Transportation Consulting Engineers

Sherwood House
Sherwood Avenue
Taylor's Hill
Galway

Tel: 00 353 (0)91 587116
Fax: 00 353 (0)91 587102
e-mail: bradishd@ryanhanley.ie

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Company Registration Information: <http://www.esb.ie/companies>

Eircom

From: FKeoghan@eircom.ie [mailto:FKeoghan@eircom.ie]

Sent: 22 June 2007 16:39

To: David Bradish

Subject: TSK-071029 (2b of 2)(N11 Clogh to EnniscorthyTSK-071029)

Hello David

final drawing showing fibre optic details

Regards

Frank

From: David Bradish [mailto:bradishd@ryanhanley.ie]

Sent: 21 June 2007 11:26

To: Keoghan, Frank

Subject: RE: N11 Clogh to Enniscorthy (Attention Frank Keoghan Ref TSK-071029)

Hi Frank,

In relation to the Clogh to Enniscorthy Scheme, I've been asked to check with you whether or not there are any fibre optics in the ducts within the study area?

Fibre optics would constitute a much larger diversion cost than standard Eircom plant and therefore they may have a significant impact on the final route to be selected.

Thank you for your continued assistance

Regards

David

From: FKeoghan@eircom.ie [mailto:FKeoghan@eircom.ie]

Sent: 30 March 2007 12:59

To: David Bradish

Subject: RE: N11 Clogh to Enniscorthy (Attention Frank Keoghan Ref TSK-071029)

Hello David

1X100PP number of pipes in trench = 1
 size of pipe = 100mm
 type of pipe = Plastic Pipe

CD = Concrete Duct
ST = Steel pipe
MP = Mole Plough (continuous duct placed in ground by mole plough

machine)

Regards

Frank Keoghan

From: David Bradish [mailto:bradishd@ryanhanley.ie]
Sent: 30 March 2007 12:46
To: Keoghan, Frank
Subject: RE: N11 Clogh to Enniscorthy (Attention Frank Keoghan Ref TSK-071029)
Frank,

Sorry about this, but is there any chance you can forward us the details of the different duct/line abbreviations as outlined below:

1x100MP
1X100PP
1X100ST
1X100CD

I'm just enquiring because some of the overhead lines overlap with the underground ducts when we put all the xrefs you sent us together. Its not too important at this stage but will save us reviewing this at a later stage of project.

Thanks

David Bradish
Ryan Hanley WSP Ltd
Highways and Transportation Consulting Engineers
Sherwood House
Sherwood Avenue
Taylor's Hill
Galway
Tel: 00 353 (0)91 587116
Fax: 00 353 (0)91 587102
e-mail: bradishd@ryanhanley.ie

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From: FKeoghan@eircom.ie [mailto:FKeoghan@eircom.ie]
Sent: 28 March 2007 15:39
To: David Bradish
Subject: FW: N11 Clogh to Enniscorthy (Attention Frank Keoghan Ref TSK-071029)
Importance: High
Hello David

Yes you are correct, the green lines and dots are the overhead cables and main joints

and the blue lines are the underground routes,
more details on manhole locations and duct types are shown on N11A to N11G attached to mails
also

Regards

Frank Keoghan

From: O'Driscoll, John **On Behalf Of** Plan Design Bureau
Sent: 28 March 2007 15:07
To: Keoghan, Frank
Subject: FW: N11 Clogh to Enniscorthy (Attention Frank Keoghan Ref TSK-071029)
Importance: High
Frank,

Can you look after this

John

From: David Bradish [mailto:bradishd@ryanhanley.ie]
Sent: 28 March 2007 14:51
To: Plan Design Bureau
Subject: N11 Clogh to Enniscorthy (Attention Frank Keoghan Ref TSK-071029)
Frank,

Thanks for sending through the details of Eircom plant within the study area.

In relation to whether the lines are overhead or underground, would I be right in assuming that on the N11OH drawing (see attached) that you sent us, the following is correct:
Blue lines in Ferns, Camolin & Clogh are underground
Green lines everywhere else are overhead lines
Thanks again for your assistance

Regards

David Bradish
Ryan Hanley WSP Ltd
Highways and Transportation Consulting Engineers

Sherwood House
Sherwood Avenue
Taylor's Hill
Galway
Tel: 00 353 (0)91 587116
Fax: 00 353 (0)91 587102
e-mail: bradishd@ryanhanley.ie

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From: FKeoghan@eircom.ie [mailto:FKeoghan@eircom.ie]
Sent: 26 March 2007 15:33
To: David Bradish
Subject: FW: N11 Clogh to Enniscorthy mail 2 of 2

From: Keoghan, Frank
Sent: 26 March 2007 15:31
To: 'bradishd@ryanhanley.ie'
Subject: N11 Clogh to Enniscorthy mail 1 of 2

eircom Ltd. - Dial Before You Dig Service

Dear David

Thank you for your request for information regarding eircom plant at N11 Clogh to Enniscorthy Co. Wexford

Your reference number for this request is: TSK-071029

If you need to contact Eircom Ltd. about this request, please send mail to pdbureau@eircom.ie quoting this reference number.

Legal Disclaimer:

The information given is compiled from records and is believed to be correct. There may however be departures from the course (s) and depth (s) shown or indicated. There may also be items of eircom plant of which no record is held. The Dial before you dig service is an information service only and is designed to assist those undertaking underground excavations to do so in a safe manner and in a manner which avoids unnecessary damage to eircom underground cables.

It should be noted, however that the primary onus to locate eircom cables rests with the person or undertaker who carries out the excavation, using means including but not limited to the digging of trial holes at regular intervals to ascertain the actual depth of the eircom cables or by use of electronic cable detection equipment for example a "cat and jenny". The information is therefore given without prejudice to the legal rights of eircom Limited to compensation should eircom plant be damaged.

Plan Design Bureau

<<N11OH.dwg>> <<N11E.dwg>> <<N11F.dwg>> <<N11G.dwg>>

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Wexford County Council 1 of 2

From: George Colfer [mailto:George.Colfer@wexfordcoco.ie]
Sent: 08 August 2007 17:02
To: David Bradish
Subject: RE: N11 Clogh to Enniscorthy Road Scheme

David

Attached is info as requested. Any queries give me a call on 053-9135042.

Regards,

From: Tony Shanley
Sent: 08 August 2007 12:54
To: George Colfer
Subject: FW: N11 Clogh to Enniscorthy Road Scheme

-----Original Message-----

From: David Bradish [mailto:bradishd@ryanhanley.ie]
Sent: 07 August 2007 09:49
To: Tony Shanley
Subject: FW: N11 Clogh to Enniscorthy Road Scheme

Hi Tony,

My name is David Bradish and I work for the consultant engineers working on the N11 Clogh to Enniscorthy Road Scheme. I had previously requested information from Gerry Forde in relation to water services however have received nothing yet. I understand that he is on annual leave & as he has you down as the person to contact in his absence, you may be able to help.

We are currently finalising the Constraints Report for the above scheme and require details of public water, group water, and sewage networks within the study area. I have attached a PDF which highlights the study area, and also previous correspondence with Gerry Forde. We basically need drawings for the entire study area highlighting the locations of:

- Public water networks/ water mains
- Group water networks
- Sewage networks

As the report is due to be issued to the NRA later this month, we require this information as soon as possible.

Please feel free to contact me should you have any further queries, require any further information, or are not the relevant contact in relation to this query.

Regards

David Bradish

Ryan Hanley WSP Ltd
Highways and Transportation Consulting Engineers

Sherwood House
Sherwood Avenue
Taylor's Hill
Galway

Tel: 00 353 (0)91 587116
Fax: 00 353 (0)91 587102
e-mail: bradishd@ryanhanley.ie

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From: Gerry Forde [mailto:Gerry.Forde@wexfordcoco.ie]
Sent: 18 July 2007 09:27
To: David Bradish
Subject: RE: N11 Clogh to Enniscorthy Road Scheme

David,
Sorry for the delay. Will sort out in next day or so.
Gerry

From: David Bradish [mailto:bradishd@ryanhanley.ie]
Sent: 17 July 2007 12:36
To: Gerry Forde
Subject: FW: N11 Clogh to Enniscorthy Road Scheme

Hi Gerry,

We were in touch with you earlier this year in relation to obtaining details of Wexford Co Co public water, group water, and sewage networks within the study area for the above road scheme. Just wondering whether you have had a chance to look at it yet?

I have attached the email which i forwarded previously which explains what we require and highlights the area in question.

Should you have any comments or queries please do not hesitate to contact me.

Regards

David Bradish

Ryan Hanley WSP Ltd
Highways and Transportation Consulting Engineers

Sherwood House
Sherwood Avenue
Taylor's Hill
Galway

Tel: 00 353 (0)91 587116
Fax: 00 353 (0)91 587102
e-mail: bradishd@ryanhanley.ie

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From: David Bradish
Sent: 21 May 2007 10:28
To: 'gerry.forde@wexfordcoco.ie'
Subject: N11 Clogh to Enniscorthy Road Scheme

Hi Gerry,

Thanks for taking the call. As mentioned we are the consultant engineers working on behalf of Wexford Co Co on the above road scheme. It is at the Constraints Study stage and as such we are hoping to obtain details of existing or proposed:

- Public Watermains
- Sewers
- Group water schemes

Please find attached the study area map in PDF format.

If you have any queries or require any further information please do not hesitate to contact us.

Thanks for your assistance

Regards

David Bradish

Ryan Hanley WSP Ltd
Highways and Transportation Consulting Engineers

Sherwood House
Sherwood Avenue
Taylor's Hill
Galway

Tel: 00 353 (0)91 587116
Fax: 00 353 (0)91 587102
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Any attachments have been checked by a virus scanner and appear to be clean.

Please ensure that you also scan all messages, as Wexford Local

Authorities do not accept any liability for contamination or damage to your systems.

From: George Colfer [mailto:George.Colfer@wexfordcoco.ie]
Sent: 08 August 2007 17:04
To: David Bradish
Subject:

Water Conservation & CIS Office
Courtlands East
Killinick
Co. Wexford
Phone: 053-913 5042
Fax: 053-913 5579

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Vodafone

From: Harford, James, VF-IE [mailto:James.Harford@vodafone.com]

Sent: 11 April 2007 13:17

To: David Bradish

Subject: RE: N11 Clogh to Enniscorthy - Vodafone Utility Constraints

David,

Within the survey area outline on your attached Map N11_CLOGH_Constraints Study Map Vodafone have 3No. existing sites.

The locations and co-ords of each of the sites are:

- 1) 24m Lattice tower at: WX 43.1 Coolroe Wood, Kilboro, Co. Wexford. E 302827 N 151274
- 2) 18m Lattice tower at: WX 18.1 Ballydonegan, Ferns, Co Wexford. E 304025 N 144981
- 3) Mobile antenna on the roof of WX 21.2 The Courtyard Public House, Main St, Ferns, Co Wexford E 301905 N 149860

Also, Vodafone are proposing to install equipment in Camolin, at present no exact location has been agreeded.

Should you have any further queries in relation to the above, please do not hesitate to contact me.

Kind Regards

James Harford
Property Manager
Radio Network

Mobile: +353 87 239 1105
Fax: +353 1 203 7602
E-mail: james.harford@vodafone.com

Vodafone Ireland Limited
Site Address: MountainView, Leopardstown, Dublin 18.
Registered Address: MountainView, Leopardstown, Dublin 18.
Registered in Ireland No. 326967

From: David Bradish [mailto:bradishd@ryanhanley.ie]

Sent: 12 March 2007 11:30

To: Harford, James, VF-IE

Subject: N11 Clogh to Enniscorthy - Vodafone Utility Constraints

Hi James,

Thank you for your correspondence last year in relation to the N11 Enniscorthy Bypass in Wexford.

Recently we were awarded the scheme further north of the Enniscorthy Bypass, the N11 Clogh to Enniscorthy scheme. This will involve bringing the scheme through a constraints study, route selection, and preliminary design ultimately leading to CPO.

At this stage we are pulling together all the constraints that may affect the route and as such we have identified a study area within which a route will be selected. I have attached a drawing, N11_CLOGH_Constraints Study Map, in PDF format showing the extents of the study area. If possible and at your earliest convenience, could you please forward us details of any existing or proposed Vodafone utilities/services within the survey area.

Should you have any queries or, are not the relevant contact in relation to the above, please do not hesitate to contact me.

Your continued assistance is very much appreciated.

Regards

David Bradish

Ryan Hanley WSP Ltd
Highways and Transportation Consulting Engineers

Sherwood House
Sherwood Avenue
Taylor's Hill
Galway

Tel: 00 353 (0)91 587116
Fax: 00 353 (0)91 587102
e-mail: bradishd@ryanhanley.ie

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Registered in Ireland at MountainView, Leopardstown, Dublin 18.
Co Reg No.: 326967 VAT Reg No. IE6346967G

O₂ Ireland

From: Maguire Ciara (IE) [mailto:Ciara.Maguire@o2.com]

Sent: 29 March 2007 13:45

To: David Bradish

Subject: FW: N11 Clogh to Enniscorthy - O2 Utility Constraints

Hi David

Sorry for the delay, I hope that the enclosed information is adequate for your constraints study

Regards

Ciara

From: Kane Gemma (IE)

Sent: 29 March 2007 12:56

To: Maguire Ciara (IE)

Cc: Sierra Cabrera Ramon (IE)

Subject: RE: N11 Clogh to Enniscorthy - O2 Utility Constraints

Hi Ciara,

For the N11 Clogh study area, O2 have two existing sites and one planned site inside the highlighted areas. The attached is the original file received from David Bradish, updated to show these three locations,

Site Name	Coordinates	Comment
Ferns 2G	x=301907, y=149842	Rooftop location in Ferns village. Currently on air as a 2G only site. No upgrades planned at present
Ballydonigan 2G	x=303830, y=144784	Tower location on Ballydonigan Hill. Currently on air as a 2G only site. No upgrades planned at present
Tincurry Hill - Planned 3G	x=298119, y=147203	Currently in planning with Wexford county council. Planned 3G only site. Expected completion - mid 2008

Hope this helps, but if you need anything else, just let me know,

Thanks,
Gemma

-----Original Message-----

From: Maguire Ciara (IE)

Sent: 12 March 2007 14:31

To: Kane Gemma (IE); Sierra Cabrera Ramon (IE)

Subject: FW: N11 Clogh to Enniscorthy - O2 Utility Constraints

FYI

From: David Bradish [mailto:bradishd@ryanhanley.ie]

Sent: 12 March 2007 12:31

To: Maguire Ciara (IE)

Subject: FW: N11 Clogh to Enniscorthy - O2 Utility Constraints

Ciara,

Thanks for taking the call.

Just a bit of background to what we are doing. Recently we were awarded the scheme further north of the Enniscorthy Bypass, the N11 Clogh to Enniscorthy scheme. This will involve bringing the scheme through a constraints study, route selection, and preliminary design ultimately leading to CPO.

At this stage we are pulling together all the constraints that may affect the route and as such we have identified a study area within which a route will be selected. I have attached a drawing, N11_CLOGH_Constraints Study Map, in PDF format showing the extents of the study area. If could you please forward us details of any existing or proposed O2 utilities/services within the survey area, we'd be most grateful.

If you've any queries or require any further information, please do not hesitate to contact me.

Much appreciated

Regards

David Bradish

Ryan Hanley WSP Ltd

Highways and Transportation Consulting Engineers

Sherwood House

Sherwood Avenue

Taylor's Hill

Galway

Tel: 00 353 (0)91 587116

Fax: 00 353 (0)91 587102

e-mail: bradishd@ryanhanley.ie

APPENDIX B – TIMESCALE FOR EIS

2007		2008												2009			
	May	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr
		...															
		...															
Scoping		...															
Ecological Impact Assessment		...															
Habitat and Vegetation Surveys		...															
Winter Mammal Surveys (badgers and otters)		...															
Summer Mammal Surveys (bats)		...															
Socio-economic Impact Assessment																	
Soils and Geology Impact Assessment																	
Hydrology and Hydrogeological Impact Assessment																	
Noise and Vibration Impact Assessment																	
Air Quality and Climate Impact Assessment																	
Landscape and Visual Impact Assessment																	
Material Assets																	
Archaeological Impact Assessment																	
Agricultural Impact Assessment																	
Waste Impact Assessment																	
Completion of EIS Baseline Assessments (First Draft EIS)		...							♦								
Second Draft EIS		...											♦				
Third EIS		...												♦			
Final EIS		...															♦

M11 Gorey to Enniscorthy Scheme

Environmental Impact Statement

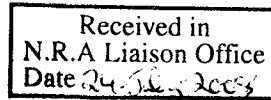
Appendix 1.2

Consultation Responses Received

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Feidhmeannacht na Seirbhíse Sláinte
Health Service Executive



HSE South,
Wexford Local Health Office,
Environmental Health Service,
Whitemill Industrial Estate,
Wexford.

Telephone 353 53 9123522
Fax 353 53 9142068

Mr. Don Curtin,
National Roads Programme Liaison Officer,
N11 Clough to Gorey Scheme,
Old Dublin Road,
Enniscorthy,
Co. Wexford

23rd July 2008

RE: N11 Enniscorthy Bypass

Dear Mr. Curtin,

We have had some representations with regard to the Health Impact of the proposed bypass on residential property adjoining the proposed route. The Health Impacts that have been raised are:

- Noise
- Air quality
- Effects of construction including the above plus vibration and sediments

NOISE:

Under the directive on the Assessment in Management of Environmental Noise 2002/49/E C major roads will require noise mapping especially after 2012. I was wondering if the National Roads Authority or Wexford County Council had done any assessment with regard to the likely noise that would be generated on this route. What are the predictions for the LDEN and LNIGHT? The noise parameters will obviously be influenced by the type of road surface that is provided and also by the type of noise screening whether this is using green landscaping or other measures. What are the measures proposed for noise reduction and noise remediation as part of this project? In the rural areas the noise level at present would be very low possibly around 35 dBA. It is a phenomenon that should noise rise by a factor of 5 dBA in an area that it will give rise to some public complaint.

AIR:

Air quality is generally affected where there is congestion. Are there any places on this route where congestion is likely to occur e.g. at roundabouts or junctions.

THE EFFECTS OF CONSTRUCTION:

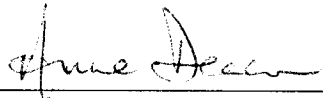
Since this a large scale project there will probably be a long time scale over which the construction will take place. Apart from causing stress due to diversions etc it can have other Health Impacts. Major impacts of construction are again:

- Noise
- Air pollution (dust and particles, exhaust fumes from construction equipment, traffic fumes due to congestion)
- Sediment issues where sediment from the site is allowed into water courses or onto roads causing slips trips or falls on the part of pedestrians or traffic accidents.

These can be controlled to a certain extent through the use of limited hours of construction, noise controls, sediment controls and dust controls. What controls would be in place during the construction phase? Are there any major excavations blasting or other activities likely to cause unusual disturbances during the construction of this bypass.

I would be grateful if you could give me any information with regard to the above queries.

Yours sincerely



Anne Deacon
Senior Environmental Health Officer

Copy to: County Secretary, Wexford County Council, County Hall, Wexford



27th January, 2009

Ms Aebhín Cawley
Scott Cawley
27 Lower Baggot Street
Dublin 2

Re: N11 Gorey to Enniscorthy Realignment Scheme: Scoping Report for an Environmental Impact Assessment

Dear Ms. Cawley,

I wish to acknowledge receipt and note the content of your letter of 14th January, 2009 and the enclosed Scoping Report concerning the N11 Gorey to Enniscorthy Realignment Scheme.

The Department of Agriculture, Fisheries and Food has no relevant information to offer concerning the proposed scheme and general area that would facilitate the environment impact assessment. This Department does however note the proposed content for the Environment Impact Statement and in particular the proposed section on agriculture.

At this time The Department of Agriculture, Fisheries & Food has no suggestions to make concerning the issues that should be addressed in the Environmental Impact Statement.

Yours sincerely,

Michael MacCarthy
Environment Section

Johnstown Castle Estate,
Co. Wexford, Ireland.



26th January, 2009.

Ms Aebhín Cawley
Scott Cawley
27 Lower Baggot Street
Dublin 2.

**Re: Environmental Impact Assessment for the N11 Gorey to Enniscorthy
Re-alignment Scheme.**

Dear Ms. Cawley,

I refer to your recent correspondence concerning the Environmental Impact Assessment for the N11 Gorey to Enniscorthy Re-alignment Scheme.

A copy of your letter and Scoping Report was also received in our Head Office in Agriculture House, Kildare Street, Dublin 2. Please note that the observations returned by us on 22nd January, 2009 are the comments/observations from the Department of Agriculture, Fisheries & Food.

If you have any queries on this please contact me.

Yours sincerely,

Joan Stone
Joan Stone
Environment Section.



THE DEPARTMENT OF
AGRICULTURE, FISHERIES & FOOD
AN ROINN TALMHAÍOCHTA, IASCAIGH & BIA

16th January, 2009.

Ms. Aebhín Cawley
Scott Cawley
27 Lower Baggot Street
Dublin 2

**Re: Environmental Impact Assessment for the N11 Gorey to Enniscorthy
Re-alignment Scheme**

Dear Ms. Cawley,

I wish to acknowledge the receipt of your recent correspondence with this Department concerning the above proposal. The proposal is now being appraised. I will be in contact with you again when this process has been completed.

Yours sincerely,

Jean Stone
Joan Stone
Environment Section

Johnstown Castle Estate,
Co. Wexford, Ireland.

Eastát Chaisleán Bhaile Sheonach,
Chontae Loch Garman, Éire.

Dublin Road,
Newtownmountkennedy
Wicklow
Tel: +353 1 2011111
Fax: +353 1 2011199
Web: www.coillte.ie

4th February 2009

Aebhin Cawley
Scott Cawley
27 Lower Baggot Street
Dublin 2

Dear Aebhin

I refer to our discussion of the 23rd January in relation to the N11 Gorey to Enniscorthy road scheme and your request for comments on the Environmental Impact Assessment which you sent to Coillte.

I had asked if I could be provided with a list of Coillte properties which may be affected by this CPO. When received I could carry out an EIA on each property and return to you. As of the 4th February I have not received the list of properties.

As part of Coillte's property sales process an extensive Environmental Impact Assessment is carried out on all lands sold.

I now wish to inform you of the Environment Impacts which could be identified when the EIA is carried out for this road scheme.

If any of the headings listed below are discovered during an EIA those impacts identified would be communicated to Wexford County Council by letter.

Old Woodland Site (OWS) – Forest that has supported woodland cover since at least the 1830's AD.

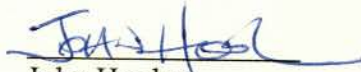
High Conservation Value Forest (HCVF) – Areas (not necessarily forested) on the Coillte estate that are important for nature conservation and biodiversity.

Environmental –

- Proposed National Heritage Area
- National Heritage Area
- Special Area Conservation
- Special Protected Area
- Monuments
- National Monuments
- Rivers
- Townland Boundaries

Any other environmental issues which may arise during the EIA will also be communicated to Wexford County Council.

Yours Sincerely

A handwritten signature in blue ink, appearing to read 'John Hoolan', with a long horizontal flourish extending to the right.

John Hoolan
Property Sales

CARLOW COUNTY COUNCIL

COMHAIRLE CHONTAE CHEATHARLOCHA

County Buildings, Athy Road, Carlow.

Tel: 059 9170300

Fax: 059 9141503

Email: secretar@carlowcoco.ie

Web: www.carlow.ie

Aebhin Cawley
Scott Cawley
27 Lower Baggot Street
Dublin 2

7th Feb 2009



south
eastern
river basin district

Re: Environmental Impact Assessment for the N11 Gorey to Enniscorthy Re-alignment Scheme.

Dear Aibhin,

Please find below our comments on the EIS scoping report for the above scheme.

1. We concur with the comments of the ERFB on page 17 and specifically would highlight the need to retain the "natural character" of all water courses, be they large or small.
2. On page 21 you mention that the EPA indicates water quality in 5 water course is generally good. It would be prudent at this time to reference the draft South Eastern River Basin Management Plan (RBMP) prepared under the Water Framework Directive (WFD) and published on 22nd Dec 2008. All waters have been classified into 5 status levels and a risk analysis of their potential to meet WFD objectives carried out.
3. Page 23 – Hydrogeology. There is no mention of existing groundwater quality in the area. As above, the draft South Eastern RBMP provides information with respect to existing water quality, classification status and risk analysis.
4. Page 33 – Drainage. You mention the use of petrol/oil interceptors and balancing ponds at outfalls. There is no mention of a water quality treatment system. As you are aware, runoff from roads contain many contaminants and a treatment system should be installed prior to discharging to water course. This may take the form of settling ponds or other.
5. In the preparation of the draft RBMP's considerable environmental data was collected and collated. This is readily available at www.serbd.com www.wfdireland.ie and from this office.

Yours Sincerely,


Ray Spain
Co-ordinator
South Eastern River Basin District



Feidhmeannacht na Seirbhíse Sláinte
Health Service Executive

Environmental Health Service
Wexford Local Health Office
Whitemill Industrial Estate
Wexford

Telephone: 353 53 91 23522

Fax: 353 53 91 42068

Ms. Aebhin Cawley,
Scott Cawley,
27 Lower Baggot Street,
Dublin 2

11th February 2009

RE: Health Impact Assessment on Scoping Report for N11 Realignment Gorey
to Enniscorthy

Dear Ms. Cawley,

Thank you for the opportunity to comment on the above Scoping report.

Enclosed is a Health Impact Assessment conducted on this plan by the HIA Unit
of the Environmental Health Department in Wexford.

Unfortunately due to time constraints we were unable to consult with the general
public and local representatives in the formulation of this report. The report
therefore is the result of a desktop study by our HIA team supplemented by local
knowledge and some site visits.

We look forward to receiving the final EIA and hope that our observations are taken on board in its preparation. If you require any further information or clarification please do not hesitate in contacting me.

Yours sincerely

Anne Deacon
Senior Environmental Health Officer
On behalf of the HIA Team

Encl.



Health Impact Assessment on Scoping Report for N11 Realignment Gorey to Enniscorthy

This report is the result of a desk study by the Health Impact Assessment Unit of the Environmental Health Department in Wexford Health Service Executive. This was due to time constraints imposed by our present resources.

Unfortunately, we could not survey the area concerned comprehensively but using our local knowledge and visits to some of the sites we have decided to forward the comments below in the hope that some of them will be of assistance to you in focusing your EIA. We have used the map supplied in the scoping document as the basis for our comments (scale 1:35,000)

Health Impact assessment is a wide area and our unit generally confines its comments to the physical effects of the physical environment on the public health. The unit comprises professionally qualified environmental health officers who have extensive experience and local knowledge in environmental health as well as qualifications in environmental science. Other aspects of Health Impact Assessment would be covered by the Public Health Department and Health Promotion Department of the Health Service Executive. We have not had time to consult our colleagues with regard to this scoping document.

The Environmental Health Impact Assessment Unit would feel that they can contribute their expertise with regard to developments including the following:

Leisure and Beauty Industry developments

Health providers

Educational establishments

Service Industries

Infrastructural development

Residential development

General

In general this is a positive development which will benefit the towns of Enniscorthy, Ferns and to a lesser extent Camolin. Traffic will flow more freely cutting down on commuter times, facilitating commercial traffic, and relieving congested urban areas. The line selected for the road and the location of various roundabouts in general are located away from residences and business which leads to less impacts on the human population from the physical environment. However, there are some areas that will require assessment. We have noted the proposed content of your EIS and we have only commented where we disagree, wish you to place special emphasis, or want to alert you to a possible impact not mentioned in your document .

Consideration should be given to the hours during which construction is permitted. It is important that hours are restricted with regard to operations on sites as the practice of round the clock building would be unusual in an area which is predominantly rural. Daytime operation from 8.00am to 8pm should facilitate most activities. The next option should be to extend operations to evening time from 20.00 to 23.00 hrs. Only in exceptional circumstances for stated objectives should night time activity be permitted. In these latter two cases all affected parties should be informed in reasonable time beforehand.

Location of Construction Compound(s)

The construction of this project could take up to two years so therefore it is important that the health impacts of construction are fully assessed and that any negative impacts are remediated in accordance with best practice.

One or more construction compounds will have to be used during the development phase. The first requirement for the site of these should be that it is not in an area of extreme vulnerability with regard to the identified aquifers.

Full assessment with regard to groundwater protection should be undertaken, vulnerable areas should be avoided and all precautions needed should be outlined and in place before construction of the development commences.

The disturbance of ground during development and construction can lead to the upset of natural habitats of rodents who flee and seek alternative accommodation in surrounding areas, especially nearby buildings. The Environmental Health Department receives numerous complaints of rodents from residential areas and businesses adjacent to construction sites/areas. A rodent surveillance and management plan is required for all construction sites.

Developers are generally asked to exercise sediment control on adjoining public roads to the construction area. Some do this more effectively than others. This will become more difficult under heavy rainfall conditions. Sediment containment plans which do not have to be complicated to be effective should be a prerequisite to starting construction. These should also include measures to control the pollution by sediment of drainage systems and streams or watercourses which will be very important in this development. During periods of prolonged drought sediment may turn to dust and anti-dust measures may also become necessary. We have received complaints about dust and deleterious matter from large building sites affecting existing residences and businesses adjacent to them. This should also be included in their sediment control plan.

The impacts on air quality during the construction phase may be caused by dust and vehicle emissions. Minimisation measures should be in place to mitigate the emission of dust caused by construction activities. Any sensitive receptor areas such as schools, nursing homes, pre-schools, residential homes, food businesses should be identified and as many measures as possible taken to minimise the impact of dust and vehicle emissions on these priority areas. Attention must be paid to any agricultural enterprises or horticultural activities e.g. berry growing, etc. that may be affected by particulates and are in close

proximity to the developments during construction stage and when the road is in operation as a reduction in air quality caused may impact on these businesses.

Construction Noise has lead to complaints to this office in recent times. It is important that hours are restricted with regard to operations on sites as the practice of round the clock working is creeping in especially on larger developments. Daytime measures of 55dBA from 8.00 to 20.00 and no night time activity should facilitate most activities. The next option should be to extend operations to evening time from 20.00 to 23.00 hrs. Only in exceptional circumstances for stated objectives should night time activity be permitted. If night time activity is permitted 45dBA should be the maximum generally allowed. With regard to development in the more rural areas on the edge of town it should be borne in mind that night time noise may be 35dBA and daytime noise will similarly be lower. The complaint threshold for noise can be just 5dBA higher than background noise in a quiet area. It should be borne in mind that raising the noise by 3dBA means that it sounds twice as loud to the human ear.

Light Pollution is not mentioned in the scoping report. Lighting can impact on health and should be considered as part of all developments. In the interests of sustainability it should be of energy efficient design.

General lighting at night time in a suburban location should achieve 5 Lux and in town centre should achieve 10 Lux. This is important for health and safety reasons. On a construction site there may also be a requirement for security lighting and extra lighting for certain tasks.

The question should always be asked as to whether all night lighting is required is a particular situation or can it be activated for example by movement sensors?. Light Pollution is caused by light that is allowed to illuminate, or pollute, areas not intended to be lit. Intrusive light often involves over bright or poorly directed lights onto neighbouring property, which affect neighbours right to enjoy their own property and can also cause glare which interferes with people's ability to see and conceals objects rather than reveals them. This can be a serious issue

where construction yards are adjacent to residential property or where security lighting on any building is excessive, incorrectly adjusted, at an incorrect angle or misdirected. Lighting used to work on roadways at night can make it very hard to drive safely if glare is created.

All areas where spillages and leakages of fuel, oil or other chemicals are likely to occur should be drained to prevent same gaining access to groundwater or surface water and be in bunded storage if appropriate.

Appropriate security should be provided at all sites so that children or vandals cannot gain access.

Routes to and from the site(s) should be maintained in a safe driving condition and drivers of heavy vehicles should be asked to proceed with extra care on narrow roads due to the presence of elderly drivers who are unused to busy traffic.

If a temporary food business is to be provided at a construction base compound it is advised that prior to commencement of development, the developer consult with the Environmental Health Section of the Health Service Executive with regard to Regulation (EC) No.852 and the EC(Hygiene of Foodstuffs)Regulations 2006

Traffic.

Driver fatigue is recognised as a contributor to 20% of all accidents. There has been a campaign with regard to the creation of rest areas (lay-bys) and the provision of services at 30km centres by the Irish Hauliers Association. It is important that all drivers especially those driving heavy goods vehicles would have access to rest areas and services at regular intervals. Whether these are commercial enterprises or picnic stops for tourists and recreational purposes

they will contribute to road safety. This road carries traffic to and from Rosslare Port so journey times are long enough to require breaks for safety reasons especially for drivers originating from abroad.

The road from Ferns to Enniscorthy is rated as medium risk in the EuroRAP survey using statistics up to 2002. However, the installation of a roundabout at Clovass last year has been a great improvement in recent times and accidents have decreased as a result.

With regard to the Gorey bypass which was recently constructed and leads directly into this section of road we have had a comment that the lanes at the roundabouts are confusing. This was because they changed without warning from one roundabout to the next. In one you should be in inner lane to go straight whereas on the next you should be in the outer lane to go straight ahead but this was not apparent until you were at the roundabout which was too late. Perhaps this comment could be borne in mind when designing signage and road markings on the approach into the different roundabouts.

Having clear signposting available to and from each local village, business or amenity during construction and as soon as road sections are opened is very important to avoid confusion and to prevent use of ill advised u-turns and other forms of erratic driver behaviour leading to accidents.

We have also been asked by local drivers to mention the impact of large construction vehicles on minor roads surfaces resulting in large potholes which they regard as a likely cause of accidents. This would obviously apply equally to cyclists and pedestrians. Could this be taken into account during the construction phase with regard to ongoing repair and also refurbishment of minor roads at the end of the project?

Flooding of roads can cause accidents such as aquaplaning in minor cases and even drowning in severe cases. Many minor roads in the general area are already prone to flooding. While the new road will be designed to be flood free it is also vital that nothing would exacerbate the present flooding which is particularly problematic in the general Enniscorthy area. Therefore the effect of the creation of a quickly draining and large area of hardstanding on present flood sites needs to be assessed and retention areas need to be included. Natural callows, bogs, swamps, fens, etc should be used where possible and practical but artificial flood attenuation ponds may also be necessary to slow run-off and treat road pollutants.

Socio – Economic

While social capital across the neighbourhoods lining the present roads should improve because of increased interaction due to the reduction in traffic it is important that the effects of community severance would be assessed on the rural communities through which the new road passes. The road may isolate part of a community if they are required to cross a busy road. This would particularly apply to the young and old. Therefore access by these groups to primary schools, preschools, GP and health centres, churches, graveyards, local shops and pubs, GAA pitches, community halls, sports clubs and recreational facilities would need to be looked at. Junctions where flyovers are planned would obviously not be affected in this way. In Wexford villages are generally located at 5 mile centres and their community lives within this area as a rule of thumb. People of all age groups generally will use roads for walking and cycling more in a rural area. It would be important to facilitate this. Older people who drive may be afraid to negotiate large roundabouts and may become confused where a series of roundabouts are used.

From a Health and Safety viewpoint we have anecdotal evidence here that an anthrax graveyard is located at Scarawalsh. Unfortunately, the member of staff

who was familiar with this is now deceased. The Department of Agriculture and Wexford County Council may have archived records of Anthrax burials. This should pinpoint which landowner(s) and the dates involved.

We did have a planning application in 2008 for Mulgannon, Wexford where a burial took place in 1911. The HSE and Veterinary Office Wexford County Council did risk assessments which were submitted to An Bord Pleanála who granted the permission with conditions. However, the best advice is to avoid disturbing one, if possible. A risk assessment should be done on the particular site if this can be found. A workplace Health and Safety Plan under the guidance of the Health and Safety Authority and a Waste Management Plan under the guidance of the Department of Agriculture and Food may be required taking account of possible anthrax contamination if the proposed development area is likely to be affected.

Ecology

Wexford Estuary is a commercial shellfish aquaculture area. While this may be outside your area of activity any sediment or polluting waste discharged upstream may eventually reach the harbour so I would recommend you include it in your assessment. Major civil engineering works carried on in the vicinity of the mussel beds in the recent past have resulted in civil writs being issued by the main harvester. The shellfish production is under the auspices of the Sea Fisheries Protection Authority, Clonakilty, Co. Cork.

Soils and Geology

Our main concern with regard to the entire project is the potential contamination of aquifers and wells. Groundwater is required for drinking water in a large part of the county. It will become more valuable as the years progress due an increasing population, predicted economic growth and climate change which could lead to

water shortage in some parts of the county. We would regard unpolluted groundwater as being the County's primary resource into the future.

Hydrology and Hydrogeology

The rivers and streams all need to be protected from sediment, chemical and biological pollution. We have noted the comments with regard to consultation with the Eastern Regional Fisheries Board, The National Parks and Wildlife Service, Geological Service, and Environmental Protection Agency. It is our opinion that if all requirements of these agencies are complied with that river water quality will be maintained. We agree with the need to establish the baseline data for the river systems in the affected area. All such baseline assessment and data collection must be sound and detailed. We agree with the proposed consultations to be ongoing at EIA stage and also into the construction phase.

With regard to the peat areas we are not familiar with these but an assessment with regard to possible creep should be made if any part of these are to be disturbed. The direction of creep, the potential volume of material and the destabilisation of surrounding materials should be assessed.

Flooding of homes and businesses can result in illness, infestation and disease. Enniscorthy Town is a very high risk location for severe flooding which badly affects Island Rd, Templeshannon area including the new Bridge. Any exacerbation in flooding will cause extreme hardship to residents and any remediation which can be built in upstream during this project should be availed of as the health , social and economic benefits would be enormous.

Sustainable Urban Drainage Systems (SUDS) should be employed for the preliminary drainage design incorporating best practice as this is such a vulnerable area from a human health and ecology viewpoint. Road runoff can

affect the water quality of the receiving watercourse, where it contains suspended solids, volatile solids, oil, organic matter, chloride and metals. If the rainfall intensity of a storm event is sufficient, insoluble pollutants can be mobilized from the road surface. If the storm event is of sufficient magnitude, these insoluble pollutants will enter the road drainage system. The road drainage system must, therefore, include measures to improve the quality of road runoff prior to discharge to receiving waters or ecologically sensitive areas. Some of the receiving watercourses have limited storage capacity and in order to minimize the impact of the road runoff, flood attenuation ponds may be required. Flood attenuation ponds provide both treatment of the road runoff and attenuation of discharge flow rates. They minimize the effects of local flooding in the natural hydrology of a catchment area as well as pollution on the downstream watercourses. The discharge from the ponds must be regulated and controlled in order to minimise potential downstream flooding. There are many methods currently in operation ranging from a mechanical device (e.g. radial sluice gate to electrical mechanical devices) to fixed structures (e.g. rectangular flume or Vortex type device). Valves may also be constructed in the some pond outlets to prevent discharge into receiving watercourses, in the event of any accidental spillage on the road.

We agree with all Groundwater assessments described in this section, and that a list of mitigation measures with details of their implementation will be furnished. The proposed scheme will be traversing what is generally classified as a major aquifer, parts of the scheme will affect regionally and locally important aquifers, therefore the protection of the groundwater quality in the area must be of paramount importance throughout all the stages of the development. We agree with the statement that at EIA stage all possible impacts to the groundwater and effective mitigation measures must be assessed in a sound manner. If the hydraulic flow of groundwater is likely to be altered from existing areas known to contain contaminants e.g. slurry pits or graveyards, on either a temporary or

permanent due to construction works the health implications of this should be assessed.

We agree with the statement that appropriate mitigation measures must be implemented during the construction phase of the proposed road scheme in order to ensure that groundwater quality is not compromised during dewatering activities or by the spillage / leakage of chemicals, for example. This is certainly particularly important for those areas where the groundwater vulnerability is high or extreme.

We agree with the statement that the surface runoff system will be investigated for all possible impacts on the groundwater and effective mitigation measures be devised where required.

There must be full consultation with GSI in relation to the groundwater, especially as it appears that there is not full baseline data in the area. We would agree with full regard being given to the Water Framework Directive, the SERBD project and also the draft River Basin District Management Plan. Some parts of the affected areas have been classified as extreme vulnerability so great care must be exercised and a full and comprehensive study done at the EIA stage.

The present status of the groundwater needs to be fully assessed. We would also recommend that regard would be had to the EPA publications; 'Towards setting guideline values for the protection of Groundwater in Ireland' and the 'Groundwater monitoring programme' for any baseline studies, in addition to any guidelines already mentioned in the document.

We agree with the proposals put forward to assess the proposed area for possible contaminated material in the soil levels that would need to be factored into the overall assessments.

See the attached appendix for a list of commercial food premises, including nursing homes, pre-schools etc that are known to the HSE as using private wells for their water supply, as such these premises may be affected by the proposed development. A listing of public facilities such as schools, etc is available from Wexford county Council.

You should include an action plan in the event of deterioration in the groundwater quality and/or supply quantity leading to a disruption of the supplies to a local area.

Noise and vibration

The new N11 should improve noise and vibration effects from heavy traffic and congestion going through Enniscorthy, Ferns and Camolin town centres.

Noise causes annoyance and disturbance at work and during leisure and is also responsible for sleep disturbance and can have deleterious effects on general physical and mental well-being.

Noise impacts from the roadway will occur in two ways. At roundabouts traffic will be slowing down and speeding up. This will lead to engine noise pollution. Where housing is nearby e.g. Milehouse noise remediation measures may be necessary. Along the road stretch in general tyre/road impact noise will predominate. The use of a low noise road surface would help and may be necessary in some locations.

The roadway is mostly in a rural area where 35dbA is an acceptable background level. It should be borne in mind that in noise sensitive locations a 30dBA can be applied. Noise sensitive areas include domestic dwellings, hospitals, nursing homes, schools, preschools, places of worship and some amenity areas.

Therefore where possible a buffer area between the roadway and sensitive locations should be created. If this is not possible assessment should be carried out and remediation measures as outlined in the scoping report should be used. A rise of 3dbA will be heard as being twice as loud and a rise of 5dbA above previous background levels will usually lead to noise complaints in a quiet peaceful area.

We have been approached by one resident who has a new house which was not originally mapped and who is worried about the possible noise impact. On visiting his house we noted some background noise from a nearby minor road (Monageer). He is presently located up a laneway off a minor road but will be on

the new N11 when it is built. From a cursory inspection he will definitely be affected even though the road is passing through a cutting at this point. He is opposite Ballyinabarny Wood and this may absorb some of the noise though it may also affect the wildlife. However, some remediation may be required though judicious use of earthen banks and vegetation may suffice to ensure that the noise from the roadway is not intrusive. Noise will cause annoyance at a level of 55dbA even in a town during daytime but especially in a noise sensitive location in a rural area. Perhaps this location could be included in the noise survey suggested in the scoping document. See Appendix 2 for location details of site.

Air Quality & Climate:

Air pollution is associated with many common health problems including, emphysema, respiratory tract infection, asthma, lung cancer and irritation. Both the concentration of the pollutant and the duration of exposure to this pollutant, as well as an individual's health, are all important factors when discussing the impact of air pollution on health. The concentration of any type of air pollutant should be kept to an absolute minimum where practicable. Pollutant emissions generated from fuel combustion in traffic may create impacts at both local and national level. The air quality parameters that need to be considered with regard to local air quality are nitrogen dioxide, carbon monoxide, fine particulate matter (PM10) and benzene. Volatile organic compounds and nitrogen oxides will also be of concern but more from a national perspective with regard to Ozone. New standards will be required for 2010 so these are the levels applicable to this development.

The N11 Realignment Gorey to Enniscorthy development will benefit the towns of Enniscorthy, Ferns and Camolin greatly in terms of improving the overall air quality of these towns. This urban by pass will reduce the build up of slow moving traffic in these towns where currently the traffic moves at a very slow pace, particularly at peak traffic times and requires a lot of continuous stops,

starts and vehicle acceleration, all of which result in inefficient fuel consumption and therefore increased air pollution. The reduction of this build up of slow moving traffic will result in lesser pollution emissions overall.

However, the rural areas along the proposed scheme route will experience an impact on the overall quality of the air. The traffic on this new route will be passing at a fast and steady pace. As stated above, the air quality parameters that need to be considered with regard to local air quality are nitrogen dioxide, carbon monoxide, fine particulate matter (PM10) and benzene. Any residential housing, nursing homes, schools, pre-schools, food businesses, horticultural enterprises, etc. that may be in close proximity to the route must be considered. One residential home in particular is located in very close proximity to the proposed Milehouse Roundabout. The traffic on this road at present moves at a fast and steady pace. It is accepted that emissions depend on the efficiency of an engine. Engines are generally designed to operate at optimum efficiency at cruising speed. Therefore, the introduction of a roundabout here will require traffic to slow and increase again causing increased air pollution from fuel emissions. Other houses near roundabouts may be similarly affected depending on wind conditions in an area.

The current air quality of all rural areas along the route will require examination. Some members of the HIA team visited a site in the Ballinabarney area at the request of the owner (see details in Appendix 2) and it was noted on a cursory examination that there was good growth of lichens on the bark of trees in this area. A lichen consists of two organisms, a fungus and an alga, growing symbiotically. They may be found on the bark of trees. Lichens can be used as bio-indicators of air quality in an area as they are very sensitive to atmospheric pollution, including heavy metals, radiation, and ozone. The larger the size of a lichen found on a tree, the better the quality of the air in the area.

A detailed air impact assessment will need to be undertaken to assess all possible significant impacts that this proposed scheme will have. The assessment must include;

- Examination of the current air quality that is representative of a location
- Air monitoring
- Predictive modelling of the air quality with and without the proposed development
- Examination of the impacts of the proposed scheme at construction stage
- All preventative and mitigation measures to deal with the impacts that this development have on air quality

At EIA stage, the National Roads Authority document “Guidelines for the Treatment of Air Quality during Planning and Construction of National Roads Schemes” must be used. All applicable legislation relating to air pollution (The Air Pollution Act, The Environmental Protection Acts 1992 and 2003, EU Directives and Irish Regulations) to be complied with. New standards will be required for 2010 so these are the levels applicable to this development.

In terms of this scheme in operation, it is acknowledged that improvements in air quality are likely in the future as a result of greater developments of alternatively fuelled vehicles, the introduction of cleaner fuels and the on-going vehicle inspections in the form of the National Car Tests and DOE vehicle testing. These factors will be of benefit to both air quality and to climate.

Agriculture

There are a number of horticulture farms in the area including, Greenes, Wheelocks, Slaney Farms, etc which need to be assessed with regard to the effect of traffic air pollutants and road surface pollutants including drainage.

Slurry and silage pits adjacent to the development may have to be relocated. In this case the old pits should be decommissioned in such a manner as not to

cause nuisance or pollution to ground water, surface water or land. Appropriate pest control measures for rodents and other pests should also be carried out. New facilities should be compliant with best practice especially with regard to groundwater.

Waste

All waste accrued during the course of construction shall be dealt with in accordance with a Waste Management Plan. The plan shall take into account temporary storage of waste on site, removal of hazardous waste (where applicable), employment of authorised waste collectors, waste recycling and segregation of waste. All reasonable effort should be made to firstly prevent and minimise waste arising and secondly to recycle demolition and construction waste where possible.

There is a disused quarry at Brownswood and a closed old uncontrolled dumping site to the west of Ballycanew. Note re Possible Anthrax site above.

Light

Light Pollution is not mentioned in the plan. Lighting can impact on health and should be considered as part of all developments. In the interests of sustainability it should be of energy efficient design.

General lighting at night time in a suburban location should achieve 5 Lux. In a rural setting lighting can be more intrusive due to absence of same generally in the area. However, some lighting at roundabouts, rest areas, areas under construction may be necessary for health and safety reasons.

The question should always be asked as to whether all night lighting is required in a particular situation or can it be activated for example by movement sensors?. Light Pollution is caused by light that is allowed to illuminate, or pollute, areas not intended to be lit. Intrusive light often involves over bright or poorly directed lights onto neighbouring property, which affect neighbours right to enjoy their own

property and can also cause glare which interferes with people's ability to see and conceals objects rather than reveals them. This can be a serious issue where commercial property is adjacent to residential property or where security lighting on any building is excessive, incorrectly adjusted, at an incorrect angle or misdirected. Nighttime lighting can also confuse wildlife and cause them to behave differently than expected.

HIA Unit, Environmental Health Department, Whitemill Industrial Estate, Wexford.
Anne Deacon, Tom Sugrue, Kay O Connor, Jane Power.
(Karen Franklin, Barbara Foley, Gerry McDermott)

16.2.09

Appendix 1

This is a very rough list of commercial food premises, etc near the proposed route.

Those pre-schools in the immediate vicinity of the road (and therefore possibly raising access issues and traffic at junctions on the road) are ;

Barleyhill Coolnahorna, Enniscorthy

Carraig Briste, Templescoby, The Leap Enniscorthy

Rathnure Playgroup

Kiltrea Montessori

Clonhastin Playschool, Woodbrook, Clonhastin

Of these Carrig Briste is on a private water supply.

The pre-schools which are within the mapped region accompanying the plan, but less likely to be affected by development works, are as follows;

Little Rascals, Monamolin, Enniscorthy

Annagh Tots, Annagh, Gorey

Adelia English, Ballymurn,

Puddle Lane, Ballycanew

Elizabeth Johnston, Highfield House, Clone East

Faylinn Montessori, Heathermist Farm, Ballinakill, Gorey

Peek a Boo, Monageer, Ferns

Sylvia Power, Ballymore, CAmolín

Hazy Days, Cherryville, Bellefield, Enniscorthy

Teach Na bPaisti, Aldercourt, Ferns

Wonderland Creche, Enniscorthy Youth Project, Island Road Enniscorthy

Little Acorns, Ferns

Rainbow Playgroup, Monamolin, Rathnure, Enniscorthy

Jack and Jill Playschool, Kilnahanagh, Gorey,

Somerset Montessori, Somerset House, Enniscorthy,
Little Munchkins, Derry, The Ballagh
St Francis Playschool, Sean Browne Crescent, Enniscorthy,
Niamh Mooney, Killenagh, Gorey
Childrens Learning Garden, Summerhill, Enniscorthy
Eager Beavers, Monamolin,
Eleanors Playschool, Leinster View, Ferns,
Little Ducklings, Ballycanew, Gorey
St Anthonys PreSchool, County Wexford Community Works, Enniscorthy
Tir Na Siamsa, Daphne View, Enniscorthy
St Annes Community Playgroup

Annagh Tots, Adelia English, Peek A Boo, Sylvia Power, Rainbow Playgroup,
Little Munchkins, Eager Beavers and Elizabeth Johnston are on private water
supplies.

All preschools would be noise sensitive.

Cloogue NS and Boolavogue NS are on either side of carraigeway with pupils
going both directions.

Ballyoughter NS is on a well .

Planning Permission has been granted for a school in Drumgoold. This was
meant to be An Educate Together School.

There is a new Residential Facility almost complete in Drumgoold for elderly
people to live independently in their own homes with a care taker on site. I do
not think this has opened yet.

Ballycoursey Lodge & Spa facility is also located just beyond the Drumgoold
area. .

The Meanscoil, Inis Corthaidh is located at the Old Brownswood Hospital that
was.

Monart Destination Spa is at The Still and has a private water supply.

Food Premises near the proposed route on private water supplies

Ballymore House, Ballymore, Camolin

John Chapman, Tobergal, Ferns

Mary O'Loughlin, Carrigeen, Ferns

Cois Na hAbhainn, Camolin

Fr. Murphy Centre, Boolavogue

Michael Rowsome, Tomsallagh, Ferns

Kelly's Pub, The Harrow, Ferns

Cakes 'N' Bakes, Knockrobin, Camolin

Ray Keogh Foods, Ballymotey, Enniscorthy

Newton Popplewell, Ballyoughter, Camolin

Ballycarney Inn

Murphys, Tomadilly, Marshalstown

Enniscorthy Golf Club, Tomnalossett

Monart Destinatioion Spa, The Still

Nippy Chippy, Tinacross.

Monageer Tavern

Nursing Homes

Lawson house at Knockrathkyle

Moyne Nursing Home

A full list of public buildings on private water supplies is available from Local Authority.

Appendix 2

Nick Asple, Ballybarney (nasple@quinnreddin.ie)

New House at N 52°31.220' W 006°31.536'

The distance from the back of the house to the boundary fence at the back is approximately 50-60m.

Ms Aebhín Cawley
Scott Cawley
27 Lower Baggot Street
Dublin 2



Fáilte Ireland
National Tourism Development Authority

23rd February 2009

Response to Scoping Request

Dear Sir/ Madam,

Thank you for your scoping/ consultation letter in relation to the proposed development of the N11 Gorey to Enniscorthy Realignment Scheme in Co Wexford.

We have reviewed our database in relation to the proposed development area and would like to draw your attention to the following tourism amenities in the locality of the proposed development site.

1. The National 1798 Rebellion Centre, Enniscorthy.
2. Ferns Castle, Ferns.
3. Fr Murphy Centre, Boolavogue.
4. Ballymore Historic Museum, Camolin.

One of the main objectives of Fáilte Ireland is to advocate for the protection of key environmental and tourism amenities. Therefore Fáilte Ireland recommends that potential impacts on the tourism amenities outlined above should be considered as part of this planning application.

It should be noted that Fáilte Ireland is also a Prescribed Body under the Planning and Development Act 2000, and therefore Local Authorities are required to refer all "relevant" planning applications to Fáilte Ireland for consideration. Therefore we reserve the right to comment on this planning application once this has been lodged with the Planning Authority.

Should you have any further queries please do not hesitate to contact the undersigned.

Yours Sincerely,

Eimear Whittle
Acting – Regional Tourism Development Officer
Fáilte Ireland South East



Comhshaol, Oidhreachta agus Rialtas Áitiúil
Environment, Heritage and Local Government



24 February 2009

Our Ref: G2009/34

Ms Aebhin Cawley
Scott Cawley,
27 Lower Baggot Street,
Dublin 2

Re Gorey to Enniscorthy Realignment Scheme

A Chara,

We refer to your notification of 22nd of January 2009 in relation to above development. Outlined below are the nature conservation recommendations of the Department of the Environment, Heritage and Local Government.

Regarding the Environmental Impact Statement (EIS), it should assess the impact on the designated sites and protected species, in particular the impact on the habitats and species listed by NPWS as being within the sites and any other protected species which may be present. Where negative impacts are identified suitable mitigation measures must be detailed if appropriate. In addition an ecological survey should be carried out along the route of the road to survey the habitats, flora and fauna present. Such surveys should be carried out at an appropriate time of the year depending on the species being surveyed for. The EIS should include the results of the surveys.

The impact of the road on the flora, fauna and habitats should be assessed, and in particular the impact of the proposed development should be assessed on habitats listed on annex I of the Habitats Directive, on areas important for birds, on species protected under the Wildlife Acts of 1976 and 2000, and on species listed on Annexes II and IV of the EC Habitats Directive (Council Directive 92/42/EEC) and on Annex I of the EC Birds Directive (Council Directive 79/409 EEC). Such species include protected flora as listed in SI 94 of 1999, mammals such as badgers (*Meles meles*) and the Irish Hare (*Lepus timidus hibernicus*) protected under the Wildlife Acts and listed on Appendix III of the Berne Convention, bat species, protected under the Wildlife Acts and listed on Annex IV of the Habitats Directive and bird species. All birds are protected under the Wildlife Acts.

The Barn Owl (*Tyto alba*) is a Red-listed Bird of Conservation Concern in Ireland due to a decline of over 50% in their population during the past 25 years. They are also listed as a Species of European Conservation Concern (SPEC3) having an unfavorable conservation status in Europe. The reasons for the Barn owls decline can most likely be attributed to the loss of suitable habitat due to various aspects of agricultural intensification and the increased use of harmful second-generation anti-coagulant rodenticides. Other factors that have been implicated in their decline are the loss of suitable nest sites, and expansion of major roads. It is well documented that Barn Owls



will favour road margins to hunt as they contain increased numbers of quarry species, which results in their increased susceptibility to road strikes. Road developments can also impact on the species by loss of potential roost / breeding sites, which can be located in either suitable tree cavities or disused / vacant buildings and farm holdings.

Hedgerows form important wildlife corridors and provide areas for birds to nest and in addition badger setts may be present. If suitable trees are present bats may roost there. They also provide a habitat for woodland flora. Where a hedgerow forms a townland or other historical boundary it generally is an old hedgerow. Such hedges will contain more biodiversity than a younger hedge. Hedgerows should be maintained where possible. Where trees or hedges have to be removed there should be suitable planting of native species in mitigation.

Wetlands are important areas for biodiversity. Any watercourse impacted on should be surveyed for the presence of protected species and species listed on the Annexes II and IV of the Habitats Directive. These species could include otters (*Lutra lutra*), which are protected under the Wildlife Acts and listed under Annexes II and IV of the Habitats Directive, salmon (*Salmo salar*) and lamprey species listed on Annex II of the Habitats Directive, white clawed crayfish (*Austropotamobius pallipes*) and freshwater pearl mussel (*Margaritifera margaritifera*) which are protected under the Wildlife Acts and listed under Annex II of the Habitats Directive, frogs (*Rana temporaria*) and newts (*Triturus vulgaris*) protected under the Wildlife Acts and Kingfishers (*Alcedo atthis*) protected under the Wildlife Acts and listed under Annex I of the Birds Directive. A suitable riparian habitat should be left along each watercourse. Watercourses, along with hedgerows, function as important linear features and act as wildlife corridors as envisaged under article 10 of the Habitats Directive.

Rivers such as the Slaney and its tributaries and their associated riparian zones and floodplains are very important habitats for biodiversity and as detailed in the scoping document the Slaney River Valley is a candidate Special Area of Conservation (cSAC) (site code 000781) designated under the Habitats Directive. Because this project has the potential to impact on the cSAC, in accordance with article 6.3 of the Habitats Directive, this project should be subject to appropriate assessment of its implications for the site in view of the sites conservation objectives. The appropriate assessment may be a separate document or form part of the EIS as per the EU Commissions guidelines entitled "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". We note that the scoping document makes no reference to an appropriate assessment. The appropriate assessment and EIS should also examine the cumulative impact of this proposed development in combination with other developments and proposed developments.

Construction work should not be allowed impact on water quality and measures should be put in place to prevent sediment and/or fuel runoff from getting into watercourses which could adversely impact on species in the watercourse. Because the Slaney river system is important for lamprey species, salmon and freshwater pearl mussels it is essential that a water protection management plan be prepared to ensure no pollution or sediments enter the watercourses. Such a plan should be signed off by the project ecologist and be prepared in consultation with a freshwater pearl mussel expert and agreed with the National Parks and Wildlife Service (NPWS) of this Department in advance of applying for planning approval. Bridges should be single span and there should be no culverting of watercourses or instream works unless absolutely essential. Where there are impacts on protected species and their habitats, resting or breeding places, licenses may be required under the Wildlife Acts or derogations under the Habitats Regulations. In addition the EIS should take into account requirements for

nesting birds under the Wildlife Acts of 1976 and 2000 with regards to any proposed vegetation removal. Birds nests can only be intentionally destroyed under licence issued under the Wildlife Acts of 1976 and 2000. Where negative impacts are identified suitable mitigation measures must be detailed if appropriate.

Regarding protected animals we would like to remind you of the necessity of obtaining the necessary licenses and derogations in advance of any works or any permission for any works being given. In particular bats and otters are strictly protected under annex IV of the Habitats Directive and a copy of Circular Letter NPWS 2/07 entitled "Guidance on Compliance with Regulation 23 of the Habitats Regulations 1997 – strict protection of certain species/applications for derogation licences" can be obtained on the NPWS website at www.npws.ie

Should you require any further assistance please do not hesitate to contact this Department at the following address:

The Manager,
Development Applications Unit,
The Department of the Environment, Heritage and Local Government,
Dún Scéine,
Harcourt Lane,
Dublin 2.

In addition, this application is being evaluated from an archaeological and an architectural heritage perspective and our comments if any will issue in due course.

Mise le meas


Margaret Flood
Development Applications Unit



Comhshaol, Oidhreacht agus Rialtas Áitiúil
Environment, Heritage and Local Government



27 February 2009

Our Ref: G2009/34

Ms Aebhin Cawley
Scott Cawley,
27 Lower Baggot Street,
Dublin 2

Re Gorey to Enniscorthy Realignment Scheme

A Chara,

We refer to your notification of 22nd of January 2009 in relation to above development. Outlined below are the architectural heritage recommendations of the Department of the Environment, Heritage and Local Government.

Architectural Heritage

Environmental impact assessment for the proposed N11 Gorey to Enniscorthy Re-alignment Scheme should take into account the effect of the road proposals on the architectural heritage of the locality.

It should be noted that current regulations relating to the form of the proposed road scheme development require assessment of both architectural and archaeological heritage, and cultural heritage.

It is recommended that is taken on board in making an assessment of the perceived impact of the proposed road improvement works on the architectural heritage of the locality.

In that regard the content of the attached Appendix 1 is put forward as an aid to the different stages in the process. The following points in particular should be noted in relation to the Scoping Report dated 7th January 2009.

1. It is recommended that, as specified in the Regulations, impact on architectural heritage is properly taken into account in the EIS.

For instance, under the heading 'Archaeological, Architectural and Cultural Heritage Constraints' at page 12 it is stated that -



"The Constraints Study and Route Selection assessments found that there is a large archaeological resource within the area and a substantial amount of built heritage sites."

It is not clear from the text what meaning is being given to the term 'built heritage sites'. Similarly reference is made in the text of the Scoping Report to 'protected structures', 'Recorded and Protected Structures', and 'listed buildings'.

The regulations clearly state that impact on the material asset of 'architectural and archaeological heritage, and cultural heritage' is to be taken into account. There is an emphasis in the Scoping Report on examining impact on archaeological heritage, e.g. page 12. It is recommended that, as pointed out in the attached appendix, full and proper consideration of impact on structures of architectural heritage encountered on the proposed route is taken into account in both laying out the road scheme and in making an environmental impact assessment of it.

It is not clear from the Scoping Report if the meaning of the term 'architectural heritage' is fully understood. For instance it is stated at page 13 that -

"An analysis of the built heritage within the area revealed the presence of substantial number of vernacular structures, bridges and country houses belonging to the later years of the post medieval period. Structures that are architecturally and socially important, such as these, are listed as protected within the development plan for County Wexford. These receive statutory protection that helps to ensure their preservation for the future. There are various individual and groups of Recorded and Protected Structures within the study area, broadly dominated by bridges and country houses."

The definition of the term 'architectural heritage' is given in Section 3 of the attached appendix. This definition, and its meaning, goes considerably beyond that quoted above.

2. It is also stated at page 13 of the Scoping Report that -

"Any potential to impact on these identified features of interest, as well as a range of other identified features of archaeological interest which have been identified, will need to be carefully considered at EIA stage. Appropriate mitigation measures will need to be developed where necessary to reduce impacts."

It could be viewed that little point is served in developing 'appropriate mitigation measures' or that impact on structures of architectural heritage merit will 'be carefully considered at EIA stage' if impact can be avoided in the first place.

As pointed out in Section 5 of the attached appendix, avoidance of structures of architectural heritage merit is the best mitigation that can be offered. If all such structures are simply avoided in the design of the proposed road scheme, then there will be no issue in respect of impact on architectural heritage. Within that context putting forward mitigation measures is no more than putting a gloss on the situation after the event.

3. It is recommended that the presentation of information in the chapter relating to architectural heritage is consistent. For example, at page 36 it is stated that the “*EIS will describe the likely significant effects, direct, indirect, cumulative and interactive, on the environment by reference to impacts on: -*

...
Archaeology and Cultural and Architectural Heritage;

... .”

However, the heading at page 12 refers to “Archaeological, Architectural and Cultural Heritage Constraints”.

4. It should be noted that, as pointed out in Section 3 of the attached appendix, the term ‘architectural heritage’ may encompass a wide variety of structures, including what might be deemed components of the landscape. In that regard any assessment of landscape impacts should take architectural heritage elements into account and not just ‘listed buildings’ as specified at page 49 of the Scoping Report.

Making an assessment of impact on landscape features which could be deemed to be of architectural heritage relevance could be assisted by making photomontages rather than the stated policy at page 50 of the Scoping Report. This could assist in lessening impact at road design stage rather than being left to be added in the EIS.

5. As pointed out in the attached appendix, giving recognition to the possible impact on structures of architectural heritage merit early in the design process will provide an opportunity to design out any possible adverse impact at an early stage. The proposals at page 51 of the Scoping Report for walk-over surveys if the design is largely complete will only serve to document that will suffer an impact and can no longer be avoided. The text also states that ‘protected structures’ will be taken into consideration rather than impact on architectural heritage as the regulations require.

6. It might be noted that reference at page 52 to ‘The Architectural Advisory Unit’ should refer to the ‘The Architectural Heritage Advisory Unit’ of the Department of the Environment, Heritage and Local Government.

7. It is recommended that assessment of the architectural heritage merit of structures is carried out by someone with a competence to make that assessment. Therefore it is recommended that Appendix 1 is forwarded to the consultants engaged to assess possible impact on architectural heritage as early as possible.

8. In addition, it is recommended that the Guidelines issued by the National Roads Authority for assessing the impact of road schemes on architectural heritage are also consulted.

9. It may also be useful to consult with the County Conservation Officer about any undue impact on structures of architectural heritage merit which might occur on foot of the proposed road scheme.

Appendix 1

Proposed N11 Gorey to Enniscorthy Re-alignment Scheme,

Environmental Report

Environmental Impact Assessment in relation to Architectural Heritage

The following comments and recommendations are made as an aid to making an Environmental Impact Assessment of the impact on architectural heritage and is not an indication of the view of Heritage and Planning Division of the Department of the Environment, Heritage and Local Government on the merits of the proposed road scheme.

It may be that there will be little or no impact on the architectural heritage in the vicinity of the N11 Gorey to Enniscorthy Re-alignment Scheme. However it should be noted that, as set out below, 'architectural heritage' is a material asset which must be taken into account where an EIS is to be prepared. In that context these advice notes may be of assistance in ensuring that the issue of 'architectural heritage' is properly addressed and the content of the EIS is not subject to unwarranted challenge on that account.

1. Environmental Impact Assessment Background

1.1 Environmental impact assessment relating to a proposed road scheme requires a description of aspects of the environment likely to be significantly affected by the proposed road scheme, including in particular -

"material assets, including the architectural and archaeological heritage, and the cultural heritage".

1.2 Since the adoption of the European Communities (Environmental Impact Assessment)(Amendment) Regulations 1999, S.I. 93 of 1999, which came into effect on the 1st May 1999, the matter of 'architectural heritage' is now an integral part of an environmental impact statement (EIS). As such it is important that it is documented in its own right within the EIS. It should not simply be addressed as an adjunct to considerations of an archaeological or cultural heritage nature.

1.3 It should be noted that, as set out in Section 3 below, "*Defining Architectural Heritage*", it is not correct to equate 'architectural heritage' with a sub-set of structures taken from the architectural heritage of an area which are included by a planning authority in the Record of Protected Structures. In addition, as also set out in Section 3 below, reliance merely on a '*desk top study*' in order to identify the impact on structures of architectural heritage merit within the vicinity of a proposed road scheme is not likely to be sufficiently comprehensive.

1.4 Given the alignment of the proposed route and the nature of the it may be that there is little of architectural heritage merit in the vicinity or in the area generally upon which there will be an impact. However, it is recommended that this should be specifically investigated. Where no structures of architectural heritage merit exist in the vicinity of the proposed road scheme, this should be clearly stated in the documentation produced at each stage in the process. This, in turn, will establish the 'technical' completeness of the EIS.

1.5 Where structures of architectural heritage merit are encountered, it is recommended that they be treated as set out in Section 4 below.

1.6 While emphasis is normally placed on the adverse effects of a road scheme, it should be noted that the beneficial effects on the built fabric of a locality consequent on the removal of passing traffic should also be taken into account in setting out the section on architectural heritage.

2. Content of EIS Documentation Dealing with Architectural Heritage

2.1 It is customary to recommend that a chapter or section *titled "Architectural and Archaeological Heritage, and the Cultural Heritage"* is included in any documentation prepared for the purpose of an EIS.

2.2 It is also customary to recommend that the content of the chapter or section should be laid out, in part, to specifically set out the work of identification and assessment in relation to '*architectural heritage*'.

For example, it might read

*"The impact of the development will be assessed with reference to
Architectural Heritage ...
Archaeological Heritage ...
Cultural Heritage ..."*

3. Defining Architectural Heritage

3.1 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*
(c) *sites,*
which are of architectural, historical, archaeological, artistic, cultural, scientific, social or technical interest".

3.2 For guidance on what is encompassed by the term "*architectural heritage*", it is recommended that reference is made to Section 2.5 of the "*Architectural Heritage Protection, Guidelines for Planning Authorities, 2004*" issued by the Department of the Environment, Heritage and Local Government. While this section relates to protected structures, it illustrates the range of structures which should be taken into account when assessing architectural heritage.

3.3 Many structures which could be considered to constitute the architectural heritage of an area are not likely to be documented. This may leave shortcomings either in a "*desk-top*" study of known sources of information or in bibliographical reference material presented as a review of the architectural heritage of an area.

3.4 It should also be noted that reference to the content of the Record of Protected Structures (RPS) in the County Development Plan for information on structures of architectural heritage merit in a locality is likely to prove insufficient. The definition of structures to be included in the Record of Protected Structures in a development plan is set out in Section 51(1) of the Planning and Development Act of 2000. This section states that

“For the purpose of protecting structures, or parts of structures, which form part of the architectural heritage and which are of special architectural, historical, archaeological, artistic, cultural, scientific, social or technical interest, every development plan shall include a record of protected structures, and shall include in that record every structure which is, in the opinion of the planning authority, of such interest within its functional area.”

In effect the RPS is a subset of the architectural heritage of a locality which the planning authority considers specifically to of special interest under specific headings. As such, the RPS does not necessarily represent the architectural heritage of a locality. It follows that exclusive reliance on the content of the RPS, or a proposed RPS, is likely to give consideration only to part of the architectural heritage that may be found in the vicinity of a development.

3.5 This is likely to mean that a primary survey of the area taken in by the proposed road scheme will have to be carried out in order to establish what existing elements of architectural heritage will be affected, if at all, by the proposed route. It should be noted that this information is incremental, and will eventually inform the content of the completed EIS.

3.6 It should also be noted that it is likely to be far less onerous than might first appear. Previous road design schemes indicate that it appears customary in setting out road schemes to avoid as much of the existing built environment as possible. Consequently, a comprehensive site survey at project planning stage will identify most of the significant elements of the built environment in the vicinity of a proposal.

If a competent architectural heritage assessment is made of that information, it will identify those elements of architectural heritage merit upon which it is preferable not have an adverse impact.

3.7 It is emphasised that competent architectural heritage expertise will be required to make an assessment of survey information. It is customary to recommend that this particular expertise is engaged early in the planning of the project in order that relevant input is available in good time. In effect most issues relating to impact on architectural heritage can be “designed out” at planning and design stage of the proposed road scheme simply by identifying and avoiding significant elements of that heritage. In consequence, it can be expected that adverse impact on architectural heritage in the vicinity of a proposed road scheme is much reduced.

4. Identifying and Assessing Architectural Heritage

4.1 As stated in Section 3.6 above, a comprehensive survey of the proposed route of the N11 Gorey to Enniscorthy Re-alignment Scheme should have identified most of the significant elements of the built environment in the vicinity. Most of this built environment is upstanding and self-evident. It should be the norm that all structures of architectural heritage merit either in or the vicinity of the proposed route, and which may be impacted upon by the proposed road scheme, should be identified at project planning and design stage, evaluated as to architectural heritage significance, and the perceived amount of disturbance or intrusion upon them by the route of the proposed road scheme assessed as part of planning and design stage of the project.

4.2 As stated in Section 3.7, if addressed in an appropriate fashion it is likely that any adverse impact on architectural heritage and any conflicts are largely "*designed out*" of the proposed road scheme at planning and design stage. It should be noted that, unless the proposed road scheme traverses an area of considerable habitation, it is likely that relatively few structures of architectural heritage merit will exist in the vicinity of the proposed route.

4.3 As stated in Section 3.3, many structures which could be considered to constitute the architectural heritage of the area are not likely to be documented for the purpose of "*a desk-top study*". In the absence of readily available and comprehensive documentation, it is customary to recommend that all structures encountered on the ground in the vicinity of a proposed road scheme are documented and an architectural heritage assessment of them set down.

This is particularly the case where isolated structures are concerned. Where groups of structures of similar type are encountered in an urban or sub-urban environment, they may be treated as single entities where it is considered that any perceived impact will apply to all.

4.4 Where an evaluation of the impact of the proposed road scheme on structures of architectural heritage merit is carried out early in the planning and design process it will be evident what level of documentation regarding each structure should be provided for the purpose of an EIS. This information will indicate the consequent degree of recording or documentation which is warranted in each case.

4.5 The process is no more than the identification and assessment of the architectural heritage merits of any or all structures which are encountered in proximity to the proposed route, and stating the perceived effect on them. It should be noted that extensive paper research in relation determining what structures of architectural heritage merit exist in a locality is not required in advance of examining the actual reality on the route of a proposed road scheme.

Aerial photographs of a proposed area and possible routes will indicate most structures in a locality which are likely to be affected. Making an assessment of the architectural heritage value of just those structures will confine the work to manageable proportions. Placing an initial emphasis on documenting structures in a paper-search of historical maps or papers, and then confirming their existence by field work is a questionable approach. Apart from being time-consuming, it also risks overlooking structures on the ground which are not documented in research sources.

4.6 It should be noted that some information will overlap in part with material gathered for other parts of the EIS, e.g. structures associated with land holding or usage. To that end all structures should be documented for the purpose of architectural heritage assessment early in the design process. Some additional work may be required to establish the integrity of existing or former demesne lands, where such or similar features still exist, which are either traversed or in proximity to a proposed route. Smaller structures or items of architectural heritage merit which are not evident on maps or aerial photographs should also be taken into account in the course of a site survey.

4.7 At a minimum, the term '*documented*' means -
an accurate and succinct description of the structure;
an assessment by competent expertise of its architectural heritage merit;
the extent of the structure set out on a map of sufficient scale;
a sufficient number of photographs which illustrate, particularly to someone not in a position to visit the location on their own account, the built form and architectural heritage significance of the structure under consideration;
an assessment of the impact which the proposed development is likely to have on the structure; and
supporting information, where applicable and appropriate, such as any research documents or, perhaps, sketch plans of each floor level of structures which are directly impacted.

4.8 It is important that the matter of '*architectural heritage*' is explicitly documented and assessed in its own right within an EIS. It should not simply be addressed as an adjunct to considerations of an archaeological nature. In this regard information concerning architectural heritage will need to be assessed by competent expertise in order to set down a proper assessment of the value of structures of architectural heritage merit.

5. Presentation of Architectural Heritage Information in an EIS and Associated Record Documentation

EIS Content Relating to Architectural Heritage

5.1 Few road schemes will not have some impact on their surroundings. The EIS process is intended to establish if the extent of impact is such that it is, or is not, acceptable in terms of the wider value or benefit that the proposed road scheme will bring with it. Within this context there may be, on occasion, a direct impact in architectural heritage terms on one or more structures if a proposed road scheme is to proceed. However, in a situation where the issue of architectural heritage is addressed early in the project planning and design process, it is customary to find that relatively few structures are likely to be affected.

5.2 As it is also the purpose of the EIS procedure to establish what the actual impact of a proposed road scheme will be, the reality of the situation should be clearly set out in the EIS. It is for the regulatory authorities to determine if the outcome of any

impact is acceptable within the overall context of the proposed road scheme. Therefore all statements in respect of the assessment of architectural heritage merit and the perceived impact upon it should be factual and without bias.

5.3 It is customary to focus on the adverse effects of a road scheme on elements of architectural heritage along a proposed route. It should be noted that the beneficial effects on the built fabric of a locality consequent on the removal of through-traffic or improvement in road layout should also be taken into account in setting out the section on architectural heritage.

For instance, where through traffic is removed from surround built up areas, this can allow the locality to function within its own context as a local centre. This can allow for the greater presentation and appreciation of structures of architectural heritage merit, or allow for new measures to be taken which will help preserve the character of the locality. If other beneficial instances are anticipated following the completion of a proposed road scheme they should also be included in the EIS in order to give a fair representation of the actual overall effect of the proposed road scheme on the architectural heritage of the locality.

5.4 The section setting out a list of structures which will be affected by a proposed route should set out in tabular form, for example, in the following format -

- reference number which cross-references to the route maps in order to locate the structure;
- brief description of the structure;
- assessment of its architectural heritage merit ;
- proximity of the structure to the proposed route in metres
- brief assessment of the impact which the proposed development is likely to have on the structure; and
- a representative 'thumbnail' photograph showing the general configuration and architectural heritage significance of the structure.

5.5 It should be noted that merely transcribing measures appropriate to the protection of the archaeological heritage is usually inappropriate in relation to structures of architectural heritage merit. For instance;

5.5.1 It should be noted that structures of architectural heritage merit are generally self-evident and can be identified early in the site selection or design stage of a proposed road scheme. It should not be the case that previously unknown structures are encountered at construction stage. Therefore it is inappropriate to specify in an EIS that baseline survey work of architectural heritage will be required after either the completion of the EIS or in the course of site or construction work. Equally, it is inappropriate to specify that appropriate corrective measures relating to structures of architectural heritage merit will be decided upon at construction stage, with or without the approval of the Minister for the Environment, Heritage and Local Government. To do so is, in effect, an admission that due consideration of the impact on architectural heritage has not been made in setting out the EIS.

5.5.2 Putting forward "*mitigation measures*" rarely has a relevance to structures of architectural heritage merit. Instances may occur where a particular structure, for example, a set of entrance gates or boundary wall, can be moved back or relocated to

facilitate a proposed route. However, generally structures which have to be dismantled or demolished to facilitate the selected route, or perhaps allow a safer site access route to the construction works, cannot be reinstated. In such circumstances there is no mitigation which can be offered if a structure of architectural heritage merit is to be destroyed. Clearly the only mitigation is avoidance, where avoidance is possible.

5.5.3 Similarly, the route of a new road scheme in close proximity to a structure of architectural merit may compromise the setting of that structure or have an adverse visual impact upon it. The practical reality is likely to be that there is little mitigation which can be offered which ameliorates adverse impact other than amending the route layout as appropriate, if it is possible to do so.

5.5.4 In the context of archaeological heritage, it is customary to record in some detail archaeological artefacts which are encountered in the vicinity of a development. In the case of structures of architectural heritage merit, unless there is an actual physical impact such as partial or total demolition, or close proximity to the proposed works, there is little point in making detailed records for their own sake of those structures beyond the basic documentation specified in Section 4.7 above.

To do so would in effect be an unwarranted imposition in relation to a proposed road scheme, and would not be sought in other forms of development where an EIS does not apply. If a structure is adjacent to but largely unaffected by a proposed road scheme, then it remains as an artefact of architectural heritage merit which can be used, visited or examined on a continuing basis. Making or presenting superfluous documentation relating to architectural heritage as part of the EIS process is likely to serve little practical purpose.

5.5.5 The procedure of "*preservation by record*" in relation to the removal of structures of architectural heritage merit should only be used as a last resort. In the case of archaeological sites it is generally recommended that there should always be a presumption in favour of avoiding adverse impact, and that '*preservation in-situ*' should always be the first option to be considered. This has a parallel in relation to architectural heritage whereby avoidance in the first instance is the best option. Where impact on particular archaeological sites is unavoidable it is said that the process, consequent to excavation and the recovery of artefacts and/or associated information, is one of '*preservation by record*'.

Where it is proposed to demolish structures of architectural heritage merit, the physical artefact is not preserved if the structure is actually removed. As there is likely to be no physical remains when the structure is destroyed, it is only associated information that is protected or preserved through making record documents. The procedure of "*preservation by record*" is a limited form of mitigation that can be offered. If the structure is of sufficient merit as to warrant protection, then the best "*mitigation*" which can be offered is avoidance, if avoidance is possible.

5.5.6 Where it is proposed in an EIS that structures of architectural heritage merit will be "*monitored*" as "*mitigation*" during construction work, for instance by the use of tell-tales for vibration monitoring or the like, it is in effect a tacit admission that the impact of the proposed works on the structure is unknown. The offer of "*monitoring*"

is a concession that, in effect, damage consequent on the works will be rectified. However, this remains no different from the situation in respect of any other structure within the vicinity of a proposed road scheme. If the structure is of sufficient merit as to warrant protection, then the best "*mitigation*" which can be offered is avoidance, if avoidance is possible.

Record of the Past

5.6 Where it is necessary to demolish structures of architectural heritage merit in order to carry out a particular road scheme proposal, these cases should be highlighted as such in the EIS. These structures should be documented as appropriate to their significance and, in addition to the original survey photographs, record photographs should be taken before demolition. This combined documentation should be treated as a "*record of the past*". It is recommended that it is specified in the EIS that these records are deposited with an appropriate archive, e.g. the County Library Archive.

5.7 It should be noted that the purpose of documenting structures which are to be either demolished, partly demolished, or significantly impacted upon is to set down a record of the situation as it existed at a particular point in time, that is, just before removal. This information may be cross-related to, for instance, historical maps at a future time by others as part of research work for historical purposes or social study.

Few structures which are removed as part of a proposed road scheme are ever likely to be reconstructed. Therefore carrying out extensive measured work and making detailed drawings will rarely be required. Documentation relating to most structures to be removed need only give a reasonable representation of the structure as it existed prior to removal. Photographs which illustrate the basic form and relevant detail of a particular structure may reduce the requirement of measured work to a minimum. Following removal, the information associated with the structure simply becomes a "*record of the past*".

5.8 It should be noted that, where a structure is to be demolished and its associated site cleared, archaeological investigation may be justified. This should be highlighted in the chapter in the EIS dealing with archaeological heritage.

5.9 Where a structure or feature of architectural heritage merit is to be dismantled and relocated as part of a proposed road scheme, the authenticity of the original should be maintained.

This will mean, for instance, that
the structure is documented in sufficient detail both before and in the course of being dismantled in order to allow it to be accurately rebuilt to its original form;
it is carefully dismantled in order to avoid undue damage to its constituent parts;
it is reconstructed using, in so far as is practicable, its original materials;
it is reconstructed using, in so far as is practicable, the original construction techniques. For instance, lime mortar is used for in cut-stone or coursed random rubble work rather than sand/cement based mortars;
it is reassembled as an accurate representation of the original, maintaining the same profiles, surface finish, and faithful detailing rather than a pastiche reproduction. For

instance, where an original wall is of solid masonry, its reinstatement should not be of a concrete block core with masonry facing to one or both sides; any replacement parts are faithful in style, material, and size to the original. For instance, any individual parts of a cast-iron railing, or segments of replacement railing should replicate the original.

Content of Record of the Past

5.10 The documentary information specified in Section 4.7 above is of a general nature sufficient to establish the basic architectural heritage merits of a particular structure. As set out in Section 5.6 above, a "*record of the past*" should be made for particular structures which are either to demolish or significantly impacted upon. Depending on their particular architectural heritage merit, it is recommended that such structures are documented to the following levels;

5.10.1 Structures of relatively minor architectural heritage merit or significance; as for Section 4.7 above, i.e. the original survey documentation, viz.
an accurate and succinct written description of the structure;
an assessment of its architectural heritage merit;
the extent of the structure set out on a map of sufficient scale;
a sufficient number of record photographs which illustrate the built form and architectural heritage significance of the structure;
any additional information such as any research documents; and, in addition, record photographs taken before demolition, and which include a clear indication of scale such as calibrated ranging rods.

5.10.2 Structures of greater architectural heritage merit or significance; as for Section 5.10.1 above, but including sketch floor plans and sections drawn on squared paper which gives an indication of a recognisable scale. Architectural and constructional details should be documented by photographs which include a clear indication of scale.

5.10.3 Structures of specific architectural heritage significance; as for Section 5.10.2 above, but including measured drawings to an appropriate scale showing the general site layout and general floor plans, sections and elevations.

5.10.4 Structures of particular architectural heritage significance; as for Section 5.10.3 above, but including a full set of measured drawings and rectified photographs. The measured drawings should also include constructional details to an appropriate scale. It should be noted that this specification will only be required in exceptional circumstances. It is more likely that such structures will have been identified at planning and design stage, and will have been avoided by the road scheme in the first instance.

Should you require any further assistance please do not hesitate to contact this Department at the following address:

The Manager,
Development Applications Unit,
The Department of the Environment, Heritage and Local Government,
Dún Scéine,

Harcourt Lane,
Dublin 2.

Mise le meas

Margaret Flood

Margaret Flood

Development Applications Unit

Heritage council_24.03.09

From: Cliona O'Brien [cobrien@heritagecouncil.ie]
Sent: 24 March 2009 16:47
To: jdenyer@scottcawley.com
Cc: Ian Doyle; alison@heritagecouncil.ie
Subject: FW: N11 Gorey to Enniscorthy Realignment scheme - scoping report for EIA

Dear Jo,

With a professional staff of nine, I am afraid that we do not currently have the staff resources required to respond to all scoping enquiries we get regarding EIAs.

We would request however that you, at the very least, take due cognisance of all obligations under the Habitats and Birds Directives, as well as national wildlife-related policies when preparing the EIS. Legislation and policies relating to broader heritage issues, such as landscape and archaeology should also be considered.

Best wishes
Cliona

Cliona O'Brien,
Wildlife Officer,
Heritage Council,
Áras na hOidhreachta,
Church Lane,
Kilkenny.
e: cobrien@heritagecouncil.ie
t: 056 7770777

From: Jo Denyer [mailto:jdenyer@scottcawley.com]
Sent: 19 March 2009 12:19
To: Cliona O'Brien; Alison Harvey
Subject: N11 Gorey to Enniscorthy Realignment scheme - scoping report for EIA

Dear Cliona and Alison

I am contacting you in relation to a scoping report for an Environmental Impact Assessment for the above scheme that was sent to you for consultation. As we are nearing submission of the EIS, I would be grateful if you could let me know whether you intend to send a response to this scoping document. Ideally we would like all responses to reach us by 3 April 2009. A copy was also sent to Ian Doyle but I do not have his e-mail address. Please can you pass this e-mail on to him if you are likely to send separate responses.

Thanks for your help

Best wishes

Jo

Dr Joanne Denyer
Scott Cawley
27 Baggot St Lower
Dublin 2

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Fax 00353 (0)1 6769816
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Eastern Regional Fisheries Board

Bord Iascaigh Réigiúnach an Oirthir



Fisheries Ireland

Our Natural Heritage

Joanne Denyer
Scott Cawly
27 Lower Baggot Street
Dublin 2

01 April 2009

Re: Environmental Impact Assessment for the N11 Gorey to Enniscorthy Realignment Scheme

Dear Ms. Denyer,

With reference to your correspondence of the 19th March relating to the EIA Scoping document the Board would like to highlight the following issues.

This scheme will include numerous crossings of important salmonid watercourses. The length of many of these culverts is of concern to the Board, as is the extent of culverting of the Tinnacross Stream main channel with over seven crossings equates to a channel length in excess of 530metres.

One of the implications of such long culverts is the lack of light within these Structures. We note the most up to date schedule of culverts for this scheme details a 1.3m high, 78m long culvert on the Corbally main channel and 1.9m high, 78m long culvert on the Tinnacross and the Board request that the issue of light penetration into these culverts be addressed.

The installation of baffles will be necessary in a significant proportion of these long culverts. The NRA Guidelines for the crossing of Watercourses during the Construction of National Road Schemes states that "if the gradient is too steep, the drowning effect should be met by way of a fish pass, where appropriate. Notched baffles may be required through the culvert. All fish passes should be suitable for lamprey as well as salmonids". The Slaney catchment is known to hold excellent populations of Brook, River and Sea Lamprey, though specific data relating to catchments such as the Corbally and Tinnacross is limited, the Board believe that a precautionary approach should be taken regarding the distribution of lamprey throughout this system and all structures must accommodate their passage.

Yours Faithfully,

Pat Doherty
Chief Executive Officer

**The Eastern Regional
Fisheries Board**

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An Taisce – The National Trust for Ireland
Tailor's Hall, Back Lane, Dublin 8

20090421-07-N11

Aebhín Cawley
Scott Cawley
27 Lower Baggot St
Dublin 2

21st April 2009

REF: N11 Gorey to Enniscorthy Scheme

Dear Ms Cawley,

Thank you for your letter of 1st April 2009 requesting comment on this proposal and offering to answer any questions.

While the map on the consultation document bears the Transport 21 NDP logo, the NDP and Transport 21 has been published without Strategic Environmental Assessment, required under EU Law, which exposes all further road projects in Ireland to legal action.

The need for bypassing Enniscorthy is recognised. This, however, can be accommodated by a modest bypass loop around the built up area and the improvement of the safety and capacity of existing roads.

Road proposals such as this are being put forward in the absence of any sustainable national transport or decarbonisation strategy. In this case, there is a heavily subsidised and seriously underutilised railway line running from Dublin to Rosslare, parallel to the proposed road route. The effect of this proposal would further undermine the viability of that railway line in carrying additional passenger and goods traffic.

We would appreciate your response to the following questions.

1. How does this proposal comply with *Smart Travel – A Sustainable Transport Future: A New Transport Policy for Ireland 2009 – 2010*? This sets out a series of overriding policy objectives in Chapter 3, summarised as follows:
 - 1 *Future population employment growths will predominantly take place in sustainable compact forms which reduces the need to travel for employment and services;*
 - 2 *500,000 more people will take alternative means to commute to work to the extent that the total share of car commuting will drop from 65% to 45%*
 - 3 *Alternatives such as walking, cycling and public transport will be supported and provided to the extent that these will rise to 55% of total commuter journeys to work*
 - 4 *The total kilometres travelled by the car fleet in 2020 will not increase significantly from current levels.*
 - 5 *A reduction will be achieved on the 2005 figure for Greenhouse gas emissions from the transport sector.*

How does this proposal address each of these objectives?

2. How does this proposal address the need to decarbonise transport in Ireland?

To date the effect of the inter-regional motorway dual carriageway programme has been to accelerate dependence on the private motorcar and road vehicle goods distribution; reduce proportional travel mode by rail and bus, with rail freight being now a quarter in real tonnage of early 1990 levels; and increase land transport Greenhouse gases by 170% over 1990 levels. At the same time, the road programme is exacerbating urban sprawl, car based commuter one-off housing and commuter housing in towns and villages around the larger urban catchment areas.

This road proposal has been put forward without addressing the radical decarbonisation that is required both in the Irish transportation sector and internationally. It is based on assumption of increased vehicle numbers into the 2020s which is not tenable either on emissions grounds or on availability of affordable fossil fuel supply, even with the achievement of major improvement of vehicle fuel and emissions efficiency. It is based on assumptions in growth of fossil fuel vehicles, with further disregard of global oil supply and future road transport costs. It disregards the fact that current patterns of car-based commuting, use of the private car for interregional transport, and use of road vehicles for inter-urban or interregional transport will no longer be environmentally sustainable or financially achievable in the future. It disregards the fact that interregional personal transport demand will have to be met by carbon neutral public transport, both rail and road, and bulk goods transported by rail, using the most efficient carbon neutral/renewable energy source.

3. How are you going to cap carbon emissions on the N11?

Irish greenhouse gas emissions are among the highest in the world per capita, for example Ireland with a population of 4 million has higher emissions than Sweden which has a population of 9 million. The 13% Kyoto limit over 1990 levels is not being met with current levels at 26% over 1990 levels. Transport emissions in Ireland are 170% over 1990 levels.

While the current recession is resulting in a reduction in transport use, the overriding issue of fossil fuel road vehicle dependence is not being addressed.

The current program for government has a commitment to reduce greenhouse gas emissions by 3% per annum.

The international scientific consensus is that current proposed targets are too low and that a significant reduction in current total levels is required. This means that any proposal which increases road vehicle transport generation and therefore emissions is no longer tenable. There is both a legal and moral responsibility on all engineering, environmental and other consultants to advise political and public administrative decision makers of this. There is a further code of practice requirement on members of the engineering, planning and other professions to refuse to endorse or recommend schemes which increase emissions.

The approach which is being used by members of professional planning and engineering bodies of isolating the greenhouse gas generation of each individual scheme and presenting a false choice between the proposed road scheme and the "do nothing scenario" of not proceeding with the development and treating traffic growth levels in recent years as a given fact and to be tolerated into the future, is no longer tenable.

Any transportation infrastructure proposal must be linked to a transportation management strategy of reducing current levels of road vehicle use and consequently of emissions. This means that in general the only road schemes tenable are small-scale urban bypasses and relief roads, but not inter-urban or inter-regional roads. In relation to bypasses or relief roads any proposal must be linked to an integrated transportation strategy for the urban area as a whole, including reduction of greenhouse gas emissions.

Accordingly please advise as to what calculation of and mitigation of greenhouse gas generation Scott Cawley providing in relation to this scheme and what professional code of practice is being followed by you and the other professional consultants assessing the justification for this scheme.

4. How do you propose to prevent this road scheme from exacerbating urban sprawl?

Further road investment in Co Wexford is not the appropriate response either to a continuation of the growth of the last two decades or the current slump. Ireland is one of the worst international examples of the impact of road investment fuelling car-based sprawl. The term 'sprawl' for scattered road-front car-based development was coined by American journalist William Whyte in 1958, who noted in *Fortune* magazine, two years after the US Highways Act of 2006, the excessive development of car-based development mobility over wider catchment areas where '*development has been left almost entirely in the hands of the speculative builder*'.

5. How are you addressing the following sustainable transport requirements?

We are unable to comment on route suitability in absence of a detailed environmental appraisal. However, any consideration would be premature in the absence of project justification.

If further expense is to be incurred in putting forward this scheme, any transport investment in Mayo should ensure that:

- a proper modal share split is achieved between cycling, public transport and private passenger vehicles,
- that a decrease in transport emissions in the development catchment area is specifically provided for,
- that no adverse noise impact is generated.

How do you propose to achieve this?

How do you intend to ensure that a general strategy of reducing emissions, traffic levels and car parking demand is achieved by the following integrated means?

- The advice in the DoEHLG's Change Campaign to reduce travel speeds to 80km/ph;
- Enhanced use of Co Wexford railway line;
- Reduction of car-based commuting into town centres through curtailment of sites and parking spaces used by all day commuters;
- Adjustment of parking tariffs to discourage all day commuting;
- Charging of all car parking spaces in Enniscorthy, both inner urban and urban fringe, including retail and other service provision locations;
- Provision of enhanced public transport, specifically designed to provide a service for those living in the environs of Enniscorthy to access the town centres without having to use a car;
- Promotion of a significant change of transport mode from car to cycling, particularly for those living in the suburban areas around the town centre;
- Control of car-based urban fringe and other sprawl development which would undermine functional status of town centres.

Yours sincerely,



IAN LUMLEY
Heritage Officer

Assessment of the Scoping Report for an Environmental Impact Statement of the proposed M11 Gorey to Enniscorthy Realignment Scheme.

The current proposal for the Proposed Scheme comprises the provision of :- approximately 27 km of motorway / dual carriageway to the east of the existing N11, which will bypass Camolin, Ferns and Enniscorthy (referred to as the M11 / N11 Mainline); approximately 4 km N80 link road that will connect the proposed M11 Mainline to the existing N11 / N80 junction in Clavass (referred to as the N80 Link Road); and approximately 8 km of single carriageway to bypass Enniscorthy to the west by linking the existing N11 to the existing N30 (referred to as the N30 Mainline). The location of the Proposed Scheme is shown on Drawing No.1942/EIASR/001.

Nature Conservation:

The proposed route of the M11 Gorey to Enniscorthy realignment scheme would impact upon a number of designated areas. These areas have been designated for containing wildlife and habitats of conservation importance. These areas include:

- The Slaney River Valley candidate Special Area of Conservation (cSAC) and proposed Natural Heritage Area (pNHA)
 - The River Bann pNHA
 - Clone Fox Wood pNHA
 - Ballynabarney Wood pNHA
 - Leskinfere Church pNHA.

A number of records of protected flora exist within the general area. These include:

- white dead-nettle (*Lamium album*), which is the only site in Ireland where this species is found,
 - narrow leaved helleborine (*Cephalanthera longifolia*),
 - lesser snapdragon (*Misopates orontium*),
 - Short-leaved Water-starwort starwort (*Callitriche truncata*) and,
 - opposite leaved pondweed (*Groelandia densa*).

Below are a number of protected fauna species which are likely to be effected by the proposed scheme:

- pygmy shrew (*Sorex minutus*),
- hedgehog (*Erinaceus europaeus*),
- Irish hare (*Lepus timidus hibernicus*),
- badgers (*Meles meles*),
- otter (*Lutra lutra*),
- common frog (*Rana temporaria*)

These species are all protection under the Wildlife (Amendment) Act 2000), while the otter, Irish hare and common frog are also protected under the EU Habitats Directive.

Bat species that have been recorded in the area include:

- Leisler's bats,
- soprano pipistrelle,
- common pipistrelles,
- Daubentons.

Bats are protected in Ireland under the Wildlife (Amendment) Act 2000), and under Annex IV of the EU Habitats Directive.

Protected bird species which are known to use of the area include:

- Mute swans,
- Kingfishers,
- Moorhen,
- Coot,
- Yellowhammer
- Mallard, Teal and Tufted ducks
- barn owl

All of these species, with the exception of the Mallard, can be found on either the Red or Amber list of Birds of Conservation Concern in Ireland (BoCCI); while Teal, Mallard, Tufted Duck and Kingfishers are also protected under the EU Birds Directive.

Species protected under the EU Habitats Directive such as:

- salmon (*Salmo salar*),
- river lamprey (*Lampetra planeri*),
- brook lamprey (*Lampetra planeri*),
- freshwater pearl mussel (*Margaritifera margaritifera*),
- and twaite shad (*Alosa fallax fallax*);

can be found in the River Slaney and the River Bann, which have both been designated cSAC rivers due to the presence of the above species.

The ecological character of the area through which the proposed scheme would pass is clearly significant¹. One of the main ecological impacts identified within the Scoping Report for the Proposed Scheme, is the crossing of the River Slaney cSAC by the N80 Link Road. The scheme will need to comply fully with all aspects of Article 6 of the Habitats Directive, including consideration of this development in conjunction with other plans and projects in the area, for example the proposed Enniscorthy Drainage Scheme. It is An Taisce's understanding that an EIA and appropriate assessment may be combined, but the procedural steps for both assessments must be followed separately and cannot be fully integrated. The appropriate assessment should be clearly distinguishable in the EIS.

¹ Other protected species for which the designated areas have gained their status may have not have necessarily been included in the above lists.

Scurloughsbush,
Oylegate,
Enniscorthy,
Co. Wexford
27th. April 2009

Mr Don Curtin,
National Roads Liaison Officer,
Enniscorthy Area Office,
Old Dublin Road,
Enniscorthy.

Reasons why the Bush Road (L6052) should not be closed permanently on the construction of the new N11 (Enniscorthy Bye-pass).

The Bush Road Retention Association is an organisation formed for the purpose of ensuring that the right of way along the Bush Road (L6052) is not extinguished on the building of the new Enniscorthy bye-pass. We note that the original plans for the Enniscorthy bye-pass made provision for the continuing use of the Bush Road after the construction of the new N11. We strongly urge that Wexford County Council and the National Roads Authority now revert to the original plan.

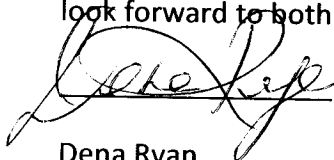
The Bush Road is a long established right of way and reference is made to the road in Musgrave's History of the 1798 Rebellion. Apart from its long period in existence the following are, perhaps, more important reasons why the road should be kept open:

- There are approximately twenty families living on the road and members of those families use the road to travel to work, to shop, to bring children to and from school, to attend religious services and for social , domestic and business purposes.
- The road is regularly used as a connecting road by traffic travelling from the existing N.11 to the Oylegate –Glenbrien road and visa versa.
- There are nine existing small business enterprises being run by residents of the road from premises on the road. The businesses range from a furniture enterprise to a fruit farm. The ability of the proprietors of those businesses to continue with those enterprises will be seriously impaired if the right of way along the road is extinguished.

- Access to homes and properties, on the Glenbrien or eastern end of the road, by supply trucks and service vehicle will be made very difficult if access to those homes and premises is available only from the Glenbrien end of the road. There are a few very severe bends close to the eastern end of the road.
- There is a fear that if the road is downgraded to two *cu de sacs* that the area near the cut off points will be used as dumping ground.
- The road is used as a leisure facility by walkers and joggers, many of whom are not resident on the road. Two walking routes, one of about three kilometres and the other of five kilometres, will be extinguished if the Bush Road ceases existence as a public roadway.
- The extinguishing of the right of way along the Bush Road will lessen contact between members of the same families. The closure will also present access problems in respect of farms divided by the absence of a right of way along the road. It will add to the distance travelled by people living on the road when they travel to nearby towns and other places which they wish to access.

The Residents Association will be forwarding a petition, signed by people living on the road and using the road, to you in an attempt to demonstrate that there is widespread opposition to the closing of the road by people living on the road and using the road.

We hope that this letter and the petition will convince you and other people involved in the decision making process relating to the possible road closure that the road should be kept open. We are prepared to have a deputation from our committee meet you and other people from Wexford County Council and the N.R.A. at a time convenient to both parties. It is our definite preference that this matter should be resolved between our representatives and Wexford County Council and the N.R.A. We are aware that Wexford Council, in particular, have a very good record in both attempting to accommodate local interests and in promoting local activity. We are, however, firm in our resolve that the road should remain open. Fanning French and Associates have made an offer to represent the residents of the road in negotiations relating to the possible road closure. We have not taken up this offer in the hope that we can effectively represent our own interests in this matter. The options of employing outside expertise and getting legal opinion are matters which we hope that we do not have to consider at a later time. We look forward to both hearing from you and meeting you in the near future. Regards,

 Secretary

Dena Ryan

 Chairman

T. Miller

30th April 2009

dc/ew

Ms Dena Ryan
Scurroughsbush
Oylegate
Enniscorthy
Co. Wexford

Re: M11 Gorey to Enniscorthy Project

Dear Ms Ryan,

I refer to your letter of 27th April on behalf of the Bush Road Retention Association.

As you are aware Wexford County Council and the National Roads Authority are presently finalising a new M11 route between Clogh and Oilgate. The new road will tie in with the existing N11 immediately south of the Bush Road.

The statutory process for the new M11 proposal will commence at the end of May and a central part of this statutory process is the provision for statutory rights for members of the public to make submissions to the independent body that will be considering Wexford County Council / NRA's proposal. If you require further information in relation to this process please do not hesitate to contact me.

In the meantime I am forwarding a copy of your submission to the Design Team for consideration prior to the M11 proposal being finalised. I will be pleased to meet with you and or your committee as requested at a convenient time and date. A phone call to this office will suffice to make the necessary arrangements.

Yours sincerely,

Don Curtin
National Roads Programme
Liaison Officer

c.c Tom Miller



Our ref: 208918
Your ref: Enniscorthy Bypass

Date: 19th February 2009

Enniscorthy Chamber of Commerce
c/o Eugene T. Doyle & Company
Abbey Square
Enniscorthy
Co. Wexford

For the Attention of Mr. Eugene Doyle

Dear Eugene,

ENNISCORTHY BYPASS

We have reviewed the relevant documentation to assess the Wexford County Council Route Options for the Enniscorthy Bypass.

The Emerging Preferred Route

The Emerging Preferred Route has been identified as the 'Cyan Route' in the Wexford County Council *N11 Clogh to Enniscorthy Scheme Route Selection Report*. This route lies to the east of the existing N11 and to the east of the River Bann and it is currently proposed as a type 1 dual carriageway. It follows an approximately south-west route between the townland of Clogh, south of Gorey, and the townland of Tomnafunshoge, to the east of Enniscorthy. A type 2 dual carriageway link road will be provided between Scarawalsh and Toom to connect the N80 National secondary road to the proposed 'Cyan Route'.

Concerns in Relation to the Preferred Route

In particular we have concerns in relation to the proposed N80 link route. Motorists travelling from the north along the proposed bypass who intend to travel to Enniscorthy will have two options:

1. Travel along the bypass and access Enniscorthy via the R744 (please see drawing number 208918-SK-002, which is appended to this letter); or
2. Travel along the bypass and the take proposed link road to the N80/Old N11.

There are issues associated with both of these options:

- There are significant capacity related problems along the R744 route, which are of a local rather than a regional nature, i.e. they will not be resolved by the provision of the bypass; and
- Access to Enniscorthy via the proposed N80 Link Road is a convoluted route for accessing the town as it involves travelling in a southerly direction along the bypass, then travelling in a north westerly direction along the Link Road and then back to a southerly direction along the old N11.

Based on these issues we believe that motorists travelling along the bypass route, who originally intended to travel to Enniscorthy will be deterred by these access options and will therefore continue along the new N11 onto Wexford Town, which is only a short distance away.

Alternative Link Road Route

We have proposed an alternative Link Road from the bypass to the N80, which we believe will significantly improve access to Enniscorthy for motorists travelling from the north of the bypass. The proposed route is shown on drawing number 208918-SK-001, which is appended to this letter. The original 'emerging preferred Link Road' junction along the bypass has been relocated further north so that the link to the N80/Old N11 route is shorter and more convenient.



We have undertaken a vehicle kilometres of travel study to investigate the potential impact of this alternative Link Road from the bypass to the N80 (the analysis is shown on drawing number 208918-SK-003). Based on our analysis we estimate that there will be an Average Annual Daily Traffic (AADT) kilometres of travel saving of 77,845km in the year 2013 and 100,387km in the year 2028. For the year 2013 this equates to an annual saving of 28 million kilometres of travel. Over a 15 year design life (taking an average of the 2013 and 2028 AADT figures), this equates to a saving of almost 488 million kilometres of travel. Based on an average sized petrol fuelled car, this could equate to reduction of 79,529 tonnes of CO₂ emissions over a 15 year period¹.

In summary the proposed benefits of our proposed alternative Link Road are as follows:

- Significantly improved accessibility to Enniscorthy through the use of the Old N11 in addition to R144;
- Significantly reduced AADT vehicle kilometres for local traffic (with a reduction in CO₂ emissions);
- Increased permeability for Enniscorthy traffic; and
- Very little impact on construction costs.

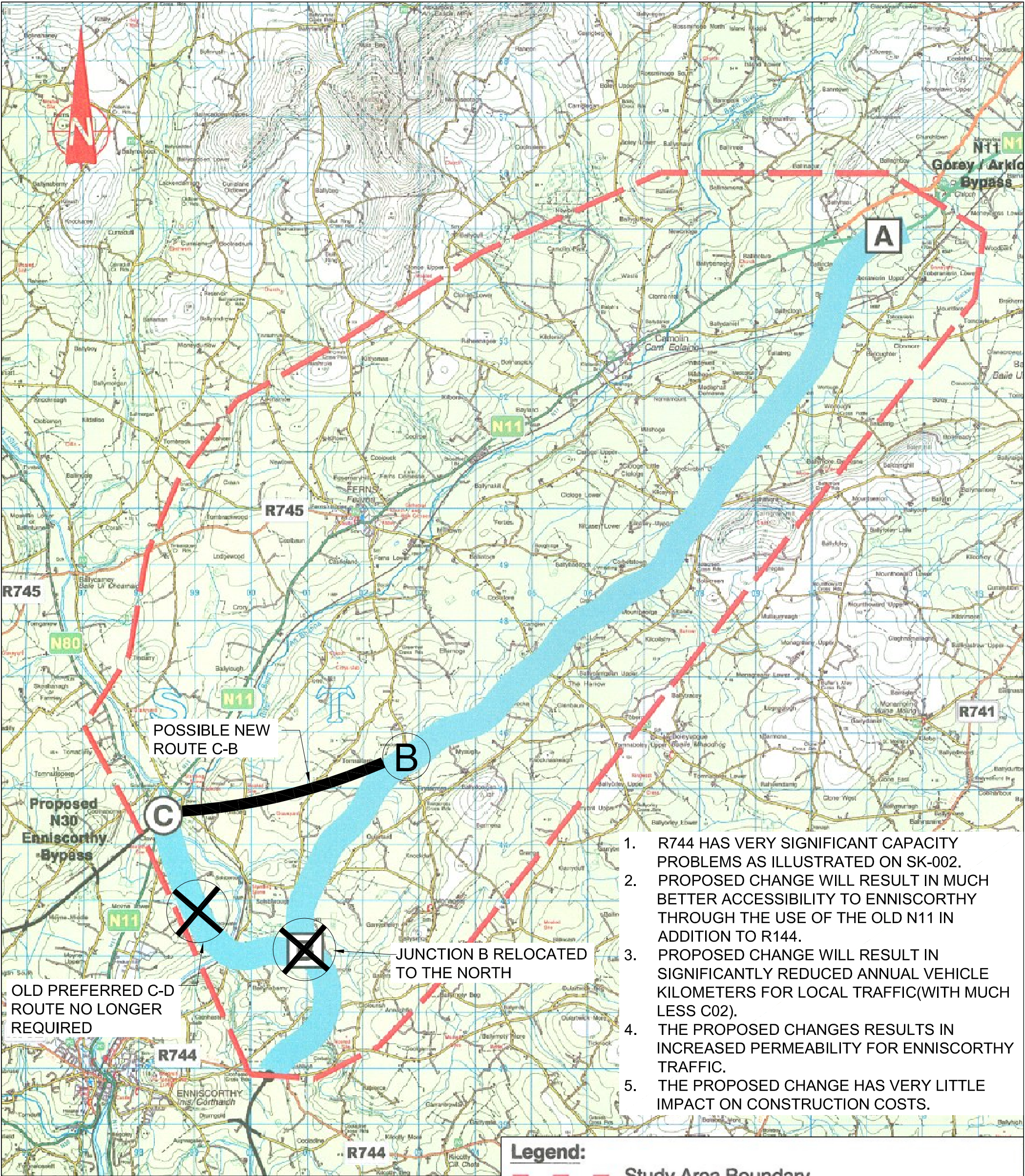
We propose that the current proposed N80 Link Road from the Enniscorthy bypass be removed and replaced with a Link Road further to the north, as presented in this submission.

Yours sincerely,

Eoin Reynolds
Executive Director

Enclosures: Drawing numbers 208918-SK-001, 208918-SK-002 and 208918-SK-003.

¹ Calculated from the carbon footprint calculator on <http://www.envirocentre.ie>







1. R744 HAS VERY SIGNIFICANT CAPACITY PROBLEMS AS ILLUSTRATED ON SK-002.
2. PROPOSED CHANGE WILL RESULT IN MUCH BETTER ACCESSIBILITY TO ENNISCORTHY THROUGH THE USE OF THE OLD N11 IN ADDITION TO R144.
3. PROPOSED CHANGE WILL RESULT IN SIGNIFICANTLY REDUCED ANNUAL VEHICLE KILOMETERS FOR LOCAL TRAFFIC(WITH MUCH LESS CO2).
4. THE PROPOSED CHANGES RESULTS IN INCREASED PERMEABILITY FOR ENNISCORTHY TRAFFIC.
5. THE PROPOSED CHANGE HAS VERY LITTLE IMPACT ON CONSTRUCTION COSTS.

Legend:

- Study Area Boundary
- Proposed Emerging Preferred Route Corridor
- C Proposed At-Grade Junction
- A Proposed Grade Separated Junction




This drawing is based upon Wexford County Council File Name TheFile,6065,en, downloaded 13.06.08. Waterman Boreham Ltd shall not be liable for any inaccuracies or deficiencies.
Road and land ownership boundaries have not been verified, Waterman Boreham Ltd. recommend that this is carried out through Legal & Land searches by the Client.

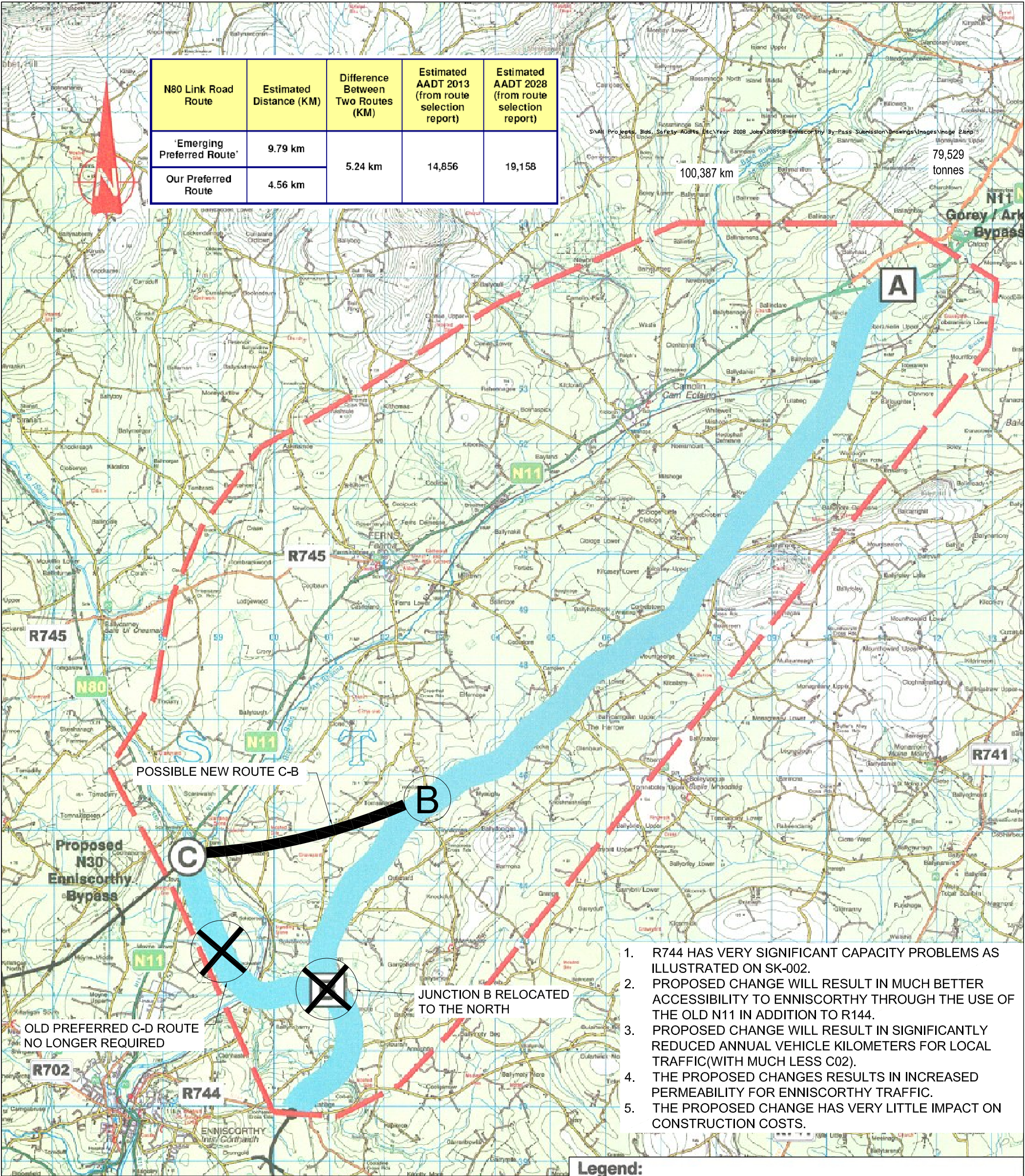
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Project	Enniscorthy Bypass	Scale @ A3		Date		4th Floor					
		N.T.S.		19 Feb 2009		Block 2					
		Project No.		208918		Rev		Harcourt Centre			
Title	Possible Realignment Of Road C-D	Drawing No.		SK-001		-		Harcourt Street			
		Purpose of Issue		<input type="checkbox"/> Preliminary		<input type="checkbox"/> For Tender		<input type="checkbox"/> For Construction		Dublin 2	
		<input type="checkbox"/> _____		<input type="checkbox"/> For Information		<input type="checkbox"/> For Approval		<input type="checkbox"/> As Built		Telephone: (01) 428 3200	
										Facsimile: (01) 428 3201	
Email: enquiries@waterman-boreham.com											
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- 1). EXISTING TRAFFIC CONGESTION AND QUEUES (See 1-4)
- 2). NARROW NATURE OF ROADS (BARELY ENOUGH FOR 2 CARS TO PASS SAFELY)(see 5-7)
- 3) LACK OF FOOTPATHS AND INADEQUATE WIDTH OF PATHS WHERE PROVIDED (see 8-10)
- 4) VERY POOR FORWARD STOPPING DISTANCE AROUND BENDS, MUCH LESS THAN MODERN DMRB REQUIREMENTS. (See 11- 14)
- 5) GEOMETRY AT ST. SENANS 18TH CENTURY GRAVEYARD FORCING TRUCKS/LARGE VEHICLES TO MANEUVER INTO MIDDLE OF ROAD INTO PATCH OF ON COMING TRAFFIC. (See 15- 17)

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		K	KD	SF 19.02.09	SF 19.02.09	Waterman Boreham Ltd 4th Floor Block 2 Harcourt Centre Harcourt Street Dublin 2 Telephone: (01) 428 3200 Facsimile: (01) 428 3201 Email: enquiries@waterman-boreham.com						
Project	Enniscorthy Bypass	Scale @ A3		Date		Waterman Boreham Transport Planning						
		N.T.S.		19 Feb 2009								
Title	Notes Of R744 Approaching Enniscorthy	Project No.			Rev		  					
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		SK-002										
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Project	Enniscorthy Bypass	Scale @ A3		Date		4th Floor					
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M11 Gorey to Enniscorthy Scheme

Environmental Impact Statement

Appendix 3.1

Hydraulic Assessment of the proposed River Slaney bridge
crossing

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**Hydraulic Assessment of
Proposed River Slaney Bridge Crossing
Enniscorthy Co. Wexford.**



March 2009

Prepared For

**Ryan Hanley WSP Ltd
Consulting Engineers**

Hydraulic Assessment of Proposed River Slaney Bridge Crossing Enniscorthy Co. Wexford.



Final Report

Job No.:	82401
Report No.:	HEL82401-v1.1
Prepared by:	Anthony Cawley BE, M.EngSc, CEng MIEI
Date:	23 rd March 2009

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1. INTRODUCTION

1.1 General

This report examines the hydraulic flood impact of the proposed Road Crossing of the River Slaney 3.65km upstream of the existing Bridge at Enniscorthy. The hydraulic assessment considered a number of bridge configuration options ranging from a 2-span and 3-span bridge structure, with and without embankment flood culverts, to a full viaduct crossing of the Slaney floodplain.

To support this hydraulic assessment a detailed flood frequency analysis of flood flows in the River Slaney was carried out using OPW hydrometric data (OPW hydrometric Web site) to determine the return period flood flows and including a climate change allowance. As part of this study a detailed mathematical hydraulic model of the river reach from Enniscorthy Bridge upstream to Scarawalsh Bridge was developed using river survey data. A specifically commissioned channel and overbank survey of the Slaney from Enniscorthy Bridge to Scarawalsh Bridge (7.45km reach length) was carried out. This survey produced 57 channel and floodplain cross-sections which provide excellent resolution of the study reach for hydraulic assessment. The survey data provided was to Malin Head Datum and to national grid ordnance. The hydraulic model of the river and floodplain was developed to provide accurate prediction of flood levels at the proposed bridge site, upstream and downstream of the bridge.

1.2 Project Description

The proposed road crossing is located 3.6km upstream of Enniscorthy Bridge and crosses the River Slaney Floodplain at channel grid location E299557, N142050. At the crossing location the floodplain is approximately 280m wide.

A bridge with a main, central span of approximately 70m is the option chosen to cross over the River Slaney. This main span also crosses over the Dublin – Wexford railway, thus providing a clear span over the Slaney River Valley candidate Special Area of Conservation (cSAC) and the railway line. The total length spanned by the proposed bridge structure at this location is approximately 153m. This total span length includes two side spans, each of approximately 42m. One is over Local Road L-2020-2. The other facilitates uninterrupted flow of flood waters immediately adjacent to the western (right) bank of the river channel. The span arrangement avoids the River Slaney and its banks, thereby avoiding potential impact on a sensitive ecological area.

On the western approach to this bridge is an earthworks embankment, which takes the N80 Link Road over an area of the River Slaney flood plain. Included within this embankment are a series of flood relief culverts. These culverts, together with the bridge side span on the western bank of the river channel, will facilitate the continued migration of flood waters down the River Slaney across the full width of the River Slaney floodplain.

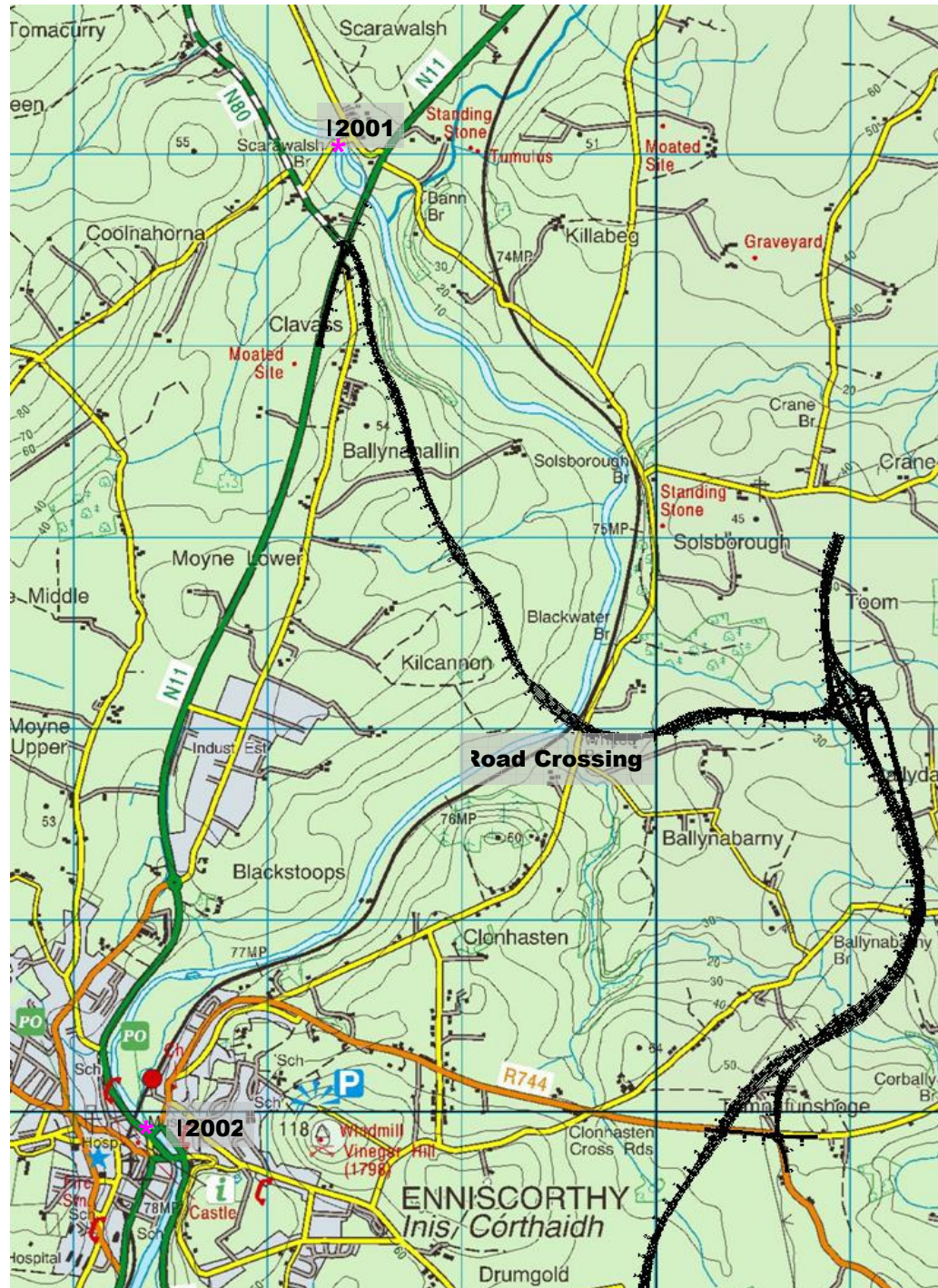


Figure 1 Proposed N11 Road Crossing of the River Slaney

2. FLOOD FLOW ESTIMATION

2.1 General Discussion

A design flood may be determined by either of two broad categories of methods, namely,

- i. Methods based on statistical analysis of flood peak data
- ii. Methods based on a design rainstorm and a rainfall-runoff model which converts the design rainstorm into a design flood.

A further distinction arises between gauged and ungauged catchment methods. The latter use formulae which relate some key component of the method, such as the mean annual flood or unit hydrograph time to peak, to catchment descriptors such as area, slope, and mean annual rainfall among others.

If catchments are gauged and there is a sufficiently long flow record (typically more than 20 years) then a relationship between peak flood flow and return period can be established by applying an Extreme Value distribution to the data series of "Annual Maximum" or "Peaks Over Threshold" (POT) flow series. The theory of extreme values states that if Z is the maximum of a number of other random variables X_1, X_2, \dots, X_N then the distribution of Z converges towards one of the 3 types of Extreme Value distribution (EV1, EV2 or EV3) as N becomes infinitely large. Generally in Ireland the EV1 (2 parameter) distribution fits reasonably well the majority of gauged rivers. If less data is available (e.g. typically less than 20 years) then this can be used to give an approximation to the location parameter (i.e. mean Annual Maximum Flow) and a corresponding parameter for its scale deduced from regional statistics or pooled station statistics.

The statistical method may be used on a single site basis or on a pooled basis. In respect to the latter, which is recommended by the UK flood estimation handbook, 1999, the flood data from several river sites are in effect pooled together to provide an improved estimate of the required flood value. Pooled analysis is regarded as providing a more reliable estimate of the required flood, providing that catchments included in the "pooling" group are sufficiently similar in area, annual rainfall and soil/geology conditions. The latter is expressed by the descriptor BFIHOST, a quantity which is not available for Irish catchments. An earlier pooling method, based on geographical proximity of catchments rather than physical and climatic similarity was used in the Flood Studies

Report. A FSR dimensionless flood growth curve is available for Ireland and will be referred to later.

In the absence of actual gauged flood flow data, the most appropriate methods for estimating design floods on ungauged catchments in Ireland are presented in the Flood Studies Report 1975. Three categories of ungauged flood estimation methods are available: namely:

- Mean Annual Flood by catchment characteristics plus Growth Curve Approach
- FSR Unit Hydrograph and Design Storm Method
- Rational Method Estimation (not considered in this study as catchment is large)

2.2 Statistical analysis

Flood magnitudes can be estimated by fitting distributions either graphically or numerically to series of annual maximum floods treated as if they are random samples from known distributions.

The T-year return period flood quantile is obtained as follows:

$$Q_T = F^{-1}(1-1/T)$$

Where $F()$ is the distribution function of the annual maximum flood magnitudes, $F^{-1}()$ is its inverse and $1-1/T$ is the non exceedance probability.

The favoured probability distributions for analysis of extreme flows in Irish Rivers are the Extreme Value Type distributions (EV1 and GEV (i.e. EV2 or EV3),) the log normal two and three parameter equation, Weibull and others. Generally the EV1 distribution provides the best fit to AM data of Irish catchments (Cunnane, Irish Flood Studies update 2008).

The distribution of choice can be fitted graphically using Gijbort Plotting position and least squares fit or numerically by the method of moments, probability weighted moments or the FEH(1999) recommended l-moments method.

Regional or geographical pooling of dimensionless flow values was introduced originally by Dalrymple (1960) so as to provide regional growth factors X_T for use at ungauged sites in the Form of the Index flood equation:

$$Q_T = Q_I X_T$$

Where Q_I = Index Flood = Mean (QBAR) or Median (QMed) Annual Flood

$$X_T = Q_T / Q_I = \text{Flood Growth Factor}$$

The FSR (NERC 1975) introduced the idea that the index flood equation using QBAR be used at gauged sites where $T > 2N$ where N is the Number of AM Values while the UK FEH (1999), more stringently, recommended that the Index flood equation using QMED be used at gauged sites if $T > N/2$.

Use of the index flood method involves:

- (i) estimation of the index flood for the site in question
- (ii) estimation of the growth factor X_T or growth curve, the $X - T$ relationship

These two steps are more or less independent

2.3 Ungauged Flood Estimation – Mean Annual Flood plus Growth Curve Approach

2.3.1 Introduction

There are a number of estimation methods available for estimating the mean annual Flood depending on the size of Catchment involved. These are:

- i. Original 6-variable Flood Study Report (FSR) Catchment Characteristic (C.C.) Equation (typically for catchments exceeding 50 to 100km²)
- ii. FSSR (Flood Study supplementary Report No 6 3-variable C.C. Equation (catchment area < 20km²)
- iii. Institute of Hydrology IH 124 Equation 3-variable C.C. Equation
- iv. UK FEH method
- v. New Irish Qmed Catchment Characteristic Equation (not officially completed)

The Mean Annual Flood plus Growth Curve method presented in the Flood Study Report (NERC, 1975) involves the following two Steps:

- 1. Estimation of the mean Annual Maximum Flood (QBAR) from Catchment Characteristics using a multiple regression Equation, and
- 2. Use of a regional flood Growth Curve to convert the QBAR estimate into the t year Flood Flow.

2.3.2 Original 1975 Flood Study Report Flood Estimation Equation

The original 1975 FSR investigation involved flood frequency analysis of some 5500 record years from 430 British gauging Stations and 1700 record years from 112 Irish sites. The catchment areas varied from 0.05 to 9868km² and annual maximum flows from 0.06 to 997cumec. The FSR six-variable catchment characteristic regression equation for Ireland to estimate the mean annual maximum flood can be expressed as follows:

$$Q_{BAR} = 0.0172 \text{ AREA}^{0.94} F_S^{0.27} \text{SOIL}^{1.23} R_{SMD}^{1.03} S_{1085}^{0.16} (1+LAKE)^{-0.85}$$

The FSR six-variable catchment characteristic equation was also derived for SAAR replacing R_{SMD} :

$$Q_{BAR} = 0.00042 \text{ AREA}^{0.95} F_S^{0.22} \text{SOIL}^{1.18} \text{SAAR}^{1.05} S_{1085}^{0.19} (1+LAKE)^{-0.93}$$

AREA is the catchment area (km²).

STMFRQ (stream frequency) is the number of stream junctions per km² on a 1:25,000 scale map. For Ireland this can be determined from a 1inch map and converted (using a formula given in the FSR) to an equivalent 1:25,000 (2.5 inch) number.

S1085 is the slope of the main channel between 10% and 85% of its length measured from the catchment outlet (m/km)

SAAR is longterm mean annual rainfall amount in mm and 1:625,000 mapping of this parameter is available for Ireland based on meteorological records from 1941 to 1970.

R_{SMD} is a measure of rainfall excess, in mm given by 1-day R5 rainfall reduced by a weighted mean of annual soil moisture deficit (SMD).

SOIL is an index of how the soil may accept infiltration and is a measure of the Winter Rainfall Acceptance Potential (WRAP). It can be determined from FSR mappings at 1:625,000 scale for Ireland. The SOIL index is based on only five classifications (very high, high, moderate, low and very low WRAP) and the mapping scale and number of categories are regarded as providing a very coarse measure of catchment runoff potential. The Flood Estimation Handbook in the UK have replaced the SOIL index by a more extensively classified and calibrated variable called HOST (Hydrology Of Soil Types) provided at a grid resolution of 0.5km².

Lake is an index defined as the fraction of catchment draining through lakes or reservoirs and the areas contributing to lakes whose surface area exceeds 1% of the contributing area is recorded.

The FSR equation has a standard factorial error of 1.47. The factorial error applies to the middle of the data set and consequently will be significantly higher at both ends of the data set.

The Q_{BAR} estimate is multiplied by a growth factor derived either from the national, regional or pooled growth curve to arrive at the T-year flood estimate.

2.3.3 FSSR No. 6 3-variable Flood estimation equation

The FSSR report No. 6 carried out regressions on 53 small catchments (i.e. < 20km²) from the FSR 1975 data set and produced the following equation

$$Q_{BAR} = 0.00066 \text{ AREA}^{0.92} \text{ SAAR}^{1.05} \text{ SOIL}^{2.0}$$

Having a factorial error = 1.65, N =53

This equation performed well for the sample catchments with SOIL indices of 0.45 or greater (SOIL type 4 and 5 high and very high runoff catchments) but considerably less well on catchments with SOIL types 1, 2 and 3 (very low to moderated runoff). This can be explained by the fact that SOIL types 4 and 5 represent 41 of the 53 catchments used in the regression analysis.

This method has been superseded by the IH 124 equation which is outlined next.

2.3.4 Institute of Hydrology Report No. 124 3-variable Estimation Equation

In 1994 the Institute of Hydrology carried out further regression studies on small catchments(areas < 25km²). A total of 87 catchments ranging from 0.9km² to 24.7km² were available. 71 of these catchments were chosen as completely rural catchments having urban fractions of less than 0.025. The following 3-variable equation was derived

$$Q_{BAR} = 0.00108 \text{ AREA}^{0.89} \text{ SAAR}^{1.17} \text{ SOIL}^{2.17}$$

Factorial Error = 1.65, N =71.

This equation is widely used in Ireland to estimate flood flows and Greenfield runoff from small catchments. Similar to the FSSR No. 6 equation the representation of lower runoff catchments (type 1 to 3) was poor being represented by only 16 of the 71 catchments. For the smaller catchments a

two parameter equation (without the soil parameter performed as well as the IH 124 3-variable equation (Cawley and Cunnane, 2003).

2.3.5 U.K Flood Estimation Handbook Method FEH Method

This method is similar to the previous methods but uses a database of catchment descriptors at a refined resolution of 0.5km² grid. This method is not applicable to the republic of Ireland as a HOST database (Hydrology of Soil Types) and catchment descriptor database is not currently available. In respect to the FEH method it still retains a high factorial standard error of 1.55 so that the 66% confidence interval is wide and reflects the fact that flood estimation from an ungauged catchment is imprecise notwithstanding the apparently comprehensive inclusion of relevant controlling variables in the FEH equation. This method and the mapping have not been developed for Republic of Ireland catchments, with only North of Ireland and Bordering Catchments included.

2.3.6 FSR Unit Hydrograph and Design Storm

The unit hydrograph method most widely used in Ireland for ungauged catchments is the FSR triangular unit hydrograph and design storm method. This method estimates the design flood hydrograph, describing the timing and magnitude of flood peak and flood volume. This method requires the catchment response characteristics (time to peak, t_p), design rainstorm characteristics (return period, storm duration, rainfall depth and profile) and catchment runoff / loss characteristics (percentage runoff influenced by SOIL type, catchment wetness index and rainfall intensity).

The FSR unit hydrograph prediction equation was derived from 1631 events from 143 gauged catchments ranging in size from 3.5 to 500km², but only included one Irish catchment. The result was a triangular Unit Hydrograph described by the time to peak T_p of the catchment derived from Catchment Characteristics (namely S_{1085} , SAAR and MSL). The instantaneous triangular unit hydrograph is defined by a time to peak T_p a peak flow in cumecs per 100km² $Q_p = 220/T_p$ and a base length $T_b = 2.52 T_p$.

Subsequent FSSR reports and in particular Report No. 16 (1985) and IH 124 (1994) (for small catchments) slightly modified the T_p equation and the calculation of the percentage runoff (PR)

$$T_p = 283MSL^{0.23} S_{1085}^{-0.33} URBAN^{-1.99} SAAR^{-0.54} \quad (\text{FSSR No. 16})$$

and the percentage runoff

$$PR = SPR + DPR_{CWI} + DPR_{RAIN}$$

Where $SPR = 10S_1 + 30S_2 + 37S_3 + 47S_4 + 53S_5$ and S_1 to S_5 are the soil classes

$DPR_{CWI} = 0.25(CWI - 125)$ and CWI = catchment wetness Index which is a function of SAAR and

$DPR_{RAIN} = 0.45(R - 40)0.7$ for storm depth $> 40\text{mm}$ and $= 0$ for $R < 40\text{mm}$

The critical design rainstorm duration $D = (1 + 0.001SAAR) T_p$

The FSR hydrograph method was tested by Bree et al. (1989) on 36 Irish catchments and it was found that the Q25 was overestimated in 30 out of the 36 catchments with 24 of the 36 catchments being overestimated by over 150% with the mean value was 164%. The factors attributed to the overestimation were:

(i) under estimation of T_p , and storm duration D , (ii) over estimation of Q_p caused by the factor 220 being too large for Irish catchments, derived principally for UK catchments, and (iii) overestimation of percentage runoff, PR.

2.4 Flood Frequency Growth curve for Ireland

To estimate the t - return period flood flow the QBAR (mean annual flood flow) estimate is multiplied by a flood growth curve as follows:

$$Q_T = X_T * QBAR$$

The FSR (1975) derived 9 regional Flood growth curves for England and a single national Flood Growth Curve for Ireland. The growth curve for Ireland is:

$$X_T = -3.33 + 4.2 e^{0.05Yt}$$

Return Period T years	2	5	10	25	50	100	200	500
X_T	0.95	1.20	1.37	1.60	1.77	1.96	2.14	2.40

Table 1 FSR National flood growth curve for Ireland

This equation is regressed on data for Ireland and includes catchments on the west as well as the east of the country with quite a wide variation in conditions.

Cawley and Cunnane (2003) investigated regionally based growth curves in Ireland and concluded that the retained use of National Growth Curve. This assessment used only the OPW data set which did not include the EPA gauged catchments as the majority of the EPA had only a B rating classification (i.e. only reliable for estimating QBAR to 5 year return period) and of relatively short duration. This assessment therefore would have a tendency

to represent OPW drainage schemes of a rural nature and would not include the Dublin and Wicklow east coast areas.

It is generally accepted that along the East Coast of Ireland the flood growth curve is likely to be steeper than the midlands and west of Ireland regions and that the curve derived for Wales (region 9) is probably more appropriate than the national growth curve.

Return Period T years	2	5	10	25	50	100	200	500
X_T	0.93	1.21	1.42	1.71	1.94	2.18	2.47	2.86

Table 2 FSR National flood growth curve for Wales – Region 9

Bruen (2005) in a recent study of mid-eastern and small Dublin catchments commissioned by Dublin City Council as part of the Greater Dublin Drainage Study concluded that the FSR national growth curve is likely to lead to an underestimation of flood flows for high return period in the Mid-eastern side of Ireland and especially in the smaller urbanised catchments of the Dublin Area. This assessment found that out of 23 catchments examined the FSR growth curve over estimated on two catchments, was comparable for 7 catchments and underestimated for the remaining 14 catchments.

For the purposes of this study the FSR growth curve for Wales will be used in place of the FSR National Growth Curve and which agrees closely with the single site frequency analysis of the Slaney at Scarawalsh gauge.

2.5. Climate Change Allowance

2.5.1 Background

Climate change scenarios produced by the UK Hadley centre suggest fluvial floods in the 2080's increasing by up to 10% (low and medium low scenarios) or by up to 20% (medium high and high scenarios). Present recommendations are to include in the design flow a 20% increase in flood peaks over 50years return period as a result of climate change. This scenario based on the Irish growth curve will result in a present day 100year flood becoming a 25year flood in approximately 50 years time.

Other predicted climate change effects for the UK are:

- A 4 to 5mm per annum rise in mean sea level
- Additional intensity of rainfall of 20%
- An additional 30% winter rainfall by the 2080's
- A reduction of 35/45% Rainfall in summer
- The 1 in 100year rainfall storm to increase by 25%

Kiely (1999) published results which indicate significant changes in rainfall totals at several Irish locations since the mid 1970's. He attributes this to changes in the North Atlantic Oscillation (NAO), a quantity based on seasonal pressure difference between Iceland and the Azores. Kiely (1999) also found differences in rainfall frequencies at a number of the synoptic weather stations – for Valentia he found that, for several durations, 10 and 30year return period rainfall depths are increased by approximately 20% when calculated from the most recent data (1976 – 96) as compared to values calculated from the entire period of record (1940 –1996). While such changes in rainfall regime provide a warning it is strange that changes in flood behaviour and in particular increase in flood magnitudes were not noticed in many rivers until the 1990's.

Changes in circulation patterns across Europe have been linked to changes in flood frequency and hence increased risk of flooding in parts of southwest Germany. The circulation pattern known in Germany as "West Cyclonic" during the winter months has increased over the last century giving rise to increased risk of flooding. Caspary (2003) has shown flood magnitudes that were once deemed to be 100year return period floods, would be deemed to have much smaller return periods (5 to 30years) if judged on data of the past 25 years.

The changes observed in SW Germany may not be replicated in Ireland but it is clear that account must be made for climate change impact in view of the above findings.

2.5.2 OPW draft design considerations for inclusion of climate change

The OPW have recently produced draft guidelines in respect to design considerations of possible climate change for flood risk management practice. The recommended design allowances to be used for increases in **Table 3**.

Region	Allowances (% increase) in Flood Flows	
	Summer (and Autumn) Floods	Winter (and Spring) Floods
North	10	20
North West	10	15
West	25	10
South West	10	15
South	15	25
South East	15	20
East	10	20
Midlands	25	20

Table 3 Regional Flood Peak Allowances (OPW, 2005)

2.5.3 DEFRA Guidance

In the UK research is ongoing to assess regional variations flood allowances and the rate of future change. Current research thus far does not provide any evidence for the rate of future change let alone consider regional variations in such a rate. The UK Flood and Coastal Defence Appraisal Guidance (DEFRA, 2006) gives the following sensitivity climate change ranges, per **Table 4**. As a pragmatic approach it is suggested that 10% should be applied up to 2025, rising to 20% beyond 2025.

Parameter	1990 - 2025	2025 - 2055	2055 - 2085	2085 - 2115
Peak rainfall intensity (preferably for small catchments)	+5%	+10%	+20%	+30%
Peak river flow (preferably for larger catchments)	+10%	+20%		

Table 4 UK Flood and Coastal Defence Appraisal Guidance (DEFRA, 2006)

The proposed climate change allowance is a 20% increase in peak flow rates.

3. FLOOD ESTIMATE FOR RIVER SLANEY CROSSING

3.1 Introduction

The Slaney River is gauged at Scarawalsh (Stn 12001) 7.5 km upstream of Enniscorthy being established in 1955 and currently provides a 52year annual maximum flood series. The river is also gauged at Enniscorthy with the station located immediately upstream of Enniscorthy Bridge (St. 12002) and this site provides 28year annual maximum flood series (1979 to 2006). The rating relationship for Scarawalsh Station is classified as A2 (Flood Studies Update, Hydrologica Report) making it reliable for flood frequency analysis and prediction of the 25year to 50 year return period event. The Enniscorthy gauge has a poor rating classification given as C/U being significantly backwatered by the downstream channel and bridge constrictions through Enniscorthy and affected by high tides (up to 3.5m O.D. Malin) with the result that an annual maximum flood flow series is not available for analysis.

The following is an OPW guide to the Rating reliability classification for their gauging stations:

A1 sites – Confirmed ratings good for flood flows well above Q_{med} with the highest gauged flow greater than $1.3 \times Q_{med}$ and/or with a good confidence of extrapolation up to 2 times Q_{med} , bankfull or, using suitable survey data, including flows across the flood plain.

A2 sites – Ratings confirmed to measure Q_{med} and up to around 1.3 times the flow above Q_{med} . Would have at least one gauging to confirm and have a good confidence in the extrapolation.

The B and C categories were defined as

B sites – Flows can be determined up to Q_{med} with confidence. Some high flow gaugings must be around the Q_{med} value.

C sites – Sites within the classification have the potential to be upgraded to B sites but require more extensive gauging and/or survey information to make it possible to rate the flows to at least Q_{med} .

U sites – these are sites where the data would be totally unusable for determining high flows. These could for example be level only sites where it is not possible to measure discharges and thus develop stage-discharge relationships.

The catchment area to Scarawalsh is estimated to be 1036km² and the catchment area to Enniscorthy (12002) is 1335km². The OPW have previously given a catchment area of 1277km² to Enniscorthy, the larger figure is used in

this study. The Bann River which joins the River Slaney 0.5km downstream of Scarawalsh having a catchment area of 187km². The Bann River is gauged by the EPA at Ferns (12005) having a catchment area of 156km². However due to a poor flow rating relationship for this gauge the annual maximum flow series is not available. The catchment area of the River Slaney to the Proposed Bridge crossing is 1273km². The Scarawalsh Gauge represents 77.6% of the total catchment area of the River Slaney to Enniscorthy and 81.4% of the catchment area to the proposed bridge crossing site.

Location	Area km ²	MSL km	S1085 m/km	Fs	Soil	SAAR (mm)
Bann River	187	43.0	4.61	0.936	0.34	1105
Scarawalsh	1036	88.5	2.022	1.214	0.30	1108
N11 Proposed Br	1273	92.2	1.995	1.172	0.31	1090
Enniscorthy	1335	95.8	1.948	1.166	0.31	1070

Table 5 Measured Catchment Characteristics of the River Slaney near Enniscorthy

3.2 Single Site Statistical analysis

Statistical Analysis of the Annual maximum flood Series at Scarawalsh was carried out fitting EV1 and GEV distributions to 52years of available AM Flow data (1955 to 2006) by the method of l-moments fit and Gringorten plotting position least squares fit.

The GEV and EV1 distribution give very similar results but do not fit well the larger flood events of the series. The AM series for Scarawalsh does not plot as a straight line or even as a consistent upward (EV2) or downward (EV3) curve on the EV1 plot. The EV1 and GEV lines fall well below the two largest flood magnitudes which if used could underestimate the 100year design flood condition for the river. The OPW in their analysis of the Scarawalsh flood data for the Enniscorthy flood relief scheme truncated the series and subjectively fitted an EV2 curve to the top 11 AM flow values (OPW, June 2004). This approach gave the following flow estimates

T	5	10	25	50	100	200	500
Q _T	211	233	275	321	383	468	630
X _T	1.25	1.38	1.63	1.90	2.26	2.77	3.72

This approach was not adopted in this study as often if AM series are extended over a longer period of monitoring (75 to 100years) what appears to be EV2 or EV3 curves can in fact be represented by EV1.

Instead the computed statistical standard error for the EV1 distribution was added to the Q_T values and plotted. This produced a straight line fit that passed through the lower and upper AM values of the series and produced the following flood estimates. This approach provides a growth factor of 2.33 for the 100year flow rate which exceeds the Growth factor for Wales (2.18). This approach is reasonable predicting the 100year event and provides a higher estimate than the OPW Enniscorthy Study (2004).

T	5	10	25	50	100	200	500
Q_T	225.6	266.2	317.9	356.3	394.5	432.6	482.9
X_T	1.33	1.57	1.88	2.11	2.33	2.56	2.86

3.3 FSR Index Flood Method using Gauged Data

The Flood Study Growth Curve (NERC 1975) for Wales which is assumed similar to East Coast of Ireland geographical conditions gives a 100year flood growth factor of $X_{100} = 2.18$ cumec. Therefore the Q_{100} estimate for Scarawalsh is

$$Q_{100} = Q_{BAR} * X_{100} = 69.13 \text{ cumec} * 2.18 = 368.7 \text{ cumec}$$

Including the computed standard error s.e. of 8.4 cumec gives a
 $Q_{100+s.e.} = 387 \text{ cumec}$.

3.4 Ungauged FSR Catchment Characteristic Method

The FSR 6 variable equation using R_{SMD} instead of SAAR (as it provides the larger flood estimate) was used to estimate the Q_{BAR} rate at Scarawalsh, at proposed bridge crossing site and at Enniscorthy gauge (12002). The respective catchment characteristics are as follows:

Location	Area km ²	S1085 m/km	Fs	Soil	SAAR (mm)	LAKE
Scarawalsh	1036	2.022	1.214	0.30	1108	0
N11 Proposed Br	1273	1.995	1.172	0.31	1090	0
Enniscorthy	1335	1.948	1.166	0.31	1070	0

Again the Flood Growth curve for Wales will be used to obtain Q_{100} estimate. The factorial standard error for this ungauged method is 1.47.

	QBAR	Q100	Q100 + FSE
Scarawalsh	150.1	327.1	480.9
N11 Bridge site	184.3	401.9	590.8
Enniscorthy	188.2	410.3	603.2

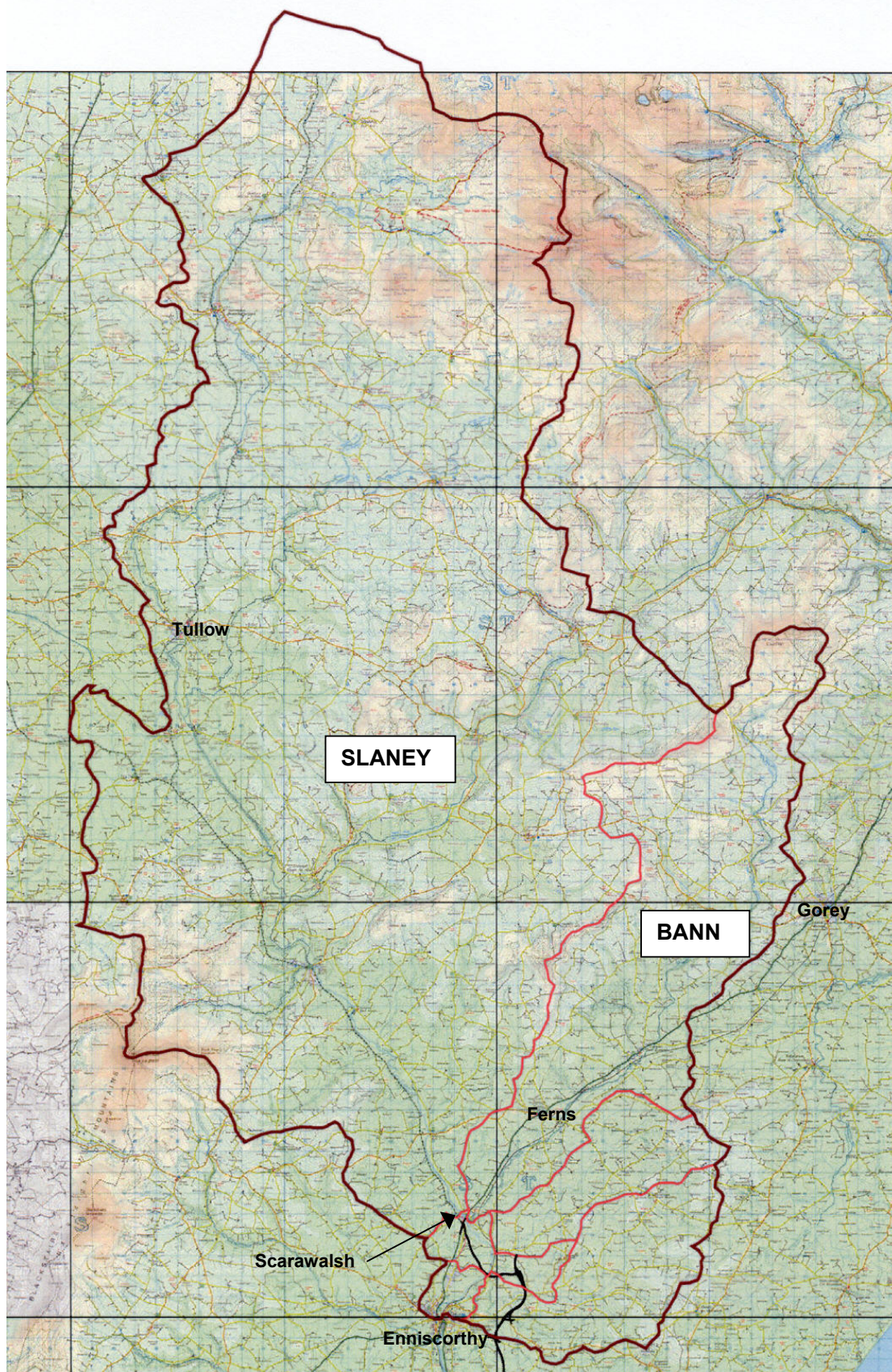


Figure 2 **River Slaney Catchment Map to Enniscorthy**

FREQUENCY ANALYSIS - River Slaney Flood Flows at Scarawalsh (St 21001)

Data from l-moments Program		
b0		169.13461
b1		100.68714
b2		73.444183
b3		58.495789
l1		169.13461
l2		32.23967
l3		5.68E+00
l4		5.70E+00
t2	L-CV	1.91E-01
t3	L-Skewnes	1.76E-01
t4	L-kurtosis	1.77E-01

GEV		EV1	
c	-1.22E-03		
k	-9.61E-03	k	0
Beta	2.90E-01	Beta=	2.92E-01
Gamma(1+k)	1.005639		

Median	157	QBAR	169.1
S.E.(Qmed)	10.521	S.E.(Qbar)	8.397

T	Y variate	GEV - Imoments		EV1 - Gringorten		EV1 - Imoments		EV1 + S.E.
1.2	-0.583	0.725	113.8	0.717	112.5	0.723	113.5	120.4
2	0.367	1.000	157.0	1.007	158.2	1.000	157.0	165.9
5	1.500	1.332	209.1	1.354	212.6	1.331	208.9	225.6
10	2.250	1.553	243.8	1.584	248.7	1.550	243.3	266.2
25	3.199	1.835	288.1	1.874	294.2	1.827	286.8	317.9
50	3.902	2.046	321.3	2.089	328.0	2.032	319.0	356.3
100	4.600	2.257	354.4	2.303	361.5	2.236	351.0	394.5
200	5.296	2.469	387.6	2.516	395.0	2.439	382.9	432.6
500	6.214	2.750	431.7	2.797	439.1	2.707	425.0	482.9

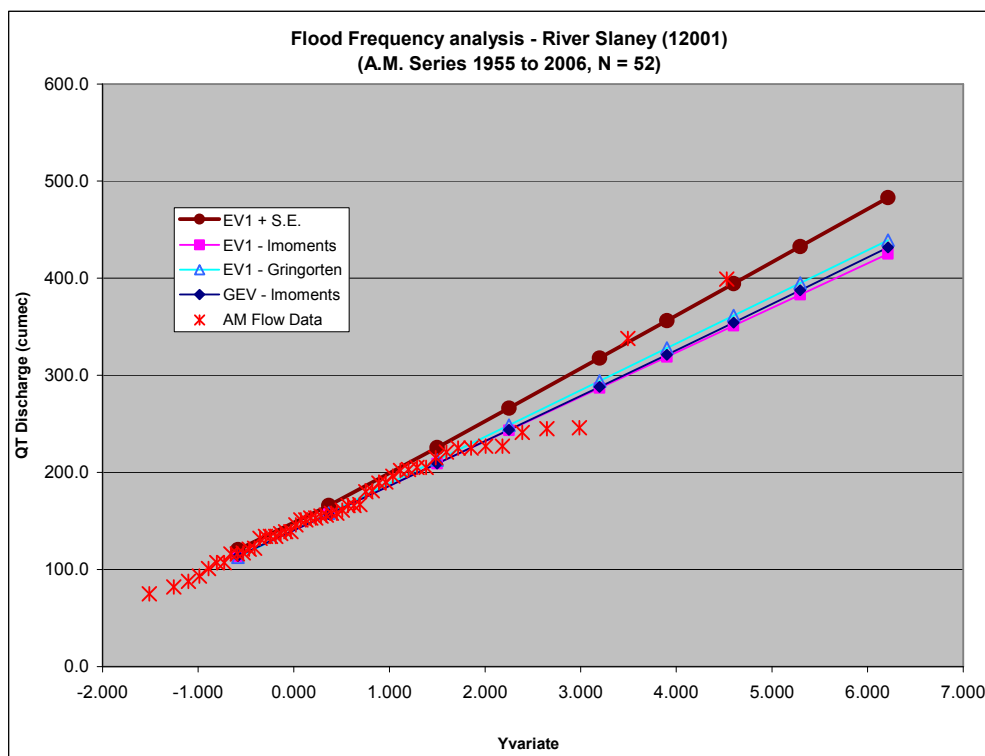


Figure 3 Statistical Analysis of Scarawalsh AM Series

3.5 Design Flow Estimate

The design flood condition for the proposed bridge crossing is the 100year return period flood plus 20% climate change allowance. A summary of the Q100 estimates at Scarawalsh from the various gauged and ungauged methods are as follows:

	Gauged methods			FSR ungauged method	
	OPW EV2	EV1 + s.e.	Index flood + s.e.	6-variable eqn	6-variable eqn with FSE
Q100	383.0	394.5	387.0	327.1	480.9
Q100+ 20%C.C.	459.6	473.4	464.4	392.52	577.08

The Recommended Design Flow (Q100 +CC) for the Bridge analysis is the EV1 with S.E. estimate of 473.4cumec at Scarawalsh. To extrapolate the design flow estimate from Scarawalsh to the bridge crossing site and downstream to Enniscorthy a scaling factor using the FSR ungauged QBAR predictions for these locations will be used.

	FSR ungauged QBAR	Scaling Factor	Q100	Q100 + CC
Scarawalsh	150.1	1	394.5	480.9
Bridge Site	184.3	1.228	484.4	590.5
Enniscorthy	188.2	1.254	494.7	603.0

Table 6 Recommended Design Flow Estimates

4. HYDRAULIC ASSESSMENT

4.1 Introduction

A hydraulic model of the River Slaney from Enniscorthy Bridge upstream to Scarawalsh was developed to predict flood levels within the modelled reach under existing conditions and also to predict the flood profile for various proposed bridge options.

The selected software used for this hydraulic assessment is latest HEC-RAS 4.0 version. HEC-RAS implements a 1-dimensional model of river flow (depth and width averaged) and can solve for water elevation under steady conditions and gradually varying unsteady flows solving the full Saint Venant equations of open channel flow. HEC-RAS takes account of the conveyance and storage effects of floodplains in a one-dimensional manner only (i.e. in the longitudinal direction of flow). It does not resolve the possibly complex 2-dimensional aspects of floodplain flow or secondary flow caused by a structure.

The model requires the following information:

- i. topographic survey data of river channel and flood plain (cross-section station, bed elevation and channel and overbank reach lengths);
- ii dimensions and elevation of relevant structures;
- iii. upstream and internal flow boundary conditions;
- iv. downstream water elevation boundary condition, and in the case of supercritical flow regime (Froude No. > 1) the upstream water elevation boundary condition;
- v. channel and flood plain roughness coefficients and;
- vi. local expansion and contraction shock loss coefficients.

4.2 Model Development

The hydraulic model was developed for a reach length of 7.5km from Enniscorthy Bridge upstream to Scarawalsh Bridge. A total of 57 River channel sections and four Bridge Sections (Scarawalsh old and new road bridges, Railway Bridge and Enniscorthy Bridge) were provided by Murphy surveys Ltd. This represents an average channel spacing of 132m. All sections were extended out across the entire width of the floodplain area given important function of overbank flood conveyance upstream of Enniscorthy.

In constructing the hydraulic model additional cross-sections at 25m spacing were included, derived by interpolation from adjoining measured cross-

sections. This refined spacing reduces numerical error and stability problems associated with the larger spacing but does not include for natural variability from river section to river section.

The flow regime of rivers during flood conditions can be mixed varying between supercritical, critical and subcritical flow and thus may result in a numerically complex flow regime. The solution method progresses from downstream to upstream in subcritical reach sections and upstream to downstream in supercritical flow sections. In the case of the Slaney the bed slope is mild at 1 in 1200 between the road crossing site and Enniscorthy Bridge and 1 in 900 upstream of the crossing point, thus giving rise to subcritical flow conditions throughout the model reach. The extremely high downstream design flood conditions at Enniscorthy backwater approximately 6km of the river reach upstream of Enniscorthy, including the Bridge crossing site, and results in a hydraulic gradient of 1 in 4500 at the bridge crossing site (very flat, almost lake like conditions).

Manning's n represents the hydraulic resistance to flow. Ideally Manning's n values are calibrated by comparing the model computed flood levels with actual measured flood levels over the study reach. A water level recorder was deployed at the proposed bridge crossing site since October 2008 but no notable flood event occurred in the intervening period to calibrate the model against. Therefore calibration of the model used flood level information upstream at Scarawalsh for the December 1965 and November 2000 flood events. The River channel was modelled for a Manning's n of 0.05 due to the dense mature river bank vegetation and sloughed eroded channel banks and a Manning's n of 0.04 for the overbanks. The expected roughness for the overbanks allowing for mature field crops is 0.035 to 0.04 and 0.03 for no crops, however boundary ditches / hedges between fields will increase roughness acting as submerged / semi submerged weirs.

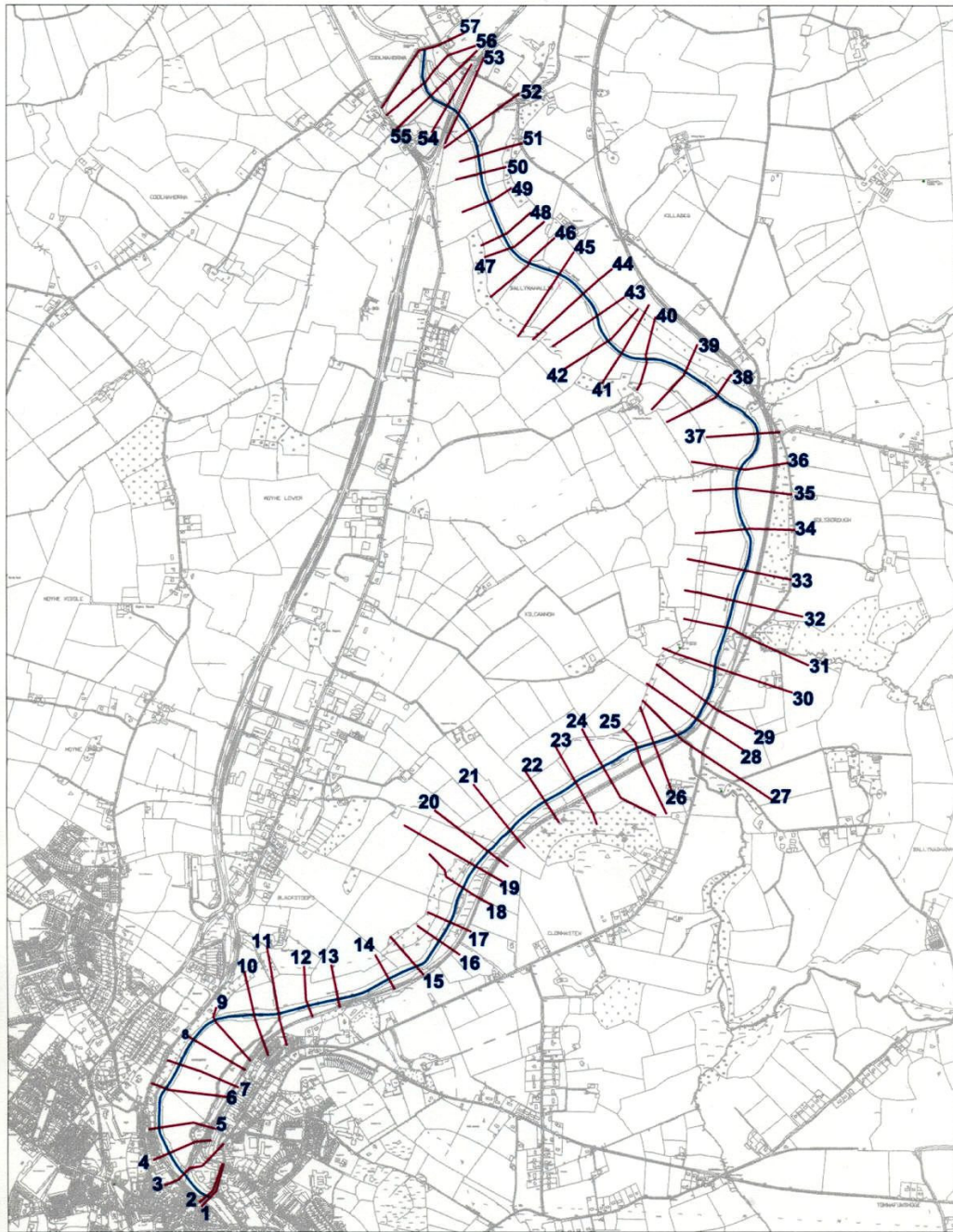


Figure 4 *Model extent and location of inputted survey sections*

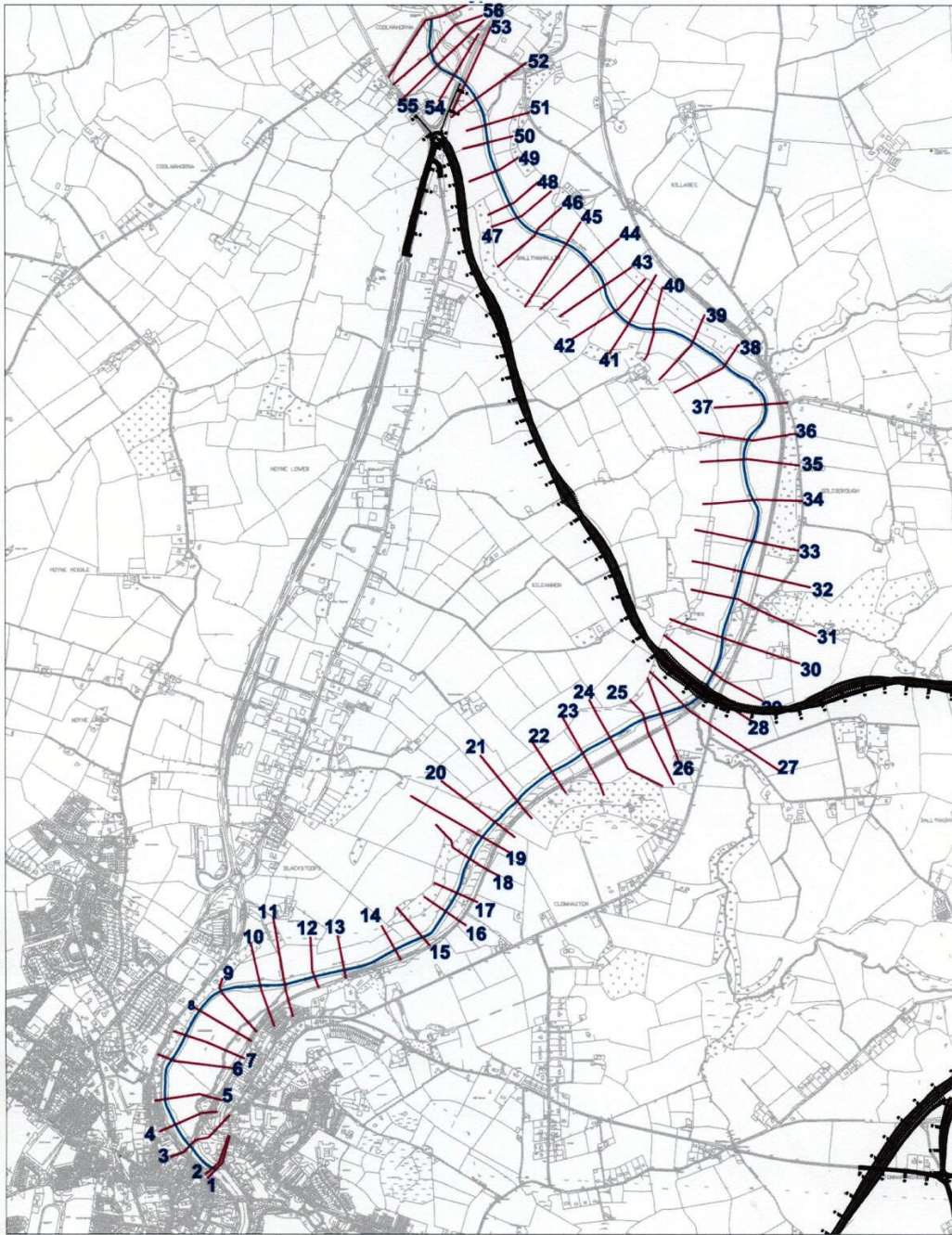


Figure 5 *Model Reach showing Bridge Crossing Location*

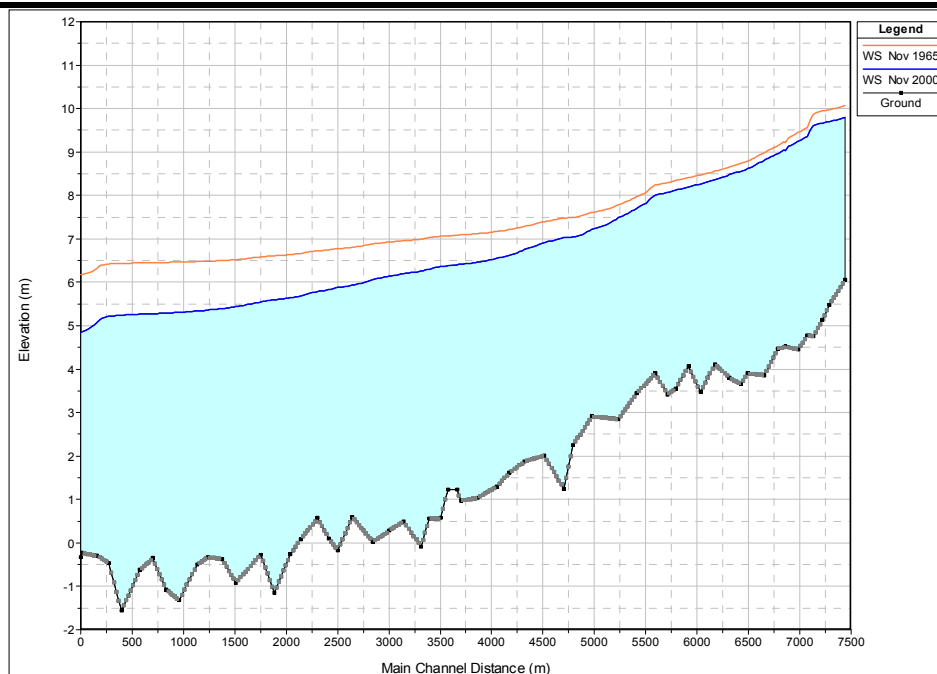


Figure 6 Calibration Run (Nov 1965 and Nov 2000 flood events)

The predicted flood levels upstream of the Railway bridge at Enniscorthy are 5.3 and 6.5m O.D. Malin respectively and 9.8m and 10.07 O.D. at Scarawalsh gauging station respectively. The recorded flood levels at Scarawalsh gauge were 9.7m and 10.13m O.D. Respectively.

4.3 Design Flood Condition

4.3.1 Design Flow

Hydraulic model Simulations were carried out modelling the estimated 100year and 100year plus climate change flood flows. The design flows at the various confluence points were specified as follows:

Section	Q100 (cumec)	Q100 + CC (cumec)
57	394.5	480.9
55	395.6	482.3
51	466.9	569.2
37	481.7	587.3
31	484.4	590.5
27	494.7	603.0

4.3.2 Design Flood Level

An extreme downstream flood level at Enniscorthy Bridge of 6.3 and 6.6m O.D. Malin was specified for the respective 100year and 100year with Climate change flood events upstream of Enniscorthy Bridge based on information supplied from the proposed OPW Enniscorthy Flood Relief scheme. The Enniscorthy flood relief scheme, if granted permission, will remove the Seamus Rafter Bridge which acts as a serious constriction to flow and will give rise to a reduction in upstream flood levels. These downstream flood levels represent pre development design conditions and are primarily influenced by the 1965 flood conditions which, based on anecdotal evidence gathered by the OPW, produced extreme flood levels upstream of Enniscorthy Road Bridge and Railway Bridge (which was well overtopped). Reported flood levels upstream of the Railway Bridge were of the order of 6.5m O.D with up to 6.8mOD being noted. Such flood levels would result in flooding of the Railway line adjacent to proposed Bridge crossing site and for its entire length from Enniscorthy town. These anecdotal flood levels observed in 1965 were generally 1.3m higher than the next highest flood event recorded on the 7th November 2000 which had maximum flood levels of 5.24m O.D. Malin.

Tidal Influences on River Flood Levels at Enniscorthy

The OPW hydrometric gauge 12002 located a short distance upstream of Enniscorthy Bridge has 27years of continuous water level record. This gauge confirms that the River Slaney through Enniscorthy is tidal and that many of the smaller floods are combined tidal / fluvial events. Examination of the flood record and individual hydrographs the showed some tidal influence up to a limit of 3.5m O.D. Malin becoming almost unnoticeable, at levels approaching this limit (OPW, 2004). Given that the order of magnitude of the design flood levels for Enniscorthy Bridge are 6.3 and 6.6m O.D. Malin it can be concluded that the tide will have no influence even after allowing for 1m sea level rise over the next 100years.

4.4 Model Simulations

4.4.1 Flood Prediction for Existing River

The existing river system without the proposed bridge crossing was modelled for the 100year event with and without climate change allowance. The resultant flood profiles from this simulation is presented in **Figure 7** and gives a predicted flood level at the proposed crossing point of 7.14m O.D. for the 100year and 7.54m O.D. for 100year with CC. The proposed Road has finished levels significantly above this level and consequently is not at risk of flooding from the River Slaney under the most extreme flood conditions.

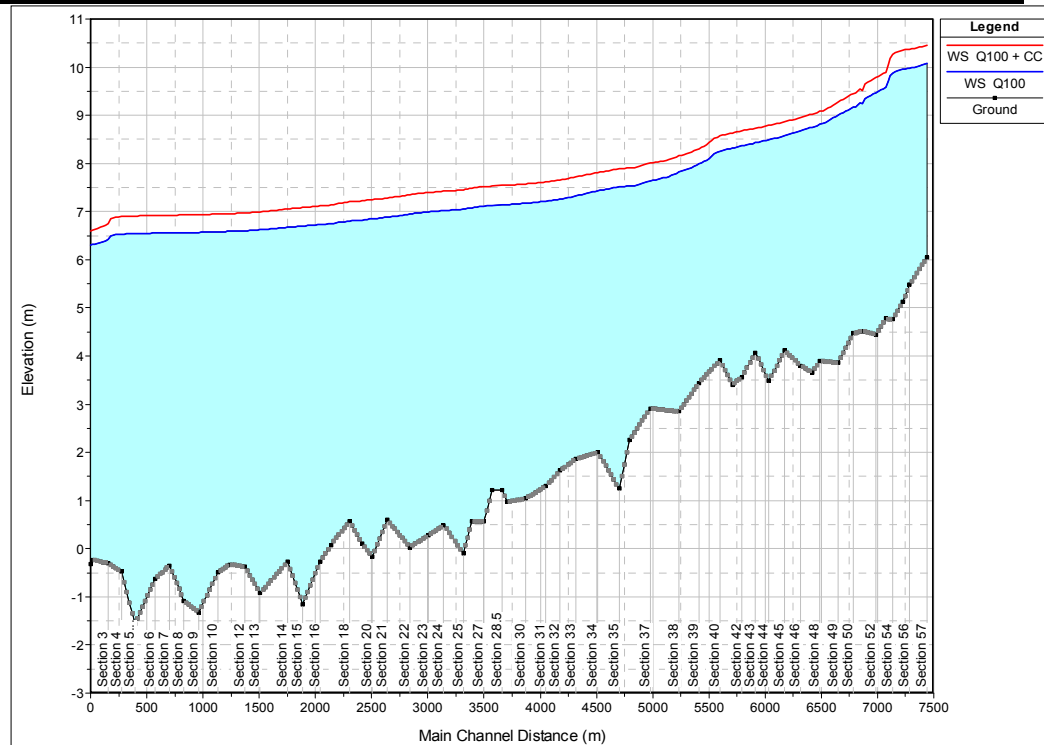


Figure 7 *Computed 100year Design Flood profiles for River Slaney between Enniscorthy Bridge and Scarawalsh Bridge*

4.4.2 Bridge Options Modelling

Hydraulic simulations of the various Bridge options modeling the above design flows were carried out to assess the potential impact of the road crossing and identify a suitable bridge configuration.

A total of five bridge configurations were specified for examination by Ryan Hanley WSP. These are:

- (i) 2 span Bridge with supporting pier located on the left overbank
- (ii) Same as (i) but including 10 no. flood culverts (box sections at 4.8m wide by 3m high placed at 14.4m centres) along right overbank,
- (iii) 3 span Bridge with supporting piers located on left and right over banks,
- (iv) Same as (iii) but including 10 no. flood culverts (box sections at 4.8m wide by 3m high placed at 14.4m centres) along right overbank, and
- (v) Viaduct supported on 7 columns spanning a width of 350m.

Refer to **Figures 11 to 15** for HECRAS model representation of bridge crossing options. All options completely span the main channel with abutments and piers located on the overbanks. The piers/ abutments closest to the river channel banks are located at 5 and 9m from the left and right bank respectively.

Bridge Option 1

The predicted impact of the 2-span bridge without overbank flood culverts option on upstream flood levels was found to be significant. The principal cause of the impact is the contraction of flood flow to pass through the bridge opening and the subsequent downstream expansion returning to full floodplain flow. At the design flood (Q100 + CC) the flow width is reduced by 228m to 64m resulting in appreciable afflux peaking at 43.4cm 390m upstream of the crossing and reducing to 11cm by approximately 2km upstream of the bridge. Such level of afflux is considered to be unacceptable in respect to flood impact. The configuration will result in significantly increased channel velocities at the bridge site which are likely to give rise to appreciable channel bank erosion.

Distance upstream of bridge (m)	5	210	390	850	1130	1940
100year afflux (cm)	10.5	32.3	33.8	26.3	23.8	8.7
100year+CC afflux (cm)	10.1	34.2	36.0	29.7	27.1	11.9

Bridge Option 2

The predicted impact of the 2 span with flood culverts bridge option on upstream flood levels is presented below for the design Flow of 598cumec (100year plus climate change).

Distance upstream of bridge (m)	5	210	390	850	1130	1940
100year afflux (cm)	4.3	4.1	4.0	2.9	2.7	0.9
100year+CC afflux (cm)	5.4	5.2	5.0	3.9	3.6	1.3

This option ensures continued migration of flood waters along the important right overbank by providing 14No. 4.8m wide culverts spaced at 14.4m centres over the 200m floodplain width. Such a configuration will result in minor changes to the flood regime in respect to right overbank flow. Consequently the predicted impact upstream of the bridge crossing for the design flood condition is considered to be minor to moderate at 5.2cm and reducing to 3.7cm 1km upstream of the bridge and only 1.3cm at approx 2km upstream. This option does not cater for possible preferential overbank flow located close to the river bank.

Bridge Option 3

The predicted impact of the 3-span bridge without overbank flood culverts on upstream flood levels was found to be significant. The principal cause of the impact is the contraction of flood flow to pass through the bridge opening and the subsequent downstream expansion returning to full floodplain flow. At the design flood flow the conveyance width is reduced by 150m to 140m resulting in appreciable afflux peaking at 15.3cm located 390m upstream of the crossing and reducing to 4.4cm by approximately 2km upstream of the bridge. Such level of afflux is considered to be an unacceptable.

Distance upstream of bridge (m)	5	210	390	850	1130	1940
100year afflux (cm)	5.1	13.3	14.6	11.0	9.9	3.3
100year+CC afflux (cm)	5.0	13.7	15.3	12.2	11.1	4.4

Bridge Option 4

The predicted impact of the 3 span with overbank flood culverts option on upstream flood levels is presented below for the estimated design Flows.

Distance upstream of bridge (m)	5	210	390	850	1130	1940
100year afflux (cm)	2.6	2.6	2.4	1.8	1.7	0.6
100year+CC afflux (cm)	3.0	3.0	2.8	2.2	2.1	0.7

This option ensures continued migration of flood waters along the important right overbank by providing a right overbank opening of 50m and providing 10 4.8m wide culverts spaced equally over the remaining 145m width. Such a configuration will result in minimal changes to the flood regime and avoids contraction of the overbank flood flow. Consequently the predicted impact upstream of the bridge crossing for the design flood condition is small at less than 3cm reducing to 2.1cm 1km upstream of the bridge and only 7mm at approx 2km upstream. This option provides for a 50m opening immediately adjacent to the river channel which in times of flood would be the preferential conveyance area on the right overbank becoming less effective with distance from the channel.

Bridge Option 5

The predicted impact of the viaduct option was found to have insignificant impact on upstream flood levels with afflux predictions as follows:

Distance upstream of bridge (m)	5	210	390	850	1130	1940
100year afflux (cm)	0.4	0.4	0.3	0.3	0.2	0.1
100year+CC afflux (cm)	0.4	0.4	0.4	0.3	0.3	0.1

4.5 Summary

The Viaduct option clearly presents the best option hydraulically as it represents a neutral impact measure with no perceptible upstream impact (i.e. <0.5mm). The option also eliminates any potential loss of floodplain storage.

The 3-span bridge option with overbank culverts produces acceptably low hydraulic impact on upstream flooding (i.e. 3cm at 200m reducing to 7mm at 2km upstream) and preserves the overbank flow regime with only localised contraction and expansion occurring at entry to the 4.8m wide culverts spaced at 14.4m centres. The nature of the Floodplain with its steep side slopes ensures that additional area of land flooded under the design flood will be very minor. The provision of the third span for the right bank is beneficial over the 2-span option as it facilitates uninterrupted conveyance immediately adjacent to the river channel which is where preferential conveyance on the right overbank is likely to occur with overbank conveyance becoming less effective with distance from the channel bank.

A more detailed 2-D model analysis is recommended at detailed design stage to assess the potential impact on flood velocities over the width of the encroachment and particularly in the channel so as to more accurately assess the performance of the bridge structure and to optimise the number, size and orientation of the proposed overbank flood culverts.

The impact of the proposed flood embankment on flood storage loss will be minor in the context of the overall flood flow magnitude of 590.5cumec, the duration of flood event (flood volume passing) and the existing flood storage volume between Scarawalsh and Enniscorthy.

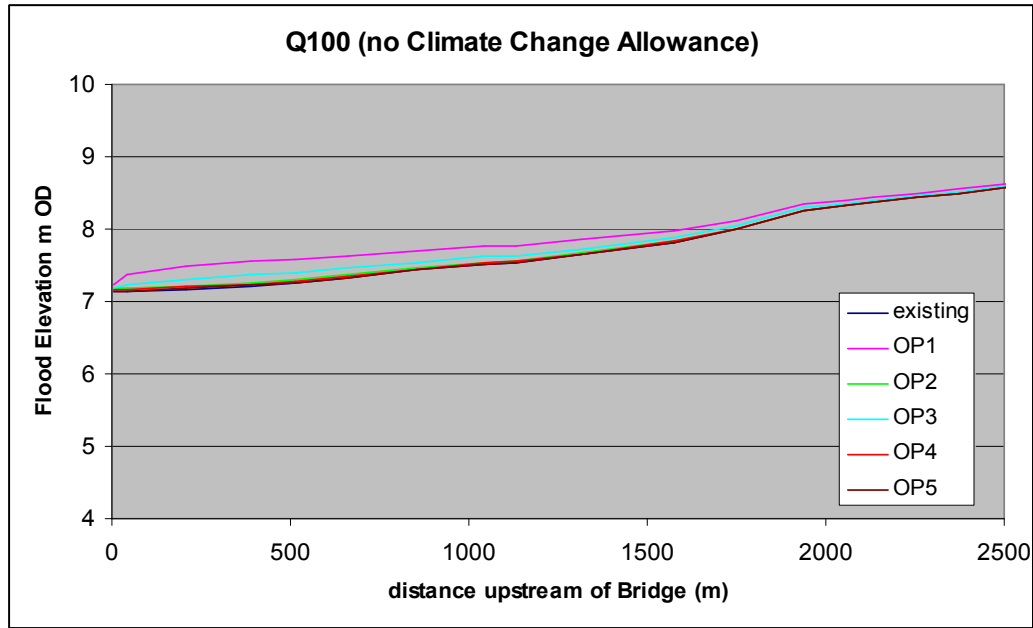


Figure 8 Predicted Flood level upstream of Bridge Crossing Site for various bridge options modelling the 100year flood without climate change

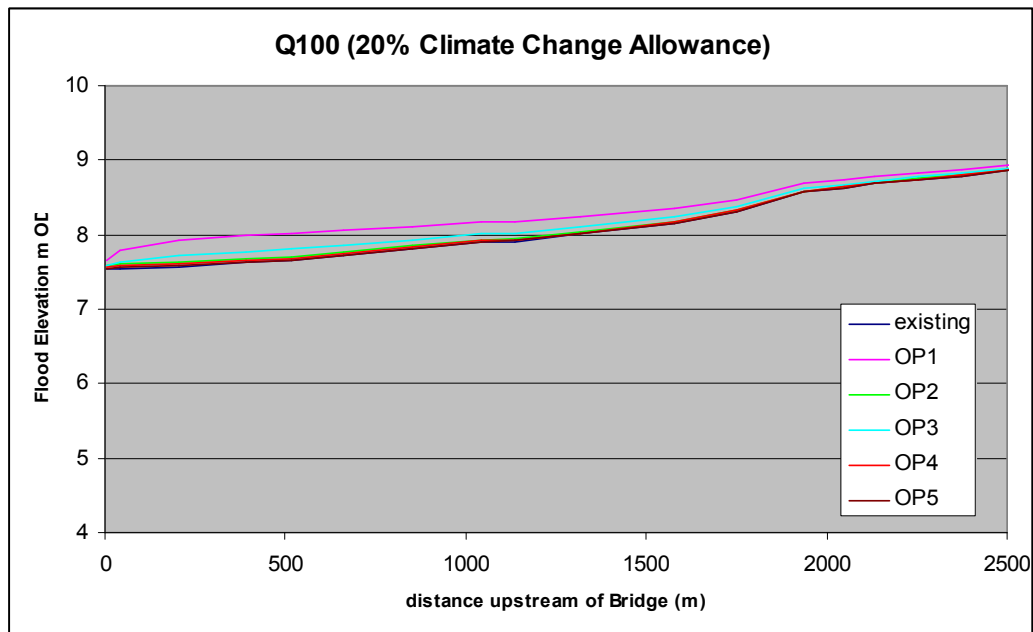


Figure 9 Predicted Flood level upstream of Bridge Crossing Site for various bridge options modelling the 100year flood with climate change allowance

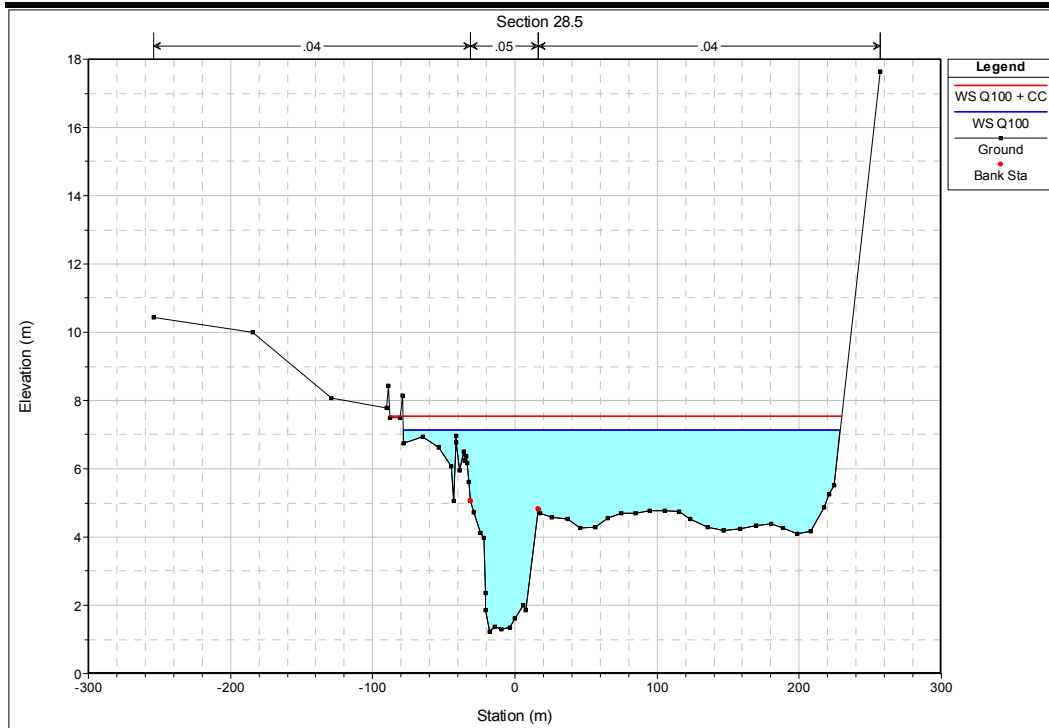


Figure 10 Existing River without Proposed crossing

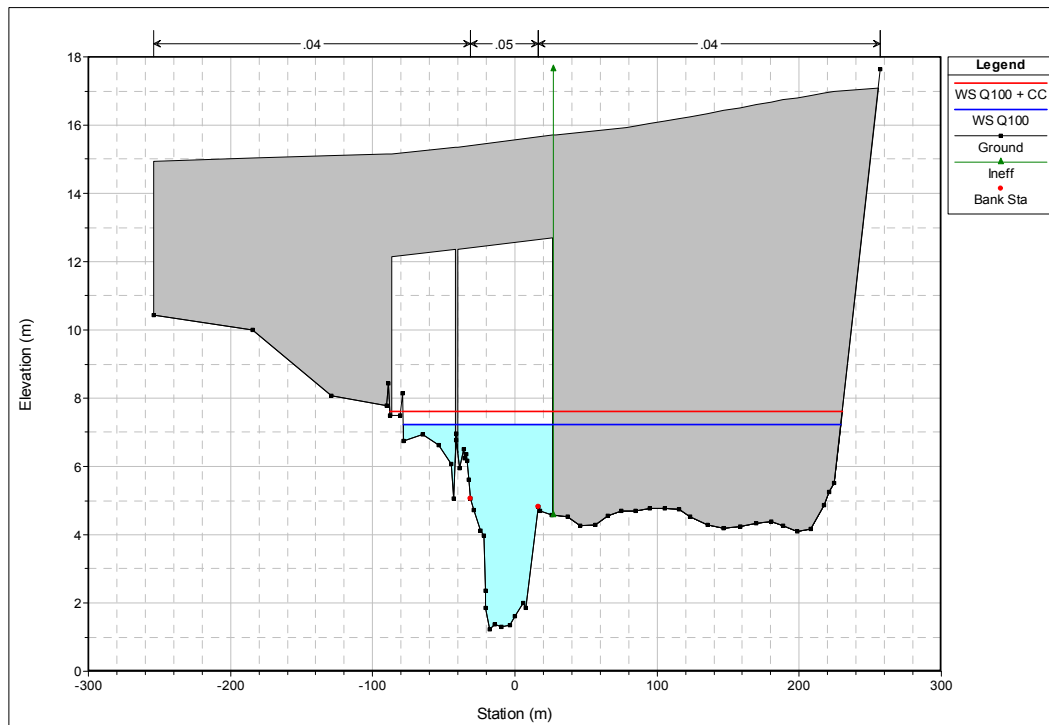


Figure 11 Option 1 2 Span Structure with no embankment culverts

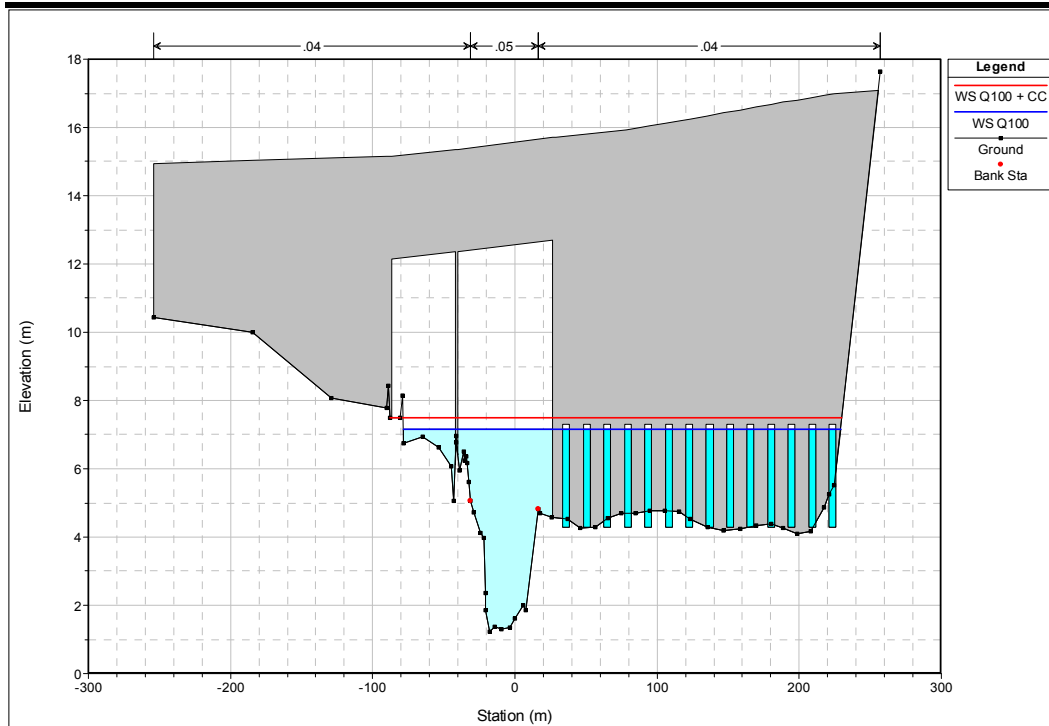


Figure 12 Option 2 - 2 Span Structure with embankment culverts (14 No. 4.8m wide by 3m high)

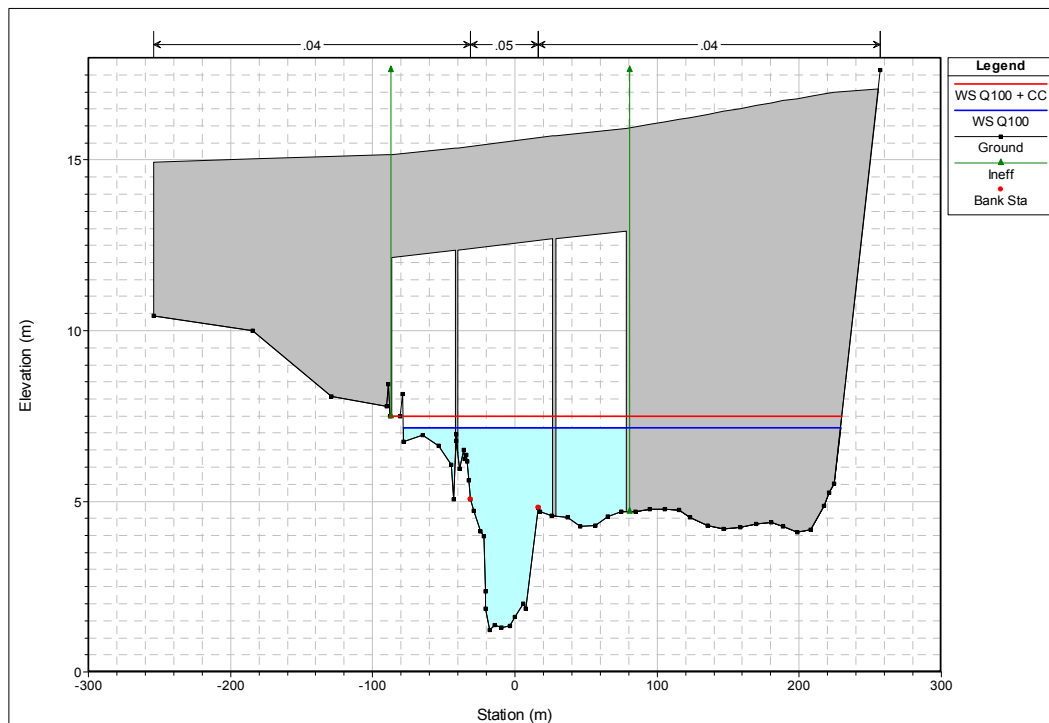


Figure 13 Option 3 - 3 Span Structure with no embankment culverts

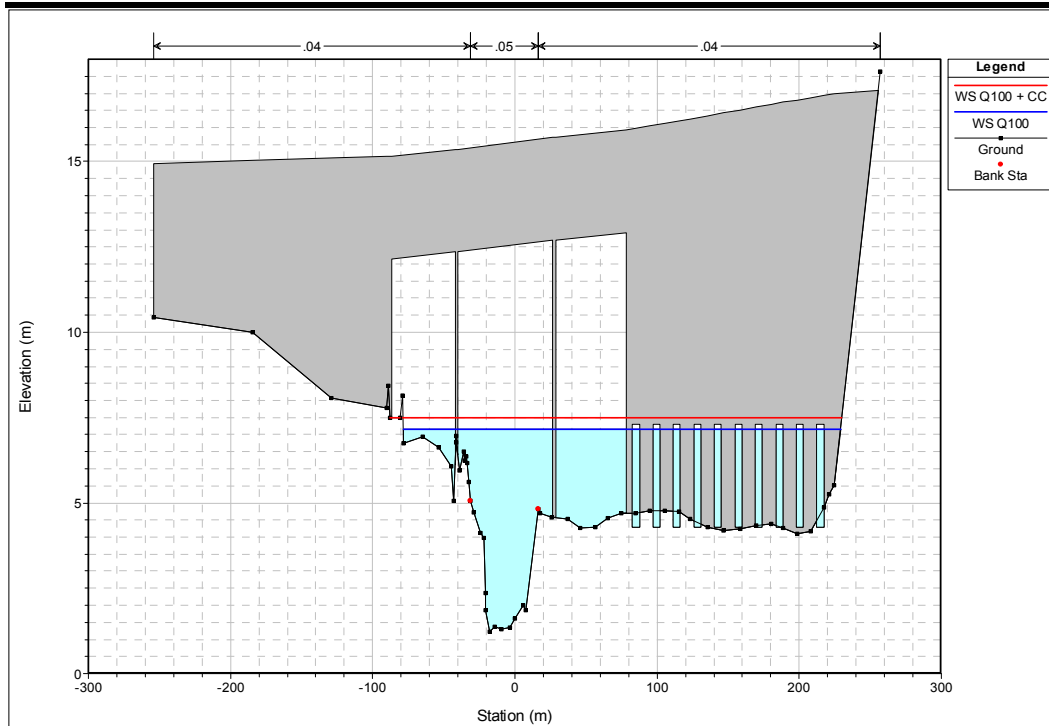


Figure 14 Option 4 - 3 Span Structure with embankment culverts (10 No. 4.8m wide by 3m high)

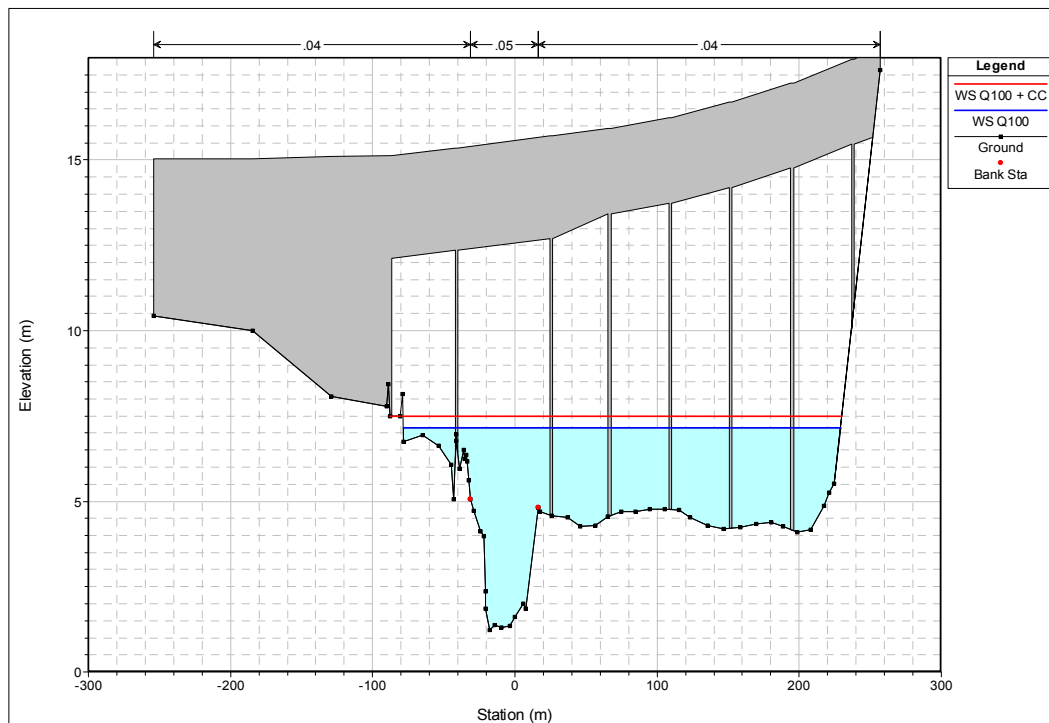


Figure 15 Option 5 Viaduct bridge crossing supported on 7 piers (6 no. located within the floodplain)

Table 7 Hydraulic Results Summary for Bridge Options

Section Ref	Chainage (m)	Flood Event	Computed Flood Elevations (m O.D. Malin)					
			Existing without Br.	2 Span Structure	2 Span with culverts	3 Span Structure	3 Span with culverts	Viaduct
28.5	3664	Q100	7.139	7.244	7.182	7.19	7.165	7.143
		Q100+CC	7.543	7.644	7.597	7.593	7.573	7.547
30	3866	Q100	7.172	7.495	7.213	7.305	7.198	7.176
		Q100+CC	7.575	7.917	7.627	7.712	7.605	7.579
31	4051	Q100	7.218	7.556	7.258	7.364	7.242	7.221
		Q100+CC	7.625	7.985	7.675	7.778	7.653	7.629
36	4793	Q100	7.535	7.773	7.562	7.634	7.552	7.537
		Q100+CC	7.911	8.182	7.947	8.022	7.932	7.914
40	5596	Q100	8.258	8.345	8.267	8.291	8.264	8.259
		Q100+CC	8.575	8.694	8.588	8.619	8.582	8.576

Note: Upstream face at Bridge Structure at River Chainage 3650m

5. SUMMARY

The proposed N80 Link Road, forming part of the proposed M11 Gorey to Enniscorthy scheme crosses the River Slaney 3.6km upstream of Enniscorthy Town in the townlands of Kilcannon and Solsborough. The road crosses practically perpendicular from east to west across the River Slaney Floodplain, which is an active floodplain of some 280m in width at the crossing site. The river channel at the crossing point, from bank edge to bank edge, is approximately 45 to 50m.

The proposed crossing will be sympathetic to flood conveyance with the proposed bridge design retaining the full floodplain width through a combination of wide spanning bridge structure and the provision of large and evenly spaced embankment culverts across the entire flood plain width. The proposed bridge structure is a 3 span structure with supporting piers located on the left and right overbanks well back from the river bank (approximately 10m from river edge). The central span is 70m and side spans are 42m each. In addition to the bridge structure there are 10 embankment flood culverts located on the conveying right (west) overbank located at 14.5m centres. The proposed flood culverts are precast concrete arched shaped having open width of 8.52m and height of 3.41m. These culverts will have a typical invert level of 4.29m O.D. and soffit level of 7.70m O.D.

The recommended design flow for the bridge crossing is based on the single site flood frequency analysis of the gauged flow rates at Scarawalsh gauging station which is located 3.8km upstream of the proposed bridge crossing site. The design flow at Scarawalsh was extrapolated over the study reach using the FSR catchment characteristics equation which produced a scaling factor of 1.23 to the bridge crossing site and 1.25 to Enniscorthy. The design flow for the bridge design and impact assessment is the 100year flood rate, with inclusion of a 20% climate change allowance, producing a flow rate of 590.5cumec at the Bridge site.

The downstream flood level condition for the design flood was set at 6.6m O.D. based on information from the recent OPW Flood relief scheme study for Enniscorthy. This flood level is an extreme flood level which backwaters the Slaney for over 6km upstream and significantly backwaters the proposed bridge site and surrounding floodplain area including railway line on the eastern bank. Storm tide conditions were not found to influence the design flood conditions upstream of Enniscorthy.

To estimate design flood levels at the site and to predict potential upstream impact on flooding one-Dimensional hydraulic modelling using HEC-RAS was carried out inputting the very extensive and detailed river channel and floodplain survey commissioned as part of this investigation. The survey provided river and floodplain cross-sections every 130m over a 7.5km reach length which provides excellent resolution of the subject reach. The hydraulic modelling of existing situation and various bridge options showed that the wide overbank area particularly on the western, right river bank has a significant role in flood conveyance and that contraction of this floodplain through an inappropriate bridge structure could result in significant upstream afflux (increase in flood levels).

The hydraulic results for the proposed bridge configuration is presented in Table 8 and gives a design flood level at the bridge of 7.55m O.D. Such a flood level would extensively flood the adjacent railway line and the threaten the public road on the eastern river bank.

The results show minimal upstream afflux (of the order of 2cm). The proposed bridge structure provides a combined open width of 230m whereas at the design flood level the flood plain width is 300m. The proposed bridge configuration is considered to be an appropriate design which is capable of preserving the floodplain width and producing minimal upstream afflux.

A more detailed 2-D hydraulic model analysis would be required to accurately assess the potential impact on flood velocities over the width of the encroachment and to optimise the number and size of overbank flood culverts. It is recommended that such a study be undertaken as part of the detailed design process. The computed flow velocity through the overbank culverts is relatively small at 0.56m/s.

Table 8 *Computed upstream flood levels for existing and proposed Bridge Crossing.*

Section Ref	Chainage (m)	Flood Event	Existing without Br. mO.D.	Proposed Bridge mO.D.	Afflux m
28.5	3664	Q100	7.139	7.158	0.019
		Q100+CC	7.543	7.566	0.023
30	3866	Q100	7.172	7.19	0.018
		Q100+CC	7.575	7.597	0.022
31	4051	Q100	7.218	7.235	0.017
		Q100+CC	7.625	7.646	0.021
36	4793	Q100	7.535	7.547	0.012
		Q100+CC	7.911	7.926	0.015
40	5596	Q100	8.258	8.262	0.004
		Q100+CC	8.575	8.580	0.005

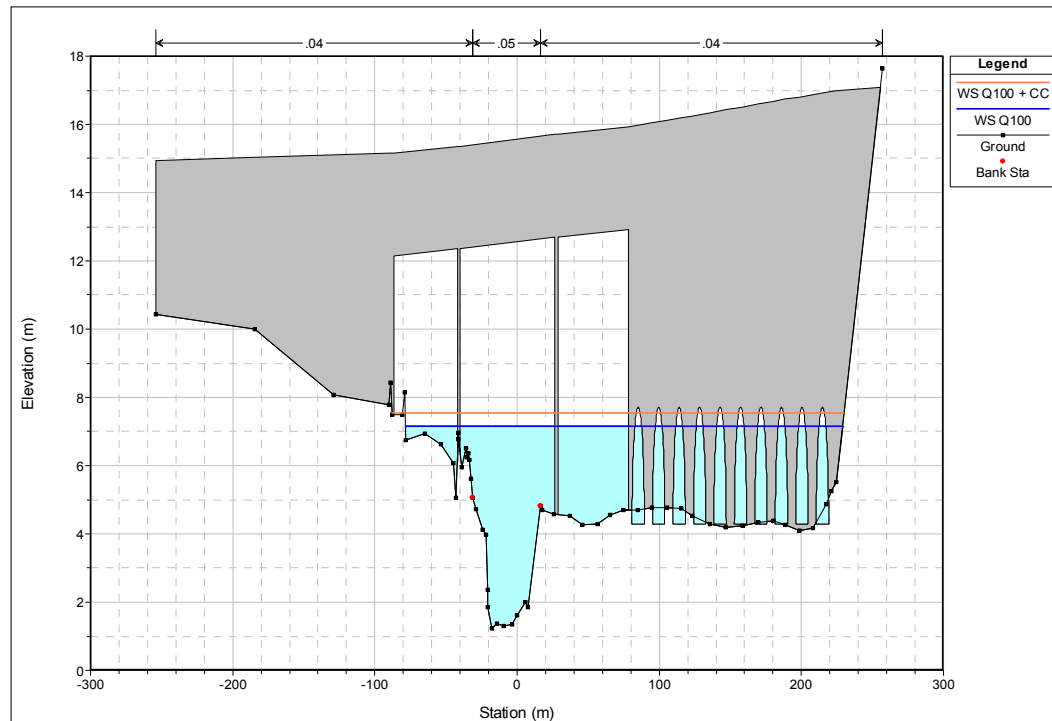


Figure 16 **Proposed 3 Span Bridge Structure with embankment culverts (10 No. 8.5m wide by 3.4m high concrete arch culverts)**

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SECTION 50 APPLICATION

AF50 Rev1107



**Construction, Replacement or Alteration of Bridges and Culverts
Application for Consent under Section 50 of the Arterial Drainage Act, 1945**

Project Name	M11 Gorey to Enniscorthy Scheme	Structure Ref No.	
Applicant (Correspondence will issue to agent)			
Company or Organisation Name:	Wexford County Council		
Postal Address:	County Hall, Wexford		
Contact Person:	Don Curtin		
Phone:	053-9232341	Fax:	053-9233245
E-mail:	Don.Curtin@wexfordcoco.ie		
Agent (Correspondence will issue to agent)			
Company or Organisation Name:	Ryan Hanley WSP Ltd.		
Postal Address:	Sherwood House, Sherwood Avenue, Taylors Hill, Galway		
Contact Person:	Trevor Duffy		
Phone:	0915871116	Fax:	091-587102
E-mail:	DuffyT@ryanhanley.ie		
Location and Parameters of crossing			
Watercourse:	River Slaney	Catchment:	Slaney
Address (Townland – County):	Enniscorthy Co. Wexford		
Grid Reference	X: 299557	Y:	142050
Hydrometric Station(s) utilized (including reference number):	12001 (Scarawalsh) 12002 (Enniscorthy)		
Area of Contributing Catchment:	1273 Km ²	Road Reference:	Proposed N11 Bypass of Enniscorthy
Design Flood Flow:	590.5 m ³ /s	Annual Exceedance Probability (AEP):	1% (100year)
Statement of Authenticity			
I hereby certify that the information contained in this application form, along with all appended supporting information, has been checked by me and that all statements are true and accurate.			
Name: Trevor Duffy			
Company/Organisation: Ryan Hanley WSP Ltd.			
Signature: _____			
Date: _____			

Application Check List	<input type="checkbox"/>
COMPLETED APPLICATION FORM	<input type="checkbox"/>
SUPPORTING HYDROLOGICAL AND HYDRAULIC INFORMATION	<input type="checkbox"/>
PHOTOGRAPHS COVERING SITE OF ALL PROPOSED WORKS	<input type="checkbox"/>
SCALED PLAN OF BRIDGE/CULVERT/APPROACH EARTHWORKS	<input type="checkbox"/>
SCALED CROSS SECTION OF BRIDGE/CULVERT/APPROACH EARTHWORKS	<input type="checkbox"/>
SCALED LONG SECTION OF CHANNEL THROUGH BRIDGE/CULVERT	<input type="checkbox"/>
DETAILS OF RELEVANT EXISTING STRUCTURES	<input type="checkbox"/>
COMPLETED STATEMENT OF AUTHENTICITY	<input type="checkbox"/>
PLAN OF CATCHMENT AREA	<input type="checkbox"/>
COPY OF NOTICE OF GRANT OF PLANNING PERMISSION WITH CONDITIONS *1	<input type="checkbox"/>

For OPW use only	Date of Receipt							
OPW Drainage Maintenance Region	East	<input type="checkbox"/>	South East	<input type="checkbox"/>	South West	<input type="checkbox"/>	West	<input type="checkbox"/>
Correspondence Number	OPW Register No:							
	Consent Issued		<input type="checkbox"/>					

ADDITIONAL INFORMATION			
Hydrological Analysis			
Methodology Applied			Factors Applied
Method Used	Tick box if used or state other	Flow * ² (m ³ /sec)	
6 - Variable FSR Catchment Characteristics	<input checked="" type="checkbox"/>	184.3	Type of Factor
			Factor for Standard Error
			Climate Change
			Irish Growth Curve
			Drained Channel
			Other
3 - Variable FSR Catchment Characteristics	<input type="checkbox"/>	Not reliable	Tidal <input checked="" type="checkbox"/> <i>tidal at Enniscorthy but design flood flows upstream of Enniscorthy not influenced by tide conditions</i>
IH 124	<input type="checkbox"/>	n/a catchment area > 25km ²	
Gauged Flow	<input checked="" type="checkbox"/>	206.6	
Unit Hydrograph	<input type="checkbox"/>		
Other	<input type="checkbox"/>		
Comments: The gauged analysis of Scarawalsh extrapolated using catchment characteristics to downstream locations is used as it provides the most reliable design flow conditions.			

Hydraulic/Structure Details	
Description of Structure* ³	The proposed bridge structure is a 3 span structure with pier located on the overbanks well back from the river bank. The central span is 70m and side spans are 42m each. In addition to the bridge structure are 10 embankment flood culverts located on the conveying right (west) overbank located at 14.5m centres. The flood culverts are precast concrete arch shaped having open width of 8.52m and height of 3.41m. These culverts will have a typical invert level of 4.29m O.D. and soffit level of 7.70m O.D.
Effective Conveyance Area * ⁴	694 m ² (bridge structure 470m ² and embankment culverts 224m ²)
Upstream Invert Level mOD 1.22	Downstream Invert Level mOD 1.20
Upstream Soffit Level mOD 12.85	Downstream Soffit Level mOD 12.85
Upstream Design Flood Level mOD 7.55	Downstream Design Flood Level mOD 7.54

NOTES :

1. In line with OPW policy, section 50 approvals should be sought for bridges and culverts that are necessary for access or deemed acceptable by the planning authority. A copy of the notice of grant of planning permission with all conditions should be enclosed with all applications, that are not exempt development under the Planning and Development Act, 2000, as evidence that these factors have been considered.
2. Flow is the estimated flow from the catchment, without any factors applied.
3. The following details are to be included: the channel bed level, invert and soffit levels of the structure along with the width, length and total conveyance area. Any environmental considerations such as bed depression, baffles, mammal walkways etc. should be described.
4. Effective conveyance area is from channel bed level to design flood level.
5. All levels must be given to Ordnance Datum, Malin Head.

PHOTOGRAPHS



Photo 1 Seamus Rafter Bridge in Enniscorthy



Photo 2 Enniscorthy Road Bridge



Photo 3 Enniscorthy Railway Bridge (submerged during large flood events)



Photo 4 New N11 Road Bridge near Scarawalsh



Photo 5 Scarawalsh Bridge downstream face



Photo 6 View of River Slaney Channel upstream of Bridge crossing site



Photo 7 Floodplain on right (west bank) near proposed Bridge crossing location



Photo 8 River Slaney Floodplain upstream of Enniscorthy

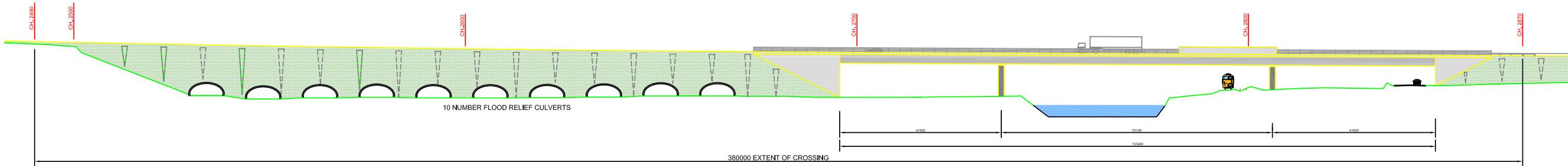
DRAWINGS – PROPOSED BRIDGE



Rev	By	Date	Description

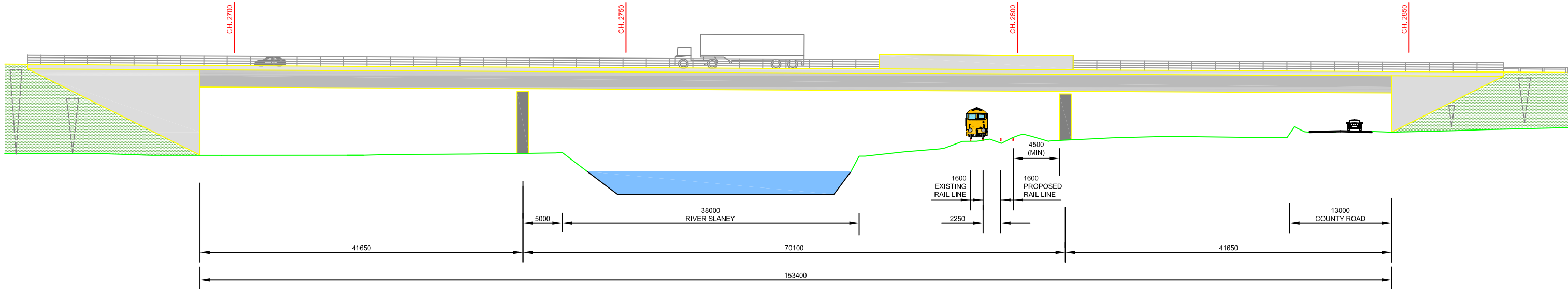
Project				M11 Gorey to Enniscorthy			
Component				Structures			
Title				River Slaney Bridge - Plan			
Design No.	K11	2005	2005	File Name	Bridge Plan Drawing	Drawing No.	
Drawn	Jul 04	2005	Mar 05	Original Scale	1:1,000		
Checked	Aug 05	2005	Mar 05	2005	Mar 05	Drawing 1 Rev.0	

ORIGINAL SIZE A1
H:\Schemes\2007-M11 Gorey to Enniscorthy\Drainage Analysis Report\Tony Conley Reports\River Slaney



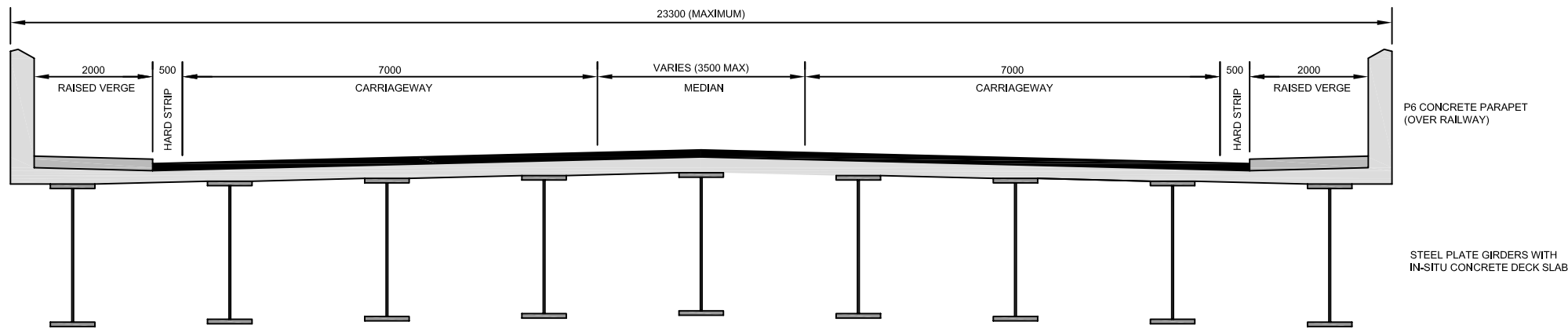
OPTION 5 - SOUTH ELEVATION

(1:500)



OPTION 5 - SOUTH ELEVATION AT RIVER

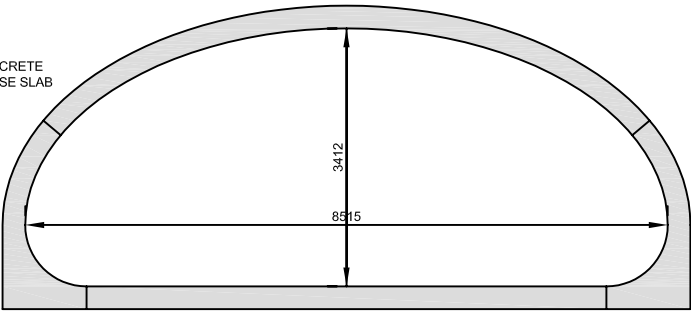
(1:250)



TYPICAL DECK SECTION OVER RAILWAY

(1:50)

BURIED PRECAST CONCRETE ARCH WITH IN-SITU BASE SLAB



FLOOD RELIEF CULVERT

(1:50)

Rev	By	Date	Description

Project:	M11 Gorey to Enniscorthy			
Component:	Structures			
Title:	River Slaney Bridge - Elevations & Section			
Designed: IGF	Date: Dec 08	File Name: Bridge Elevation	Drawing No:	
Drawn: IGF	Date: Dec 08	Original Scale: As Shown @ A1	Drawing 2 Rev.0	
Checked: PSG	Date: Mar 09	Date: Mar 09		

M11 Gorey to Enniscorthy Scheme

Environmental Impact Statement

Appendix 6.1

Soil Associations

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APPENDIX 6.1

SOIL ASSOCIATIONS

Soil Association 9: Brown Podzolics 80%, Gleys 15%, Podzols 5%

The soils of this association occupy 1.85% of the country. They occupy the more elevated positions (152-366m) in areas underlain by Palaeozoic shales (Cambrian, Ordovician and Silurian) and mica schist. They may be formed from the bedrock or from glacial drift of similar composition. Slopes vary from about 4° to 20°. Pockets of this soil type occur west of the present N11 in Dunganstown, Ennereilly and in an area close to Rathdrum.

The principal soil is somewhat shallow (<75 cm), well drained Brown Podzolic of mainly loam to clay loam texture and of low base status. The organic matter level is variable. The A horizon contains about 30% clay and 35% silt while the B horizon contains about 20% clay and 35% silt. The organic matter level is variable. Moisture holding capacity is good but is limited due to shallow depth.

The use range of these soils is somewhat limited mainly by the degree of slope and the amount of boulders or rock outcrops present in this soil type. Where the slopes are less than 12°, as they are in many places, they can be used for tillage as well as for grassland. Inferior grasses (agrostis), bracken and furze appear with the lack of lime, fertilisers and good management.

Soil Association 14: Acid Brown Earths 75%, Gleys 15%, Brown Podzolics 10%

The soils of this association occupy 4.22% of the country. They are formed from glacial till of predominantly Palaeozoic shale composition.

The principal soil consists of a well-drained Acid Brown Earth of loam to clay loam texture. The profile is characterised by a dark brown surface horizon about 30cm deep, with a moderately strong, medium crumb structure. The parent material consists of a yellowish-brown to pale-brown loam with moderate medium sub-angular blocky structure. The entire profile is friable to very friable and moisture holding capacity is good except on limited shallow sites. The A horizon contains about 24 to 26% clay and about 40% silt, while the B horizon contains about 20% clay and 40% silt. In the parent material the clay and silt contents are somewhat less. The profile usually contains appreciable quantities of small stones, which aid internal drainage. This soil type has a wide use range being suitable for tillage and grassland. It is found west of Brittas and Wicklow. They are excellent for tillage, being suited to a wide range of farm, fruit and vegetable crops. Grassland is also very successful especially in the form of highly productive short-term leys.

Soil Association 16: (Acid Brown Earths 90%, Gleys 5%, Regozols 3%, Podzols 2%)

The soils in this association are mainly acid brown earths. These soils have somewhat limited use, due to their coarse texture and their low moisture-holding capacity. Agricultural usage is mainly confined to grassland, however, grass growth, though excellent in wet years, can be restricted by soil moisture deficits in dry ones.

Association 40 (Gleys 80%, Grey Brown Podzolics 20%)

The predominant soil here is an imperfectly to poorly drained Gley. It has a clay loam texture in the surface and a clay loam to silty clay loam texture at deeper levels. The parent material is similar to that of soil association 38.

Because of their imperfect drainage, heavy texture and weak structure, these soils have a somewhat limited use range. They are suitable mainly for grassland but they have been used rather intensively also for tillage, due mainly to the favourable climatic conditions in these areas. However, cultivation and the development of a desirable tilth can prove difficult unless the soils are at the ideal moisture content. Their optimum land use is grass production which can be highly satisfactory where drainage and good management is applied.

Soil Association 42: Gleys 90%, Grey Brown Podzolics 10%

The soils of this association occupy 0.49% of the country. The parent material consists of dense, calcareous, marine muds, which were removed from the bed of the Irish Sea and deposited inland by ice.

The principal soil is a poorly drained surface water gley of high base status. The profile is characterised by a dark greenish brown surface horizon of loam, to sandy clay loam texture overlying deeper horizons of heavier texture which are generally grey and strongly mottled. The surface horizon contains about 20% clay and 27% silt but the clay and silt contents in the B & C horizons increase to about 45% and 30% respectively. Weak structure and heavy texture are mainly responsible for the poor drainage, which is evident even on favourable slopes. These soils have a limited use range. They are not generally suited to tillage and their best use is in grass production. Even for this purpose they tend to be rush (*Juncus*) dominated and to be badly poached unless well managed. For this reason the grazing season has to be very short. An associated soil which is a moderately well to imperfectly drained Grey Brown Podzolic has a longer grazing season due to its better drainage.

These soils can be improved by drainage but because of their slow permeability special drainage techniques such as gravel filled moles must be used.

M11 Gorey to Enniscorthy Scheme

Environmental Impact Statement

Appendix 6.2

Individual Farm Assessments

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Appendix 6.2 – Individual Farm Assessments

Table 1 M11/N11 Mainline Individual Farm Assessments									
Farm Ref. No.	Total farm Holding (Ha)	Affected area (Ha)	Farm Enterprise Impacted	Level of Overall Impact on Farm	Farm Ref. No.	Nature of Impact on Individual Land Parcels		Mitigation Relating to Severance *	Level of Residual Impact on Farm
						Landtake (Ha)	Details of Impacts		
1	67.9	39.66	Dairy	Major	1	8.76	Severance – Major Reduction in the area farmed Loss of access to severed area Interruption of water supply & drainage	Provide access to severed land parcel	Major
2	40.95	40.95	Mixed Livestock	Minor	2	0.3	Severance - Not significant Reduction in the area farmed Disturbance of access		Minor
3	15	15	Sheep	Minor	3	0.2	Severance - Not significant Reduction in the area farmed Loss of access point Impact on land drainage on affected area		Minor
4	18.2	18.2	Mixed tillage & livestock	Major	4	5.5	Severance – Major Division of land into two parcels Reduction in the area farmed Loss of access to the severed area	Provide adequate access for livestock and machinery	Major
5	117.36	48.56	Tillage & Beef	Moderate	5	4.02	Severance – Not Significant Division of land into two parcels Reduction in the area farmed		Moderate
6	63.53	51.39	Mixed tillage & livestock	Moderate	6	9.87	Severance – Moderate Division of land into two parcels Reduction in the area farmed Loss of access to the severed area	Provide access to severed areas	Moderate
7	37.23	37.23	Dairy	Minor	7	2.88	Severance – Not Significant Reduction in the area farmed		Minor

Table 1 M11/N11 Mainline Individual Farm Assessments									
Farm Ref. No.	Total farm Holding (Ha)	Affected area (Ha)	Farm Enterprise Impacted	Level of Overall Impact on Farm	Farm Ref. No.	Nature of Impact on Individual Land Parcels		Mitigation Relating to Severance *	Level of Residual Impact on Farm
						Landtake (Ha)	Details of Impacts		
8	51.39	51.39	Mixed tillage & livestock	Moderate	8	5.01	Severance – Major Division of land into two parcels Reduction in the area farmed Loss of access to the severed area	Provide access to severed areas	Moderate
9	41.68	41.68	Beef	Minor	9	0.74	Severance – Not Significant Reduction in the area farmed		Minor
10	40.46	40.46	Equine	Moderate	10	1.40	Severance – Moderate Division of land into two parcels Reduction in the area farmed Loss of access to the severed area	Provide access to severed area	Moderate
11	55.84	42.49	Mixed tillage and livestock	Moderate	11	2.44	Severance - Moderate Division of land into two parcels Reduction in the area farmed Loss of access to the severed area	Provide access to severed area	Moderate
12	24.28	24.28	Mixed tillage and livestock	Moderate	12	4.69	Severance – Moderate Division of land into two parcels Reduction in the area farmed		Moderate
13	10.92	10.92	Leased	Minor	13	0.75	Severance – Not Significant Reduction in the area farmed		Minor
14	68.79	14.97	Equine, Tillage & Forestry	Major	14	4.43	Severance - Major Reduction in the area farmed Loss of access to the severed area. Interruption of water supply and drainage	Provide access to severed area	Moderate

Table 1 M11/N11 Mainline Individual Farm Assessments									
Farm Ref. No.	Total farm Holding (Ha)	Affected area (Ha)	Farm Enterprise Impacted	Level of Overall Impact on Farm	Farm Ref. No.	Nature of Impact on Individual Land Parcels		Mitigation Relating to Severance *	Level of Residual Impact on Farm
						Landtake (Ha)	Details of Impacts		
15	40.46	40.46	Livestock & Tillage	Major	15	11.53	Severance - Major Reduction in the area farmed Loss of access to the severed area. Interruption of drainage	Provide access to severed area	Moderate
16	153.78	72.84	Mixed Livestock	Major	16	9.93	Severance - Major Reduction in the area farmed Loss of access to the severed area. Interruption of water supply and drainage	Provide access to severed area	Moderate
17	130.71	48.56	Dairy & Tillage	Minor	17	1.40	Severance - Not significant Reduction in farmed area		Minor
18	57.87	57.87	Mixed tillage & livestock	Moderate	18	5.18	Severance - Not significant Reduction in farmed area		Moderate
19	20.23	20.23	Leased	Minor	19	0.28	Severance - Not significant Reduction in farmed area		Minor
20	63.13	26.7	Dairy	Moderate	20	2.28	Severance - Moderate Reduction in the area farmed Interruption of water supply and drainage		Moderate
21	68.79	68.79	Mixed Livestock & Tillage	Moderate	21	8.25	Severance - Major Reduction in the area farmed. Interruption of water supply and drainage	Provide access to severed area	Moderate
22	40.46	40.46	Beef	Major	22	6.26	Severance - Major Reduction in the area farmed Loss of access to the severed area. Interruption of water supply and drainage	Provide access to severed area	Moderate

Table 1 M11/N11 Mainline Individual Farm Assessments									
Farm Ref. No.	Total farm Holding (Ha)	Affected area (Ha)	Farm Enterprise Impacted	Level of Overall Impact on Farm	Farm Ref. No.	Nature of Impact on Individual Land Parcels		Mitigation Relating to Severance *	Level of Residual Impact on Farm
						Landtake (Ha)	Details of Impacts		
23	99.95	63.53	Mixed Livestock & Tillage	Moderate	23	8.56	Severance - Not Significant Reduction in the area farmed Interruption of drainage		Moderate
24	40.46	20.23	Dairy	Moderate	24	2.82	Severance – Not Significant Reduction in the area farmed Interruption of water supply and drainage		Moderate
25	58.68	52.61	Mixed Livestock	Major	25	4.96	Severance - Major Reduction of the area farmed Loss of access to the severed area. Interruption of water supply and drainage	Provide access to severed	Moderate
26	34.39	14.97	Mixed Livestock	Major	26	0.95	Severance - Severe Reduction of the area farmed Loss of access to the severed area. Interruption of water supply and drainage	Provide access to severed	Major
27	20.63	2.63	Leased	Major	27	2.99	Severance - Major Reduction of the area farmed Loss of access to the severed area. Interruption of water supply and drainage	Provide access to severed	Moderate
28	10.92	10.92	Leased	Moderate	28	1.73	Severance - Moderate Reduction in the area farmed Interruption of water supply and drainage	Provide access to severed area	Moderate
29	102.38	67.17	Mixed Livestock & Tillage	Major	29	7.83	Severance - Major Reduction in the area farmed Interruption of water supply and drainage	Provide access to severed area for livestock	Major

Table 1 M11/N11 Mainline Individual Farm Assessments									
Farm Ref. No.	Total farm Holding (Ha)	Affected area (Ha)	Farm Enterprise Impacted	Level of Overall Impact on Farm	Farm Ref. No.	Nature of Impact on Individual Land Parcels		Mitigation Relating to Severance *	Level of Residual Impact on Farm
						Landtake (Ha)	Details of Impacts		
30	40.46	16.18	Leased	Moderate	30	2.09	Severance - Moderate Reduction in the area farmed Loss of access to the severed area. Interruption of drainage	Provide access to severed area	Moderate
31	8.49	8.49	Tillage	Moderate	31	1.74	Severance - Moderate Reduction in the area farmed Loss of access to the severed area. Interruption of drainage	Provide access to severed area	Moderate
32	67.17	33.58	Livestock & Tillage	Moderate	32	3.49	Severance - Moderate Reduction in the area farmed Loss of access to the severed area. Interruption of drainage	Provide access to severed area	Moderate
33	107.64	50.99	Mixed Livestock & Tillage	Moderate	33	3.63	Severance - Not Significant Reduction in the area farmed Interruption of water supply and drainage		Moderate
34	25.49	25.49	Beef	Moderate	34	5.85	Severance - Not Significant Reduction in the area farmed Interruption of water supply and drainage		Moderate
35	80.93	80.93	Mixed Livestock	Major	35	12.62	Severance – Major Reduction in the area farmed Loss of access to the severed area. Interruption of water supply and drainage Loss of dungstead	Provide access to severed area	Major
36	101.17	60.70	Forestry	Minor	36	1.38	Severance – Minor Reduction in the area farmed		Minor

Table 1 M11/N11 Mainline Individual Farm Assessments									
Farm Ref. No.	Total farm Holding (Ha)	Affected area (Ha)	Farm Enterprise Impacted	Level of Overall Impact on Farm	Farm Ref. No.	Nature of Impact on Individual Land Parcels		Mitigation Relating to Severance *	Level of Residual Impact on Farm
						Landtake (Ha)	Details of Impacts		
37	40.46	25.09	Dairy	Moderate	37	5.10	Severance - Not Significant Reduction in the area farmed Interruption of water supply and drainage		Moderate
38	72.84	40.46	Mixed Livestock & Tillage	Moderate	38	2.52	Severance - Moderate Reduction in the area farmed Loss of access to the severed area. Interruption of water supply and drainage	Provide access to severed area	Moderate
39	117.36	21.44	Dairy	Major	39A	3.05	Severance - Moderate Reduction in the area farmed Loss of access to the severed area. Interruption of water supply and drainage	Provide access to severed area	Major
		40.46			39B	8.03	Severance - Moderate Reduction in the area farmed Loss of access to the severed area. Interruption of water supply and drainage	Provide access to severed area for dairy herd and machinery	
40	62.72	26.3	Mixed Livestock & Tillage	Moderate	40	3.25	Severance - Not Significant Reduction in the area farmed Interruption of water supply and drainage		Moderate
41	36.42	36.42	Leased	Moderate	41	3.01	Severance - Not Significant Reduction in the area farmed Interruption of water supply and drainage		Moderate

Table 1 M11/N11 Mainline Individual Farm Assessments									
Farm Ref. No.	Total farm Holding (Ha)	Affected area (Ha)	Farm Enterprise Impacted	Level of Overall Impact on Farm	Farm Ref. No.	Nature of Impact on Individual Land Parcels		Mitigation Relating to Severance *	Level of Residual Impact on Farm
						Landtake (Ha)	Details of Impacts		
42	109	16	Mixed Livestock & Tillage	Moderate	42	4.80	Severance - Not Significant Reduction in the area farmed Interruption of water supply and drainage		Moderate
43	16.18	12.14	Leased	Moderate	43	1.00	Severance - Moderate Reduction in the area farmed Loss of access to the severed area. Interruption of water supply and drainage	Provide access to severed area	Moderate
44	44.51	44.51	Leased & Forestry	Moderate	44	5.68	Severance - Moderate Reduction in the area farmed Interruption of water supply and drainage		Moderate
45	89.03	24.28	Dairy	Minor	45	2.63	Severance – Not Significant Loss of access Loss of shelter		Minor
46	71.22	20.23	Livestock & Tillage	Major	46	6.54	Severance – Major Reduction in the area farmed Loss of access to the severed area. Interruption of water supply and drainage	Provide access to severed area	Major
47	37.63	34.39	Mixed tillage and livestock	Major	47	13.21	Severance - Major Division of land into two parcels Reduction in the area farmed Loss of access to the severed area	Provide access to severed area	Major

Table 1 M11/N11 Mainline Individual Farm Assessments									
Farm Ref. No.	Total farm Holding (Ha)	Affected area (Ha)	Farm Enterprise Impacted	Level of Overall Impact on Farm	Farm Ref. No.	Nature of Impact on Individual Land Parcels		Mitigation Relating to Severance *	Level of Residual Impact on Farm
						Landtake (Ha)	Details of Impacts		
48	58.6	20.23	Mixed Livestock	Major	48	3.95	Severance – Major Division of land into two parcels Reduction in the area farmed Loss of access to the severed area Loss of buildings and animal handling facilities	Provide access to severed area	Major
49	80	2.4	Mixed Livestock, Tillage and Equine	Major	49	1.67	Severance – Major Division of land into two parcels Reduction in the area farmed Loss of access to the severed area	Provide access to severed area	Moderate
50	121.4	39.81	Mixed Livestock, Tillage and Equine	Major	50	8.45	Severance – Moderate Division of land into two parcels Reduction in the area farmed Loss of access to the severed area Interruption of drainage	Provide access to severed area	Moderate
51	31.16	28.33	Tillage	Moderate	51	5.27	Severance Major Reduction in the area farmed Interruption of drainage		Moderate
52	60.7	60.7	Mixed Livestock and Tillage	Major	52	10.61	Severance - Major Reduction in the area farmed Loss of access to the severed area. Interruption of water supply and drainage	Provide access to severed area	Major
53	89.03	89.03	Mixed Livestock and Tillage	Not Significant	53	0.15	Severance - Not significant Loss of road frontage		Not Significant

Table 1 M11/N11 Mainline Individual Farm Assessments									
Farm Ref. No.	Total farm Holding (Ha)	Affected area (Ha)	Farm Enterprise Impacted	Level of Overall Impact on Farm	Farm Ref. No.	Nature of Impact on Individual Land Parcels		Mitigation Relating to Severance *	Level of Residual Impact on Farm
						Landtake (Ha)	Details of Impacts		
54	76.89	46.78	Tillage	Moderate	54	4.85	Severance - Moderate Reduction in the area farmed Loss of access to the severed area. Interruption of drainage	Provide access to severed area	Moderate
55	57.47	57.47	Livestock, Tillage and Forestry	Moderate	55	2.44	Reduction in the area farmed Severance - Not significant Interruption of water supply and drainage		Moderate
56	40.47	40.47	Mixed Livestock & Tillage	Not Significant	56	0.05	Severance - Not significant Loss of land along Stream		Not Significant
57	66.77	66.77	Leased	Major	57	7.65	Severance - Major Reduction in the area farmed Loss of access to the severed area. Interruption of water supply and drainage	Provide access to severed area	Major
58	8.94	80.94	Tillage	Moderate	58A	3.55	Severance - Not significant Reduction in the area farmed Interruption of drainage		Moderate
					58B	1.63	Severance - Not significant Reduction in the area farmed Interruption of drainage		
59	76.5	28	Mixed Livestock & Tillage	Major	59	5.85	Severance - Moderate Reduction in the area farmed Interruption of drainage	Provide access to severed area	Moderate

Table 1 M11/N11 Mainline Individual Farm Assessments									
Farm Ref. No.	Total farm Holding (Ha)	Affected area (Ha)	Farm Enterprise Impacted	Level of Overall Impact on Farm	Farm Ref. No.	Nature of Impact on Individual Land Parcels		Mitigation Relating to Severance *	Level of Residual Impact on Farm
						Landtake (Ha)	Details of Impacts		
60	303.52	40.47	Tillage & Equine	Moderate	60	3.08	Severance - Moderate Reduction in the area farmed Loss of access to the severed area. Interruption of water supply and drainage	Provide access to severed area	Moderate
61	39.7	39.7	Mixed Livestock & Tillage	Major	61	3.02	Severance - Major Reduction of the area farmed Interruption of drainage system	Provide access to severed area	Moderate
62	20.23	20.23	Mixed Livestock	Minor	62	0.51	Severance - Not significant Reduction in the area farmed		Minor
63	38.8	38.8	Mixed Livestock & Tillage	Minor	63	0.04	Severance - Not significant Reduction in the area farmed		Minor
64	11.7	11.7	Mixed Livestock & Tillage	Moderate	64	3.42	Severance - Moderate Reduction in the area farmed Loss of access to the severed area. Interruption of water supply and drainage	Provide access to severed area	Moderate
65	64.8	8	Mixed Livestock & Tillage	Minor	65	0.69	Severance - Not significant Reduction in the area farmed		Minor
66	72.85	17.4	Tillage	Major	66	2.46	Severance - Major Reduction in the area farmed Loss of access to the severed area.	Provide access to severed area	Moderate

Table 1 M11/N11 Mainline Individual Farm Assessments									
Farm Ref. No.	Total farm Holding (Ha)	Affected area (Ha)	Farm Enterprise Impacted	Level of Overall Impact on Farm	Farm Ref. No.	Nature of Impact on Individual Land Parcels		Mitigation Relating to Severance *	Level of Residual Impact on Farm
						Landtake (Ha)	Details of Impacts		
67	27.11	22.66, and 4.45	Tillage	Moderate	67A	3.18	Severance - Moderate Reduction in the area farmed Loss of access to the severed area. Interruption of water supply and drainage	Provide access to severed area	Moderate
					67B	0.09	Severance - Not significant Reduction in the area farmed		
68	40.47	40.47	Beef	Moderate	68	2.96	Severance - Not significant Reduction in the area farmed Interruption of water supply and drainage		Moderate
69	18.21	18.21	Leased	Minor	69	0.23	Severance - Not significant		Minor
70	24.28	24.28	Dairy, Orchards and soft Fruits	Major	70	5.24	Severance – Not Significant Reduction in the area farmed Interruption of water supply and drainage		Major
71	16.18	16.18	Mixed Livestock	Moderate	71A	1.35	Severance – Not Significant Reduction of the area farmed		Moderate
					71B	0.31	Severance – Not Significant Reduction of the area farmed		

* Further details of Access Roads and Access Structures included within the Proposed Scheme as mitigation for land severance are included in Chapter 3 of this EIS

Table 2 N80 Link Road Individual Farm Assessments									
Farm Ref. No.	Total farm Holding (Ha)	Affected area (Ha)	Farm Enterprise Impacted	Level of Overall Impact on Farm	Farm Ref. No.	Nature of Impact on Individual Land Parcels		Mitigation Relating to Severance	Level of Residual Impact on Farm
						Landtake (Ha)	Details of Impacts		
72	52.3	52.3	Sheep	Major	72	7.05	Reduction in the area farmed Severance – Major Loss of access to severed area Interruption of water supply & drainage	Provide access to severed land parcel	Major
73	2.42	2.42	Leased	Minor	73	0.83	Reduction in the area farmed Loss of access point Severance - Not significant Impact on land drainage on affected area		Minor
74	68	68	Dairy	Major	74	2.26	Severance – Major Division of land into two parcels Reduction in the area farmed Loss of access to the severed area	Provide adequate access for dairy herd and machinery	Moderate
75	26.3	26.3	Tillage	Moderate	75	2.62	Severance – Moderate Division of land into two parcels Reduction in the area farmed Loss of access to the severed area	Provide access to severed areas	Moderate
76	65	28	Mixed tillage & livestock	Moderate	76	2.27	Severance – Moderate Division of land into two parcels Reduction in the area farmed Loss of access to the severed area	Provide access to severed areas	Moderate
77	38	38	Tillage	Moderate	77	0.82	Severance – Major Division of land into two parcels Reduction in the area farmed Loss of access to the severed area	Provide access to severed areas	Moderate

Table 2 N80 Link Road Individual Farm Assessments									
Farm Ref. No.	Total farm Holding (Ha)	Affected area (Ha)	Farm Enterprise Impacted	Level of Overall Impact on Farm	Farm Ref. No.	Nature of Impact on Individual Land Parcels		Mitigation Relating to Severance	Level of Residual Impact on Farm
						Landtake (Ha)	Details of Impacts		
78	56	40	Tillage	Moderate	78	5.50	Severance – Moderate Division of land into two parcels Reduction in the area farmed Loss of access to the severed area	Provide access to severed areas	Moderate
79	66	28	Leased	Moderate	79	5.92	Severance – Moderate Division of land into two parcels Reduction in the area farmed Loss of access to the severed area	Provide access to severed areas	Moderate
80	57.06	26	Mixed Livestock	Major	80	7.06	Severance – Major Division of land into two parcels Reduction in the area farmed Loss of access to the severed area	Provide access to severed area	Moderate

* Further details of Access Roads and Access Structures included within the Proposed Scheme as mitigation for land severance are included in Chapter 3 of this EIS

Table 3 N30 Link Road Individual Farm Assessments									
Farm Ref. No.	Total farm Holding (Ha)	Affected area (Ha)	Farm Enterprise Impacted	Level of Overall Impact on Farm	Farm Ref. No.	Nature of Impact on Individual Land Parcels		Mitigation Relating to Severance	Level of Residual Impact on Farm
						Landtake (Ha)	Details of Impacts		
81	46.9	6.48	Mixed Tillage & Livestock	Moderate	81	1.63	Severance – Not Significant Reduction in the area farmed Removal of an existing access points	Restore access points	Moderate
82	208	29.95	Mixed Tillage & Livestock	Moderate	82	3.37	Severance - Major Reduction in area farmed Division of land parcel Loss of access to severed area Interruption of water supply & drainage	Provide access to severed land parcel	Moderate
83	30.3	20.2	Tillage	Minor	83	1.30	Severance – Not Significant Reduction in the area farmed		Minor
84	40.46	40.46	Leased	Major	84	4.86	Reduction in the area farmed Severance – Moderate Division of land parcel into two portions. Loss of access to severed area Interruption of water supply & drainage	Provide access to severed land parcel	Moderate
85	80.93	15.37	Leased	Minor	85	0.23	Severance –Not Significant Possible removal of boundary hedging		Minor
86	77.70	77.70	Leased	Minor	86	5.61	Severance – Minor Reduction in the area farmed Interruption of water supply and land drainage		Minor
87	21.22	21.22	Forestry & leased	Minor	87	0.36	Severance – Not Significant Possible removal of boundary hedging.		Minor

Table 3 N30 Link Road Individual Farm Assessments									
Farm Ref. No.	Total farm Holding (Ha)	Affected area (Ha)	Farm Enterprise Impacted	Level of Overall Impact on Farm	Farm Ref. No.	Nature of Impact on Individual Land Parcels		Mitigation Relating to Severance	Level of Residual Impact on Farm
						Landtake (Ha)	Details of Impacts		
88	60.7	60.7	Leased	Minor	88	2.19	Severance – Minor Reduction in the area farmed Interruption of water supply and drainage	Provide access to severed area	Minor
89	40.46	40.46	Dairy Sheep and Beef	Moderate	89	1.78	Severance – Minor Reduction in the area farmed Loss of access to farmyard facilities from severed area. Interruption of water supply and drainage	Provide access to severed land parcel	Moderate
90	5.66	5.66	Leased	Major	90	2.74	Severance - Major Reduction in the area farmed Interruption of water supply and drainage Loss of access to severed area	Provide access to severed land parcel	Moderate
91	74.88	50.5	Dairy	Major	91	4.65	Severance – Major Reduction in the area farmed. Loss of access points Interruption of water supply and drainage	Provide access to severed areas for dairy herd and machinery	Major
92	127	68.7	Mixed tillage & livestock	Major	92	6.26	Severance – Major Division of land parcel into two areas Reduction of the area farmed Loss of access to severed area, Interruption of water supply and drainage,	Provide access to severed area	Moderate

Table 3 N30 Link Road Individual Farm Assessments									
Farm Ref. No.	Total farm Holding (Ha)	Affected area (Ha)	Farm Enterprise Impacted	Level of Overall Impact on Farm	Farm Ref. No.	Nature of Impact on Individual Land Parcels		Mitigation Relating to Severance	Level of Residual Impact on Farm
						Landtake (Ha)	Details of Impacts		
93	38.85	38.85	Sheep	Moderate	93	3.48	Severance – Moderate Reduction in the area farmed Loss of access to farmyard facilities from severed area. Interruption of water supply and drainage	Provide access to severed land parcel	Moderate
94	4.0	4.0	Leased	Not Significant	94	0.13	Severance – Not Significant Reduction in the area farmed Interruption of drainage		Not Significant
95	39.26	39.26	Sheep	Moderate	95A	3.44	Severance – Moderate Reduction in the area farmed Interruption of drainage	Provide access to severed land parcel	Moderate
					95B	1.98	Severance – Not Significant Reduction in the area farmed Interruption of drainage		
96	50.59	26.31	Mixed Livestock & Tillage	Minor	96A	1.33	Severance – Not Significant Reduction in the area farmed Interruption of water supply and drainage Interruption of Access		Minor
					96B	0.73	Severance – Not Significant Reduction in the area farmed Interruption of Access		
					96C	0.09	Severance – Not Significant Reduction in the area farmed Interruption of Access		
					96D	0.54	Severance – Not Significant Reduction in the area farmed		
97	8.09	8.09	Leased	Not Significant	97	0.45	Reduction in the area farmed Loss of Access point Interruption of drainage		Not Significant

Table 3 N30 Link Road Individual Farm Assessments									
Farm Ref. No.	Total farm Holding (Ha)	Affected area (Ha)	Farm Enterprise Impacted	Level of Overall Impact on Farm	Farm Ref. No.	Nature of Impact on Individual Land Parcels		Mitigation Relating to Severance	Level of Residual Impact on Farm
						Landtake (Ha)	Details of Impacts		
98	80.94	19.02	Tillage	Moderate	98	3.83	Severance – Moderate Reduction in the area farmed Interruption of drainage Loss of access points Loss of access to farmyard facilities from severed area.	Provide access to severed land parcel	Moderate
99	19.02	19.02	Leased	Minor	99	2.08	Severance – Not Significant Reduction in the area farmed Interruption of water supply and drainage Loss of Access		Minor
100	26.31	14.16	Tillage	Minor	100	1.22	Severance - Not Significant Reduction in the area farmed Interruption of water supply and drainage Loss of Access		Minor
101	18.21	18.21	Mixed Livestock	Moderate	101	2.82	Severance - Moderate Reduction in the area farmed Loss of access to the severed area. Interruption of water supply and drainage	Provide access to severed area	Moderate
102	2.6	2.6	Equine	Major	102	2.28	Severance - Moderate Reduction in the area farmed Loss of access to the severed area. Interruption of water supply and drainage	Provide access to severed area	Major
103	21.19	21.19	Mixed tillage & livestock	Moderate	103	2.81	Severance - Moderate Reduction in the area farmed Loss of access to the severed area.. Interruption of water supply and drainage	Provide access to severed area	Moderate

Table 3 N30 Link Road Individual Farm Assessments									
Farm Ref. No.	Total farm Holding (Ha)	Affected area (Ha)	Farm Enterprise Impacted	Level of Overall Impact on Farm	Farm Ref. No.	Nature of Impact on Individual Land Parcels		Mitigation Relating to Severance	Level of Residual Impact on Farm
						Landtake (Ha)	Details of Impacts		
104	43.09	32.57	Mixed tillage & livestock	Major	104	5.07	Severance – Moderate Division of land into two parcels Reduction in the area farmed Loss of access to the severed area	Provide access to severed area	Major
105	20.23	10.12	Tillage	Minor	105	1.62	Severance – Not Significant Reduction in the area farmed Interruption of drainage		Minor
106	40	40	Mixed tillage & livestock	Moderate	106	1.66	Severance - Moderate Reduction in the area farmed Loss of access to the severed area. Interruption of water supply and drainage	Provide access to severed area	Moderate
107	47	47	Tillage	Major	107	5.56	Severance - Major Reduction in the area farmed Loss of access to the severed area. Interruption of water supply and drainage	Provide access to severed area	Major
108	1.01	0.40	Grass	Moderate	108	0.54	Severance - Moderate Reduction in the area farmed Loss of access to the severed area. Interruption of water supply and drainage	Provide access to severed area	Moderate
109	33.5	33.5	Mixed tillage & Livestock	Major	109	2.21	Severance - Major Reduction in the area farmed Loss of access to the severed area. Interruption of water supply and drainage	Provide access to severed area	Major

M11 Gorey to Enniscorthy Scheme

Environmental Impact Statement

Appendix 9.1

NPWS and ERFB Consultation

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IMPORTANT NOTE: Culvert numbers quoted in the following documents are not the numbers used in the final EIS. A table showing the correspondence between the old and current culvert numbers is given at the end of this Appendix

MEETING WITH ERFB AND NPWS (1)

Date: 27th February 2008, 14.00 – 17.00

Attendees: Aebhin Cawley and Leanne Cooke (Scott Cawley)
James McHale (Ryan Hanley)
Donnacha Byrne (Environmental Officer, Eastern Regional Fisheries Board),
Stephen Byrne (ERFB) and Martin Kelly (ERFB)
Lorcan Scott (NPWS District Conservation Officer)
Eamon Doran (Conservation Ranger, NPWS)
Glen Jones (National Roads Design Office).

Location: Site of proposed Slaney crossing north of Whites Bridge and the Wexford County Council District Office at Enniscorthy, Co. Wexford.

Purpose: Project Reviews – Enniscorthy Bypass and Clogh to Enniscorthy Scheme.

MEETING MINUTES 27.02.08	
ITEM	ACTION / NOTES
<p>The purpose of the proposed meeting was to brief the NPWS and ERFB staff on the two proposed schemes (Enniscorthy Bypass and Clogh to Enniscorthy Scheme) and to seek any information, comments and / or concerns they have with respect to both schemes.</p> <p>The meeting commenced by visiting two proposed crossings of the River Slaney which will form part of the Enniscorthy Bypass scheme. After the site visit the meeting moved indoors to the Wexford County Council District Office in Enniscorthy for further detailed discussion on the overall potential impacts of both schemes.</p>	
Environmental Information / Data	
<p>James McHale and Aebh��n Cawley indicated the two proposed crossing points, stating that for various reasons, including anticipated environmental impacts, the southern most of the two proposals would be a preferred option. It was explained that it is currently proposed to construct a clear span bridge over both the Slaney River and the railway line. However discussions with Iarnrod ��ireann are still on-going and the detailed design has yet to be worked out.</p> <p>The NPWS and ERFB provided information on existing knowledge of the ecology and fisheries resource in the area. These are summarised as follows:</p>	<p>Detailed design of bridge to be advanced by Ryan Hanley in consultation with Scott Cawley re environmental issues.</p>

MEETING MINUTES 27.02.08

ITEM	ACTION / NOTES
<p>ERFB Comments</p> <ul style="list-style-type: none">• Most of the Slaney in the area is governed by private fishing rights. It is believed that Mrs Bulger owns the fishing rights at the southern proposed River Slaney crossing point.• There are records of Smelt and Shad (listed on Annex II of Habitats Directive) in the area with known spawning grounds at Enniscorthy Bridge.• Isabelle Kurtz and Jim Ryan recently carried out a freshwater pearl mussel survey on the Slaney River.• Most of the watercourses within the Clogh to Enniscorthy scheme drain to the River Slaney, although it is not known where the Bracken drains to and it may be to the Bann.• Watercourses that are known to be Salmonid include the Slaney, Tinnacross, Corbally, Bracken, Bann, the Motabeg, Ballybannogue and an unnamed stream near Edermine bridge. Salmon are known to have spawning grounds in the Slaney, Tinnacross and Corbally streams.• All watercourses within the study area have the potential to support Salmon, Trout and Lamprey species. The ERFB intend to electrofish the streams in the summer (April-May) to identify the presence / absence of species.• There have been fish kills in the Tinnacross and Corbally streams as a result of pollution incidents. <p>NPWS Comments</p> <ul style="list-style-type: none">• Barn Owls are likely to be feeding along the banks of the River Slaney, and may be making use of the proposed River Slaney crossing as there appears to be suitable foraging habitat. Clough has a history of barn owls around the town.• Long-eared Owls may also occur and SC has already recorded this species within the Clogh to Enniscorthy scheme study area.• Little Egret could be found along the Slaney and surveys should search for nests around the proposed crossing point.• Crayfish are not expected to be present within the watercourses in the study area, as they require a limestone influence.• Floating River Vegetation is an Annex II habitat which could occur within some of the bigger streams in the study area• Lettermin church located north of Oilgate has the potential to support Bat species and Barn Owl.• Swans land at the preferred proposed Slaney crossing point – no overhead lighting or wires to be in place on the bridge as this may cause collisions.	<p>Ryan Hanley to check landownership records for details of fishing rights.</p> <p>Scott Cawley to devise strategy for consultation with anglers, fishing clubs and private fishing rights owners which would be affected by the proposed scheme.</p> <p>Scott Cawley to source results of the Freshwater Pearl Mussel survey by contacting Aine O'Connor (NPWS) or Isabelle Kurtz in the EPA.</p> <p>Scott Cawley to contact ERFB in summer to find out results of electrofishing.</p> <p>SC to check NPWS database for any barn owl records.</p> <p>SC to check BWI and BINS for any records.</p> <p>SC to survey streams for this habitat.</p> <p>SC to update Oilgate constraints report with this info.</p>
Mitigation	
The ERFB identified the following mitigation measures as	

MEETING MINUTES 27.02.08

ITEM	ACTION / NOTES
<p>requiring consideration in the environmental assessments of the schemes:</p> <ul style="list-style-type: none">• The ERFB publication <i>Requirements for the Protection of Fisheries Habitats during Construction and Development Works at River Sites</i> should be consulted for best practice guidelines to minimise impacts on watercourses during construction.• Siltation of smaller streams from large scale development such as this would be of particular concern as these would have less capacity to absorb silt loads.• Clear span structures are preferred, with bottomless culverts, box culverts and pipes less preferable in the order listed.• Design of culverts should<ul style="list-style-type: none">- be short in length (some may require groynes if they are too long)- be buried below level of stream beds by 500 mm and back filled with stream substrate- maintain the existing width of the watercourse- be maintained clear to avoid flooding issues- some may require groynes if they are- be fish passable- recreate natural pools.• Surface water issues<ul style="list-style-type: none">- All surface water should be attenuated prior to discharge.- SUDS proposals should be developed and discussed with ERFB.- No in-stream works will be permitted outside of May and September in salmonid streams (all within study area are considered to be salmonid).- Buffer zones should be maintained to remove suspended solids and lessen the impacts of surface water run off. Extent of buffer zones will be dependent on site characteristics. However a general rule of thumb is a min buffer zone of 3 – 5 m.- Settlement ponds and hydrocarbon interceptors to be used during construction and operation.- Settlement ponds should be frequently spaced so as to reduce the outfall and limit the catchment size.- Permanent settlement ponds to be ecologically designed at construction stage to allow for a positive ecological impact.- Consideration should be given to impacts on the Tinnacross Stream for the Cyan Route as long sections run close to and parallel to the route.- Crossing points should be as far as possible straight on rather than at an angle.	<p>SC and RHWSP are already familiar with this publication. Additional copies of this guidance were distributed.</p> <p>SC and RHWSP to liaise with ERFB on detailed culvert / watercourse crossing designs as the scheme progresses.</p> <p>SC, Awn and RHWSP to liaise with ERFB on detailed proposals for the treatment of surface water during construction and operation as the scheme progresses.</p>

MEETING MINUTES 27.02.08

ITEM	ACTION / NOTES
<p>The NPWS identified the following mitigation measures as requiring consideration in the environmental assessments of the schemes:</p> <ul style="list-style-type: none">• Otter ledges to be incorporated into the design of the culverts.• Bat friendly measures to be given consideration in design of bridge – particularly for Daubenton's which may use the structure if provision is provided for them.• Control of invasive exotic species. Japanese Knotweed and Himalayan (Indian Balsam are present in the area. Any watercourse crossing locations should be checked for these species prior to construction and mitigation put in place. The movement of soil during construction could spread exotic species and so soil movements should be minimised and if possible limited to materials arising from the scheme itself i.e. no import of soil, all soil to come from cut and fill for the scheme. The construction works have potential to enhance the spread of these species in the SAC and impact on designated habitat.• Depending on the nature of the proposed River Slaney Crossing an Article 6 Assessment may be required.	<p>SC and RHWSP to liaise on design options for bat friendly measures on bridge and incorporation of mammal ledges in culverts.</p> <p>SC to identify sites within the study area which contain invasive exotic species.</p> <p>SC to carry out screening A6A exercise once bridge design is available.</p>
<p>Scott Cawley to issue draft Ecological Impact Assessment for circulation amongst ERFB and NPWS attendees of the meeting for discussion and feedback.</p>	<p>SC to do.</p>
<p>RHWSP to issue drainage report to ERFB and NPWS for information.</p>	<p>RHWSP</p>
<p>The programme was broadly outlined as:</p> <ul style="list-style-type: none">• Enniscorthy Bypass due to go to CPO in Oct 2008 and to construction approx. 2 years later• Clogh to Enniscorthy has no fixed timescale yet.	

MEETING WITH ERFB AND NPWS (2)

Date: 20.11.08

Attendees: Aebhin Cawley - AC (Scott Cawley)
Leanne Cooke- LC (Scott Cawley)
Trevor Duffy-TD (Ryan Hanley)
Donnacha Byrne Environmental Officer-DB (ERFB)
Stephen Byrne-SB (ERFB)
Martin Kelly-MK (ERFB)
Lorcan Scott South Dublin District Conservation Officer-LS (NPWS)
Eamon Doran Conservation Ranger-ED (NPWS)

Apologies: Glen Jones National Roads Design Office (NRA)

Location: National Parks and Wildlife Services headquarters at Ely Place, Co. Dublin.

Purpose: To discuss the Gorey to Enniscorthy Schemes in relation to the drainage design, design of mammal underpasses, mammal ledges and other issues pertinent to nature conservation

MEETING MINUTES 20.11.08	
ITEM	ACTION / NOTES
<u>Watercourses</u>	
DB raised the issue of a conflict between the straightening of culverts versus the installation of bottomless culverts. DB to check the ERFB recommendations.	DB
DB agreed to provide a summary of the ERFB recommendations on each culvert i.e. bottomless or straighten etc	DB
DB raised concern about the length of the culverts, especially in regard to the Tinnacross Stream which is crossed numerous times.	Note
DB, MK & SB raised concerns over the loss of spawning ground along the Tinnacross and Corbally streams. The ERFB have in the past compensated for the loss of spawning ground by providing gravel beds downstream of a culvert. Compensatory gravel must be placed adjacent to the culvert where there is a good flow. This has been done on culverts in the N11 scheme in the Bangoue Stream.	Note
DB, MK & SB agreed to walk the line of the scheme to identify spawning ground which the culverts will remove and to identify compensatory habitat for the placement of gravel. The timescale for the completion of this work was said to be three weeks.	DB, MK & SB
TD to provide DB with aerial maps and a couple of A3 Discovery maps for this walkover survey.	TD
DB requested that a depth of no less than 500mm at the upstream invert of culverts be accommodated to allow for the passage of fish. This may require the installation of baffles.	Note

MEETING MINUTES 20.11.08

ITEM	ACTION / NOTES
<p>DB requested that the culverts be arch shaped to allow for maximum levels of light penetration into the culverts.</p>	Note
<p>SB noted that the passage of Lamprey is easily stopped as they are unable to climb or jump like other fish species. From memory he believes that an 18 inch notch in the baffles is required their passage. However he is not completely sure of this measurement and said Jimmy King an expert on Lamprey should be consulted.</p>	LC
<p>DB noted that Lamprey species are found in most watercourses from streams to drainage ditches.</p>	Note
<p>SB, MK & DB noted that the Slaney and Urinn Rivers are angling rivers. None of the other streams on site are likely to be angling rivers. The Slaney is angled by fly fishing and the River Urinn is angled by bait fishing.</p>	Note
<p>SB noted that the casting height of a fly fisher is equal to the width of the watercourse with the majority of the cast length falling behind the fisherman. The bridge will provide shading for trout and salmon, resulting in a good spot for fish. Fishermen will avail of this good spot by casting upstream of the bridge.</p>	Note
<p>SB noted that Jim O'Brien is a good contact on the design of culverts.</p>	Note
<p>MK noted that artificial light was installed for fish movement in a culvert in the Killmacic stream. LC to research this lighting concept.</p>	LC
<p>AC asked if there were any stated records of fish species in the streams. DB replied that records are general known through unstated records such as electrofishing and fish kills.</p>	Note
<p>DB noted that ponds will need to be constructed before construction works and that petrol and silt interceptors should be used prior and post construction.</p>	Note
<p>DB noted that the ERFB will not accept temporary stream diversions such as pipes. DB noted that because the majority of the scheme is in fill would this mean that stream diversions would need to be accommodated before works.</p>	Note
<p>AC noted that N11-C-03 cannot be realigned if Freshwater Pearl Mussel is present. AC to provide results of survey once complete.</p>	Note
<p>AC noted that Miss Bulger must be contacted about fishing rights on Slaney crossing.</p>	LC
<p>SB noted that a mill is run by Joe Kavanagh runs off the Mill river and needs to be considered. TD to get contact number from Joe Kavanagh to discuss the impact of a stream diversion and culvert on mill.</p>	TD Note
<p>To avoid unnecessary minutes regarding information on fishing potential gathered during the meeting, and the design of culverts, these are summarised as follows:</p> <ul style="list-style-type: none">• The Bracken system has Lamprey and good stocks of Brown Trout (system has water quality issues),• Tinnacross, Corbally and Urinn have Salmon spawning ground.• N11-C-02 river has a spilt flow,• N11-C-03 suspect extension of drainage ditch, likely to have Brown Trout,	

MEETING MINUTES 20.11.08

ITEM	ACTION / NOTES
<ul style="list-style-type: none">• N11-C-05 first crossing of the Tinnacross very good Salmonid system. The closer this stream gets to the Slaney the better it is for Salmon. It is designated as a cSAC in its lower reaches.• N11-C-07 & N11-C-08 small catchment so limited fisheries potential• N11-C-12, N11-C-13 & N11-C-14 Salmonid stream• N11-C-17 close to SAC• N11-C-19 very good Salmonid stream• N11-C-20 Tributary of the Corbally and has small catchment. Possibly has brown trout.• N11-C-21 Corbally important system for spawning salmon and sea trout, brown trout and lamprey. Designated downstream near Slaney with the designation running further upstream than the Tinnacross.• N11-C-22 tributary of the Slaney salmonid• N11-C-23, N11-c-24 and N11-C-25 salmon could be in this stretch of the stream.• N11-C-26 could have Salmon• N11-C-28 & N11-C-29 Salmonid streams• N30-C-02 limited catchment thus limited fisheries value• N30-C-03 Salmonid stream• N30-C-05 good Salmonid stream• N30-C-06 Salmon in the mill pond, could be coming upstream near culvert	
<u>Flora and Fauna</u>	
<p>LS and ED noted that Kingfisher is known to be present along the Slaney and likely to be present along the smaller streams on site such as the Corbally and the Tinnacross. Long culverts will sever the habitat of this Annex II species.</p>	Note
<p>LS noted that Barry Ryan is a good contact to speak to about Kingfisher as a study is currently being conducted on this species.</p>	LC
<p>LS and ED noted that Barn Owl forage and commute along the Slaney. The impact of the proposed Slaney Bridge on this species will need to be addressed in the EIS.</p>	LC
<p>ED noted that Barn Owls around Ferns and probably around Solsborough.</p>	
<p>LS noted that Domenic Berridge is a good contact to speak to about barn owls</p>	Note
<p>AC noted that the EIS should state that both the contractor and the subcontractor should be aware of the constraints, such as setts to avoid any accidents such as sett destruction.</p>	
<p>LS noted that an adjacent sett cannot accommodate for the loss of a main sett, unless it has been bait marked and is known to be occupied by the same family. A precautionary approach should be taken and if it is not known if the adjacent sett is occupied by the same family of badgers then an artificial sett should be installed. LS to check this NPWS recommendation.</p>	Note LS
<p>AC noted that derogation license will only be needed for Annex IV species (Bats and Otters). This needs to be submitted with the EIS.</p>	
<p>ED noted that there is hare in the study area which will be impacted upon by the road.</p>	LC

MEETING MINUTES 20.11.08**ITEM****ACTION /
NOTES**

LS noted that special concern needs to be given to uncommon species of Bats such as Myotis species in relation to the impact of the road.

Note

AC noted that pre-casting the mammal ledges is best to avoid unreliable mammal ledges. TD noted that this would have big cost implications.

LC

LS noted that invasive species are present on the River Slaney

Note

Trevor Duffy
Ryan Hanley WSP Ltd
Sherwood House
Sherwood Avenue
Taylor's Hill
Galway

15 December 2008

Re: Proposed N11 Clogh to Enniscorthy & Enniscorthy By-Pass watercourse crossings.

Dear Mr. Duffy,

With reference to our recent meeting and the subject of culverts on the Gorey to Enniscorthy / Enniscorthy By-pass the Board have reviewed the details of the various crossing points. Bottomless arched culverts are the preferred option for the Eastern Regional Fisheries Board at crossings (N11-C-05, N11-C-10, N11-C-11, N11-C-13, N11-C-14, N11-C-17, N11-C-18 Tinnacross system), (N11-C-21 Corbally System) and (N30-C-06 Pullinstown Stream). The Board request for bottomless arched culverts at these locations relates to the following factors:

- All three systems are important salmonid tributaries of the River Slaney, with good records of salmon spawning from all three.
- The crossings in all cases are exceptionally long and represent a significant loss of spawning habitat.
- The installation of bottomless arched culverts at these locations would lessen the impact upon these sensitive systems. This fact is especially important on the Tinnacross where the road will cross the main channel seven times

With reference to the remaining crossings the following are the findings of the Board:

N11 Gorey to Enniscorthy Section, Preliminary Drainage Design N30 Mainline

Crossing N30-C-01 Salmonid channel

Crossing N30-C-02 Habitat potential for Salmonids, lamprey & eel

Crossing N30-C-03 Habitat potential for Salmonids, lamprey & eel

Crossing N30-C-04 Habitat potential for Salmonids, lamprey & eel

Crossing N30-C-05 Salmonid channel

Crossing N30-C-07 Habitat potential for Salmonids, lamprey & eel

Crossing N30-C-08 Salmonid channel

Crossing N30-C-09 Drainage channel – limited fisheries value

Please note that an old dry & abandoned millrace is marked as a watercourse HT1 running parallel to the Pullinstown Stream, this feature has no fisheries value.

Preliminary Drainage Design N80 Link Road

Crossing N80-C-01 Limited Fisheries Value

Crossing N80-C-02 Limited Fisheries Value

Crossing N80-C-03 Limited Fisheries Value

Crossing N80-C-04 Limited Fisheries Value, transition required

Preliminary Drainage Design N11 Gorey to Enniscorthy

N11-C-02 Salmonid Channel
N11-C-03 Habitat potential for Salmonids, lamprey & eel
N11-C-04 Habitat potential for Salmonids, lamprey & eel
N11-C-07 Limited Fisheries Value
N11-C-08 Habitat potential for Salmonids, lamprey & eel
N11-C-09 Habitat potential for Salmonids, lamprey & eel
N11-C-12 Habitat potential for Salmonids, lamprey & eel
N11-C-16 Limited Fisheries Value
N11-C-19 Salmonid Channel
N11-C-20 Limited Fisheries Value
N11-C-22 Habitat potential for Salmonids, lamprey & eel
N11-C-23 Habitat potential for salmonids, Lamprey & eel
N11-C-24 Salmonid channel
N11-C-25 Habitat potential for Salmonids, lamprey & eel
N11-C-26 Limited Fisheries Value
N11-C-27 Salmonid Channel
N11-C-28 Salmonid Channel
N11-C-29 Habitat potential for Salmonids, lamprey & eel

If you require any further information or clarification please do not hesitate to contact us.

Yours Faithfully,

Pat Doherty
Chief Executive Officer

CULVERT SCHEDULE SHOWING PREVIOUS NUMBERS

Culvert	Chainage (ML Ch.)	Culvert Type	Comments	Previous Number
	m			
N11 - Mainline				
N11-C-EXT	1,440	Pipe	Extend existing culvert	N11-C-EXT
N11-C-01	2,550	Box		N11-C-01
N11-C-02	3,350	Box		N11-C-02
N11-C-03A	6,310	Box		N11-C-03a
N11-C-03B	6,310	Box		N11-C-03b
N11-C-03C	6,310	Box		N11-C-03c
N11-C-04**	9,300	Bottomless		N11-C-05**
N11-C-05	9,350	Box		N11-C-06
N11-C-06	10,250	Box		N11-C-07
N11-C-07	12,320	Box		N11-C-09
N11-C-08**	13,140	Bottomless		N11-C-10**
N11-C-09**	13,350	Bottomless		N11-C-11*
N11-C-10A	14,220	Box		N11-C-12a
N11-C-10B	14,220	Box		N11-C-12b
N11-C-11**	14,700	Bottomless		N11-C-13**
N11-C-12	15,110	Box		N11-C-New1
N11-C-13**	15,520	Bottomless		N11-C-14**
N11-C-14	15,520	Box		N11-C-15
N11-C-15**	16,130	Bottomless		N11-C-17**
N11-C-16**	16,300	Bottomless		N11-C-New2**
N11-C-17**	16,750	Bottomless		N11-C-18**
N11-C-18	18,400	Box	Light ports are included	N11-C-19
N11-C-19	19,540	Box		N11-C-20
N11-C-20**	20,380	Bottomless		N11-C-21**
N11-C-21	21,700	Box		N11-C-22
N11-C-22	22,750	Box		N11-C-23
N11-C-23	23,290	Box		N11-C-24
N11-C-24	24,100	Box		N11-C-25
N11-C-25	25,870	Box		N11-C-26
N11-C-26	26,550	Box		N11-C-27
N11-C-27	26,680	Box		N11-C-28
N11-C-28	27,140	Box		N11-C-29
N80 Link Road				
N80-C-01	1,690	Box		N80-C-01
N80-C-02	3,740	Box		N80-C-02
N80-C-03	3,885	Box		N80-C-03
N80-C-04	4,105	Box	Transition required	N80-C-04
N30 - Mainline				
N30-C-01	530	Box		N30-C-01

Culvert	Chainage (ML Ch.)	Culvert Type	Comments	Previous Number
	m			
N30-C-02	1,450	Box		N30-C-02
N30-C-03	2,150	Box		N30-C-03
N30-C-04	2,550	Box		N30-C-04
N30-C-05	3,290	Box		N30-C-05
N30-C-06**	5,100	Bottomless		N30-C-06**
N30-C-07	6,310	Box		N30-C-07
N30-C-08	6,370	Box		N30-C-08
N30-C-09	7,230	Box		N30-C-09

M11 Gorey to Enniscorthy Scheme

Environmental Impact Statement

Appendix 9.2

Freshwater Pearl Mussel Report

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**A SURVEY FOR THE FRESHWATER PEARL MUSSEL
MARGARITIFERA MARGARITIFERA (L., 1758)
IN THE RIVER SLANEY AND ITS TRIBUTARIES IN THE
VICINITY OF ENNISCORTHY, COUNTY WEXFORD**

DR EVELYN A. MOORKENS

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December 2008

1.0 Background

1.1 The European Union Directive on the Conservation of Natural and Semi-Natural Habitats and of Wild Fauna and Flora (Habitats Directive) lists the freshwater pearl mussel *Margaritifera margaritifera* under Annex II (species whose conservation requires the designation of special conservation areas) and Annex V (species whose taking in the wild and exploitation may be subject to management measures).

1.2 The freshwater pearl mussel has declined throughout its European range. It has been estimated that there has been a decline of more than 90% of individuals in European populations during the 20th Century and whilst large populations still occur, in most countries the mussel has declined dramatically or has become extinct.

1.3 As part of proposals for the upgrading of the national road network in the vicinity of Enniscorthy, County Wexford, a survey of the river and stream systems that could potentially be affected by the construction and operation of the proposed N11 Gorey to Enniscorthy Realignment Scheme (Proposed Scheme) for the pearl mussel *Margaritifera margaritifera* was undertaken.

1.4 The section of the River Slaney at the locations of potential proposed works has not had any prior survey and there was no recent information available as to whether or not mussels were living in the area, although there are old casual records from the Enniscorthy area (Republic of Ireland Molluscan Database), and the species is known to be still living in the Slaney main channel further upstream (2008 survey).

1.5 The River Urrin and the smaller tributaries of the Slaney that are part of this survey have no prior records of pearl mussels.

1.6 The watercourses at the northern end of the Proposed Scheme generally comprise the Tinnacross Stream and its tributaries, which flow into the River Slaney, and the Brackan River and its tributaries, which flow into the Owenavorrigh River. These watercourses were also surveyed.

1.7 This study has been carried out on behalf of Wexford County Council as part of the Environmental Impact Assessment to determine if freshwater pearl mussels are present in the area of any proposed works and what mitigation measures will be necessary to be undertaken to protect any mussels from damage.

2.0 Methodology

2.1 This survey followed NPWS guidelines for the survey of this species (Anon., 2004). There is no standard survey method for finding every pearl mussel in a stretch of river, but the law of diminishing returns operates, where the more effort is put into surveying a small area of mussel habitat, the more mussels will be found (if they are present). Different techniques were applied according to the size of the watercourse surveyed.

2.2 Sections of rivers and streams were surveyed for distances ranging from 50m to 400m depending on the size of the watercourse, at locations in the immediate vicinity of proposed crossing points and at locations downstream.

2.3 For all watercourses apart from the River Slaney, the survey was carried out by two experienced surveyors using standard perspex-bottomed viewing equipment within safe water depths (1.2 metre maximum) and with due regard to health and safety issues. The surveyors worked in parallel approximately 2-3 metres apart, thus allowing the entire river width to be surveyed. For smaller streams, only one surveyor was in the watercourse at any one time.

2.4 Most of the survey work on the River Slaney was carried out by snorkel surveying, supplemented by bathyscope surveys (as described in Section 2.3 above) in the shallower margins.

2.5 Due to the extremely high rainfall in spring and summer 2008, there were very few occasions when the Slaney and its tributaries were either low enough or clear enough to both reliably and safely survey. Therefore, the work was carried out over several separate days mainly between June and the end of August, and for watercourses numbered 5 and 6, in a bright dry period at the end of November, when conditions allowed the work to proceed.

3.0 Results

3.1 Descriptions, photographs and locations of survey sections are shown in Appendix 1.

3.2 Maps showing locations of the sample sections are shown in Figures 1 and 2.

3.3 No mussels were found in the River Slaney or any of its tributaries, or any other watercourses pertaining to the Proposed Scheme.

3.4 Although the catchment drainage in the northern streams is known to be complex, the streams surveyed relevant to the Proposed Scheme in Sites numbered 6.1 to 6.6 were all found to be flowing in a direction that drained to the Brackan River towards the East coast via the Owenavorrhagh River, rather than to the River Bann and thus the Slaney Catchment.

4.0 Discussion

4.1 This survey was much delayed due to flood conditions during the summer months. However, river bed gravels were highly silted in spite of numerous flood water events in the preceding weeks. This was a particularly serious problem in the main channel of the Slaney, but unsatisfactory levels of silt were a feature of all the water courses, large and small. During some periods of lower flows, work could not take place due to the high levels of suspended solids in the water.

4.2 Macrophyte growth was also strong in all sizes of watercourse within the system. In sustainable freshwater pearl mussel rivers, macrophyte growth would be very restricted or absent. Although *Ranunculus* beds form an Annex I habitat in certain mesotrophic rivers, their presence in *Margaritifera* rivers is considered to be a very negative indicator. *Ranunculus* was common throughout the survey, and dense in the main channel of the River Slaney.

4.3 The conclusion can be drawn that either *Margaritifera* is **not** present in the River Slaney in the vicinity of the proposed crossings, or only a very small number of individuals remain, and are obscured by weed. Considering that a lot of weed was lifted during the survey to search for mussels, and no evidence of living animals or shell traces were found, it is clear that a significant or sustainable population is **not** present within the study area. The levels of silt and nutrients in the river (as demonstrated by luxuriant weed growth) would be enough to preclude a sustainable population from being present.

4.4 The conclusion can be drawn that *Margaritifera* is **not** present in significant numbers or at all in any of the Slaney or Brackan tributaries surveyed. While the occasional remnant mussel cannot be ruled out, the lack of evidence of even shell fragments and the conditions of the habitats are such that the pearl mussel can be dismissed as an issue in any impact assessment of the tributaries.

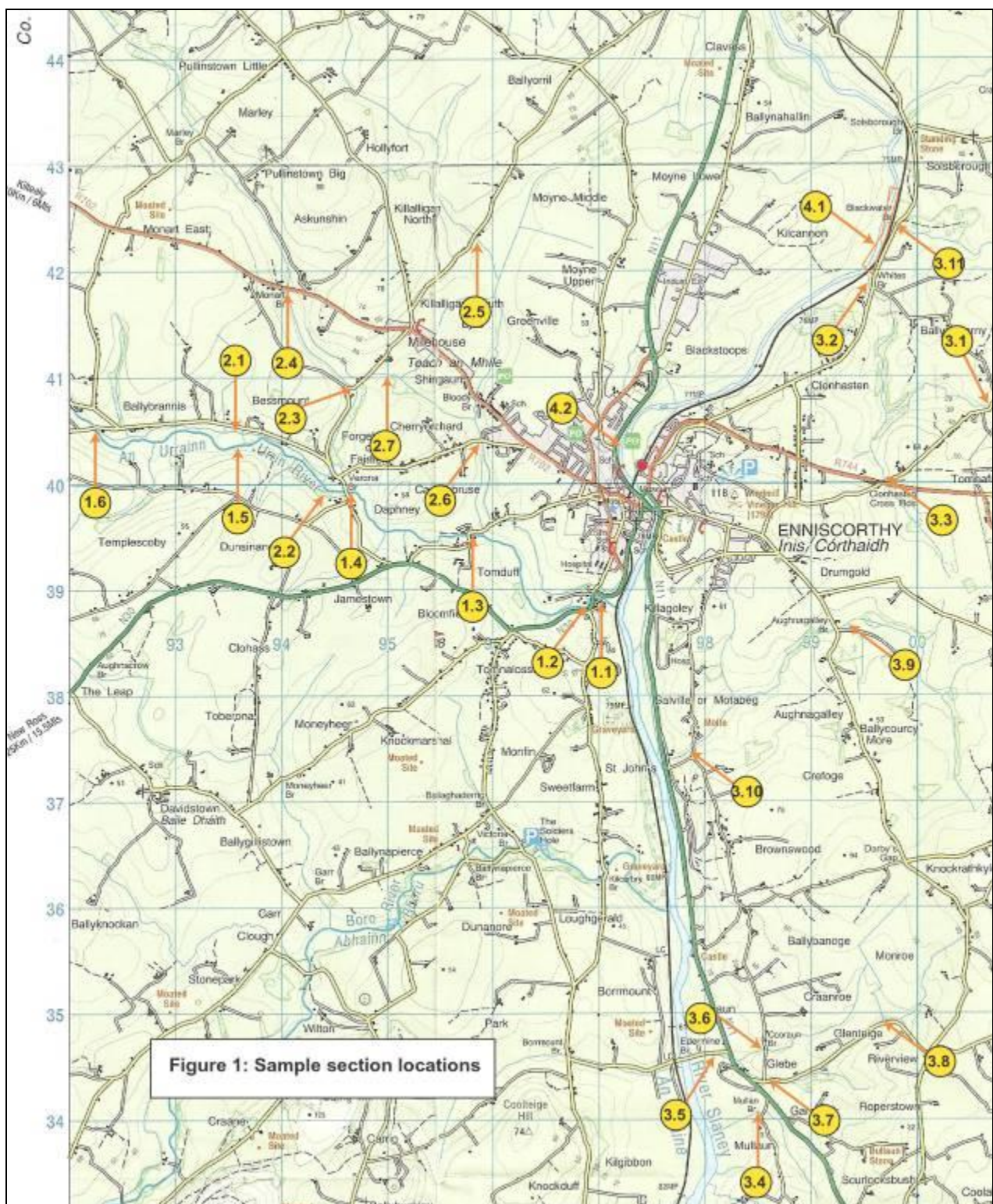
4.5 The level of intensive agriculture and stream modification present in all of the small streams surveyed and the level of silt and macrophytes present in these streams during the survey is evidence that even where primary habitat may be suitable for the species, the status of that habitat is not compatible with a sustainable pearl mussel population.

4.6 Good practice in prevention of siltation is recommended during the construction of the Proposed Scheme. As the river system is suffering from considerable silt input already, it is important that it is not exacerbated by further damage. Standard good practice methodology should determine that any silt entering the river is not significant.

4.7 As part of the NPWS licence for this work (Licence Number C27/2008), a full set of returns will be made to the Department of the Environment, Heritage and Local Government, as per the conditions of the licence.

5.0 Reference

Anon., (2004). *Margaritifera margaritifera* "Stage 1 and Stage 2 survey guidelines". *Irish Wildlife Manuals* No. 12. National Parks and Wildlife Service, Department of Environment, Heritage, and Local Government. Series Editor: F. Marnell.



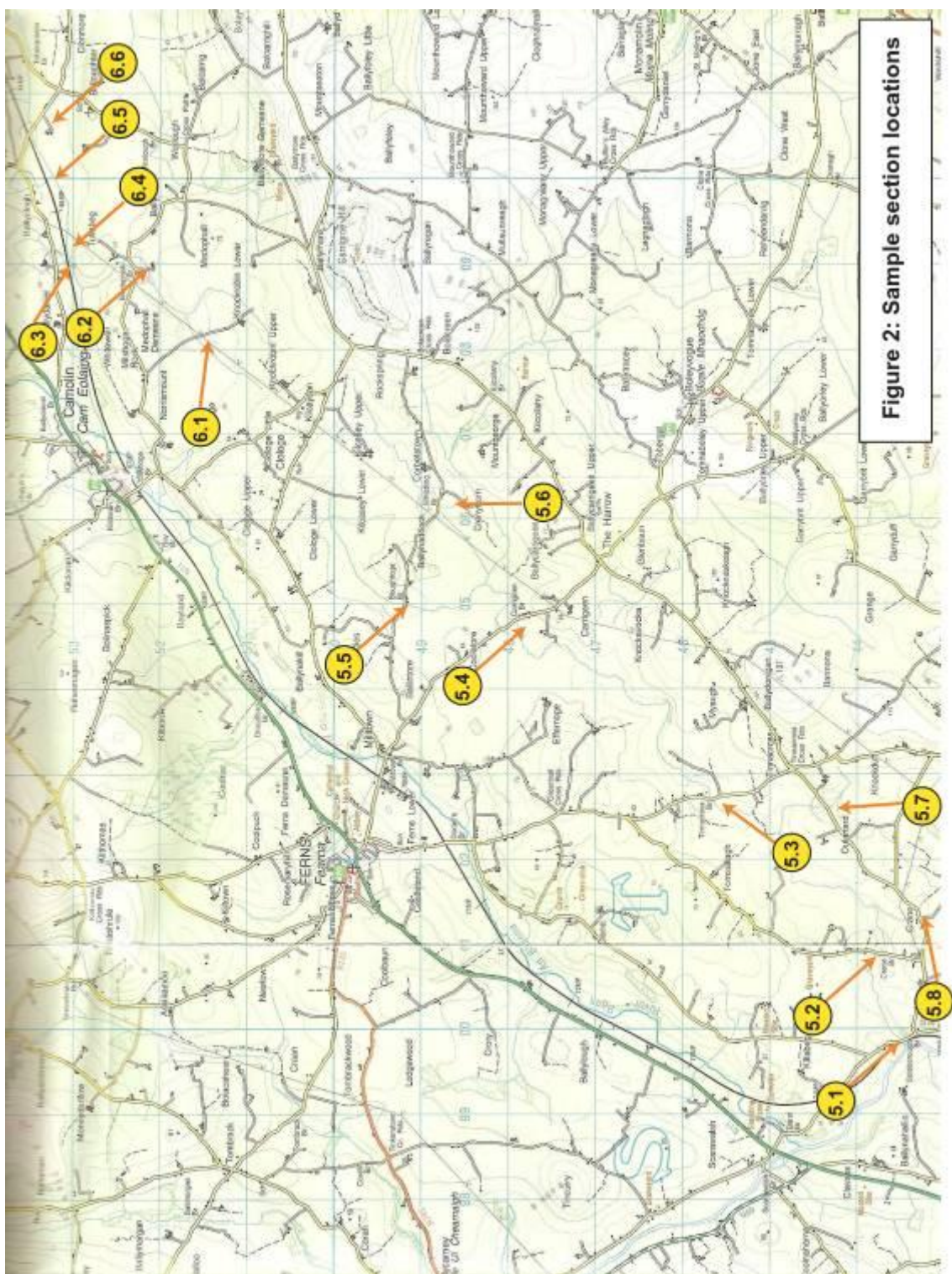


Figure 2: Sample section locations

APPENDIX 1: SURVEY SECTIONS AND DESCRIPTIONS

1 River Urrin

Site	Location	Description
1.1	N30 Roadbridge at Enniscorthy at S9692 3989. Survey for ~100m downstream of bridge	Generally deep (0.6-1.3m), with gravel and sand bed and some <i>Ranunculus</i> growth. Substrate clean but probably scoured. Urban habitat with lots of rubbish, rubble and rock armouring to banks.
1.2	N30 Roadbridge at Enniscorthy at S9692 3989. Survey for ~200m upstream of bridge	Better habitat with mosaic of riffles and patches of stable <i>Fontinalis</i> covered cobble amongst areas of mobile sand. Bank slumping in places. High floodline, lots of refuse (trolleys, cans, mattresses) around bridge.
1.3	Bridge at S95841 39497. Survey for ~150m downstream of bridge	Mostly swift-flowing high energy, riffles with scoured coarse cobble and gravel in U-shaped bed. Lots of <i>Ranunculus</i> . Canalised section? Adjacent area very disturbed with old demolished buildings, recently levelled. Hardcore and rubbish on banks and in river. Upstream the river is adjacent to a garden and has luxuriant growths of <i>Ranunculus</i> .
1.4	Verona Bridge at S9464 3991. Survey for ~150m downstream to ~50m upstream of bridge	Shallow riffles and glides with silted gravel bed and extensive <i>Ranunculus</i> in places – much of bed scoured. Some short riffle runs along the north bank with potentially suitable mussel habitat. Cattle access in places.
1.5	Urrin at S9354 4033. Survey for ~200m	Relatively straight channel, 0.3-0.4m deep. Swift flowing over bed of range from sand to coarse cobble. Some <i>Fontinalis</i> and <i>Ranunculus</i> . Too scoured for mussels. Intensive tillage adjacent to river on north bank, wooded hillside on south bank.
1.6	Bridge at S9229 4057. Survey for ~50m	Ponded and coloured with intensive cattle grazing along both banks. Some coarse gravels and cobble with <i>Ranunculus</i> in open places.

2 River Urrin and Slaney tributaries west of River Slaney

Site	Location	Description
2.1	Bessmount Stream at S93556 40499	Less than 1.5m wide x maximum of 30cm deep. Swift flowing with gravel and pebble bed. Dense <i>Apium</i> and <i>Mentha</i> in places. Intensive tillage adjacent to stream
2.2	Templescoby Stream upstream of Verona Bridge S9429 3988. Survey for ~75m	Very small stream, heavily shaded by scrub. Silted pebble & gravel substrate.
2.3	Monart Stream at bridge at S94727 40932. Survey for ~50m	Stream c. 3m wide with scoured cobble, pebble, gravel substrate and abundant <i>Ranunculus</i> .
2.4	Monart Stream at Monart Bridge at S9409 4183. Survey for ~50m	Similar to above
2.5	Holyfort Stream at S95815 42342. Survey for ~100m	Swift flowing, shallow stream with cobble and gravel substrate over sand. Tree-lined throughout, canalised and culverted in places. Intensive tillage adjacent to stream
2.6	Holyfort Stream at bridge at S95866 40409. Survey for ~100m	Swift flowing, shallow stream with highly scoured cobble and gravel substrate, unsuitable mussel habitat.
2.7	Ditch at S9492 4104. Survey for ~50m	Tree lined ditch with very little water

3 Slaney tributaries east of River Slaney

Site	Location	Description
3.1	Corbally Stream at T00718 40755. Survey for ~75m	Swift-flowing shallow stream with scoured substrate. Unsuitable mussel habitat.
3.2	Corbally Stream from White's Bridge S9950 4177 to confluence with Slaney. Survey for ~250m	Generally slow-flowing river with sandy bed – highly silted. Dense <i>Ranunculus</i> in places.
3.3	Corbally Stream tributary near Clonnasten crossroads at S99722 40023. Survey for ~75m	Very shallow stream with tunnelled banks in places. Pebble and gravel substrate. Receives lots of road run-off in wet weather. Unsuitable for mussels.
3.4	Scurlocksbush River at Mullan Bridge S98580 34069. Survey for ~100m	High energy stream, shallow with scoured substrate of compacted gravels. Wooded banks upstream of bridge, eroding in places. Unsuitable for mussels.
3.5	Monroe Stream at S98118 34627 near Edermine Bridge. Survey for ~100m	Sandy gravel substrate, moderate to slow-flowing. Wooded and herb lined banks – eroding in places. Patches of potentially suitable mussel habitat.
3.6	Monroe Stream north limb at Cooraun Bridge S98574 54651. Survey for ~75m.	Scoured stream with large cobble and compacted gravel substrate (much of it is lamellar), wooded upstream of bridge, adjacent to garden downstream of bridge with eroding banks. Unsuitable mussel habitat.
3.7	Monroe Stream south limb at bridge S98556 34412. Survey for ~50m.	Highly scoured, with range of substrates but mostly coarse cobble and boulders. Steep sided and tunnelled in places. River with rock armouring near bridge and has also been diverted. Unsuitable for mussels.
3.8	Monroe Stream south limb at S99714 34943. Survey for ~75m.	Swift flowing, narrow stream with steep gradient alongside pasture and cereal fields. Scoured coarse cobble and shingle substrate. Unsuitable for mussels.
3.9	Drumgold Stream at Aughnagalley Bridge at S99240 38617. Survey for ~150m	Range of habitats from heavily shaded tumbling sections with boulder and coarse cobble substrate to shallower gradient with gravels substrate in more open habitat.
3.10	Drumgold Stream at bridge at S97894 37514. Survey for ~75m	Very shallow, swift flowing stream with compacted gravel and cobble substrate. Unsuitable for mussels.
3.11	Ballydawmore Stream from Blackwater Bridge to Slaney confluence. S9977 4241. Survey for ~150m	Narrow stream flowing through relatively dense woodland or areas of tall herbs on Slaney floodplain. Mostly heavily silted sand and gravel substrate. Unsuitable for mussels.

4 River Slaney

Site	Location	Description
4.1	At potential road crossing point at S99734 42506. Survey for ~100m upstream to ~400m near confluence with Corbally Stream.	Generally swift-flowing and >1m deep. Substrate mostly sand, gravel and cobble, heavily silted in places and relatively compacted. Much of substrate is obscured by a dense covering of <i>Ranunculus</i> . Suitable habitat is present in several places along the tree covered margins.
4.2	Upstream of Enniscorthy S9732 4036. Survey for ~100m	Deep, slow-flowing to ponded. Substrate highly silted and with extensive covering of <i>Ranunculus</i> in places.

5 Tinnacross Stream

Site	Location	Description
5.1	Solsborough Bridge at S99846 43535. Survey for ~100m upstream of bridge	Shaded section, relatively shallow (mostly <0.3m), swift-flowing, and occasional <i>Ranunculus</i> growth. Substrate mostly cobble and pebble, relatively scoured.
5.2	Crane Bridge at T00862 43714. Survey for ~50m upstream and 50m downstream of bridge	Mostly very shallow (<20cm), swift-flowing, compacted substrate with sand, cobble and bedrock. Veneer of silt over most of bed plus accumulations of silt and detritus in quieter margins.
5.3	Tinnacross Bridge at T02708 45675. Survey for ~50m downstream and 100m upstream of bridge.	Shallow (<25cm), mixed sand, gravel and cobble substrate, swift flowing with luxuriant growths of <i>Ranunculus</i> . Cattle have access to river, pipes come in near bridge, new housing by river, highly agricultural.
5.4	Carrigeen Bridge at T04817 47937. Survey for ~100m downstream and 100m upstream of bridge.	Moderate to slow flow, substrate of cobble, boulders and gravel, all highly silted, with luxuriant growths of <i>Ranunculus</i> . Adjacent to cereal fields, ditch enters river on downstream side of bridge.
5.5	Boughtoge Bridge at T04990 49192. Surveyed for ~100m downstream and 20m upstream of bridge.	Narrow stream, upstream of bridge it is narrow, fast flowing and tunnelled through scrub. Downstream it has been severely impacted by bank works and ditching (see photos 9 & 10)
5.6	Whistling Bridge at T06222 48834	Narrow stream, overgrown in places with scrub. Swift flow with scoured substrate.
5.7	Oulartard tributary at T02591 44332	Very narrow stream, steep incline, tumbling, coarse substrate - unsuitable
5.8	Crane tributary at T01360 43295	Very narrow stream, steep incline, tumbling, coarse substrate - unsuitable







6 Brackan River and tributaries









Site	Location	Description
6.1	Track to Knockrobin Lower at T08146 51606. Survey for ~30m downstream and 30m upstream of bridge.	Very narrow, very shallow, swift-flowing stream, possibly doesn't flow in summer, coarse sand, gravel and cobble substrate, scoured. Flows northwards
6.2	Medophall Bridge at T08908 52271. Surveyed for ~100m downstream and 30m upstream of bridge.	Very narrow, swift-flowing stream coarse angular substrate, scoured and with filamentous algae. Flows northwards
6.3	Culverted stream at T09038 53221	Upstream of the culvert the stream is tiny, tumbling and running through bramble and scrub. Downstream of the bridge the stream is very small and has been severely impacted by building works from new housing. Flows south.
6.4	Culverted stream at T09176 53238	Steep upstream of road and has been 'ornamented'. Downstream the stream has been impacted by bank works and possible channel realignment. Lots of new housing in the vicinity. Flows south.
6.5	Stream at T09914 53467	Upstream of the culvert the stream is tiny, tumbling and running through bramble and scrub. Downstream of the bridge the stream is very small, muddy and with water cress. Flows south.
6.6	Stream south of railway at T10565 53488	Moderate sized stream, very shallow (<25cm) with moderate to swift flow, cobble and gravel substrate and some <i>Ranunculus</i> . Flows East.

Photographs of selected sites

	
Photo 1: Site 1.1 River Urrin downstream of N30 roadbridge at Enniscorthy	Photo 2: Site 1.2 River Urrin upstream of N30 roadbridge at Enniscorthy
	
Photo 3: Site 1.3 River Urrin downstream of bridge	Photo 4: Site 1.3 River Urrin upstream of bridge
	
Photo 5: Site 1.4 River Urrin downstream of bridge	Photo 6: Site 1.4 River Urrin upstream of bridge
	
Photo 7: Site 1.5 River Urrin	Photo 8: Site 1.6 River Urrin

	
<p>Photo 9: Site 2.1 Bessmount Stream</p>	<p>Photo 10: Site 2.3 Monart Stream</p>
	
<p>Photo 11: Site 2.5 Holyfort Stream</p>	<p>Photo 12: Site 3.2 Corbally Stream near Slaney confluence</p>
	
<p>Photo 13: Site 3.6 Monroe Stream north limb at Cooraun Bridge</p>	<p>Photo 14: Site 3.8 Monroe Stream south limb</p>

	
<p>Photo 15: Site 3.9 Drumgold Stream upstream of Aughnagalley Bridge</p>	<p>Photo 16: Site 3.11 Ballydawmore Stream near Slaney confluence</p>
	
<p>Photo 17: Site 4.1 Slaney near proposed crossing point</p>	<p>Photo 18: Site 4.1 Slaney downstream of proposed crossing point</p>
	
<p>Photo 19: Site 4.1 Slaney downstream of proposed crossing point</p>	<p>Photo 20: Site 4.2 Slaney north of Enniscorthy</p>

	
Photo 21: Site 5.1 upstream of Solsborough Bridge	Photo 22: Site 5.1 upstream of Solsborough Br detail
	
Photo 23: Site 5.2 downstream of Crane Bridge	Photo 24: Site 5.2 upstream of Crane Bridge
	
Photo 25: Site 5.3 upstream of Tinnacross Bridge	Photo 26: Site 5.3 downstream of Tinnacross Bridge
	
Photo 27: Site 5.4 upstream of Carrigeen Bridge	Photo 28: Site 5.4 downstream of Carrigeen Bridge









	
<p>Photo 29: Site 5.5 downstream of Boughtoge Bridge</p>	<p>Photo 30: Site 5.5 ditch entering downstream of Boughtoge Bridge</p>
	
<p>Photo 31: Site 5.7 small tributary downstream of roadbridge</p>	<p>Photo 32: Site 5.7 small tributary upstream of roadbridge</p>
	
<p>Photo 33: Site 6.1 Knockrobin Lower, upstream of crossing</p>	<p>Photo 34: Site 6.1 Knockrobin Lower, downstream of crossing</p>
	
<p>Photo 35: Site 6.2 upstream of Medophall Bridge</p>	<p>Photo 36: Site 6.2 downstream of Medophall Bridge</p>

	
Photo 37: Site 6.3 downstream of roadbridge	Photo 38: Site 6.3 upstream of roadbridge
	
Photo 39: Site 6.4 upstream of roadbridge	Photo 40: Site 6.4 downstream of roadbridge
	
Photo 41: Site 6.5 upstream of roadbridge	Photo 42: Site 6.5 downstream of roadbridge
	
Photo 43: Site 6.6 downstream of roadbridge	Photo 44: Site 6.6 downstream of roadbridge

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Appendix 9.3

Photographs of Habitats

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Eroding / Upland River (FW1)



Depositing / Lowland River (FW2)



Floating River Vegetation



Indian Balsam along the banks of the River Slaney



Improved Agricultural Grassland (GA1)



Wet Grassland (GA3)



Arable Crops (BC1)



Photograph 11: Tilled Land (BC3)



Mixed Broadleaved Woodland (WD1)



Mixed Broadleaved Woodland (WD1)



Mixed Broadleaved / Conifer Woodland (WD2)



Conifer Plantation (WD4)



Wet Woodland (WN4)



: Riparian Woodland (WN5)



Scrub (WS1)



Hedgerows (WL1)



Treelines (WL2)



Re-colonising Bare Ground (ED3)



An example of Buildings suitable for roosting / breeding bats



An example of Buildings suitable for roosting / breeding bats



An example of a Bridge suitable for roosting / breeding bats



Badger Sett entrance



Badger Footprint



Otter Footprint



Otter Spraint



Cardinal Beetle

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Appendix 9.4

Full list of Badger setts within 250m of the Proposed Scheme

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Badger setts within 250m of the Proposed Scheme

Badger Sett (BS) No.*	GPS IS ITM	Chainage	Distance from road	Description	Sett type
N11 Mainline					
1	10855 54022	1200	90	One entrance. No spoil heap and no signs of activity (0,1,0) Did not find in 2009	Outlying
2	11365 34647	1500	226	Collapsed sett. No entrances. Did not find in 2009	n/a
112	10778 54704	1900	0	Two active entrances, possibly rabbit. (2,0,0)	Outlying
3	10828 54556	1920	0	Single entrance overgrown with brambles. No recent signs of activity. (0,1,0).	Outlying
4	10627 54381	2230	0	Several entrances within 30m, with many large spoil heaps. Very active, but no signs of bedding. Feeding signs nearby (6,2,1)	Main Sett
114	10565 54390	2280	110	Two entrances with large clear spoil heaps. In thick undergrowth with badger-sized entrance paths (2,0,0)	Subsidiary
115	10545 54406	2275	180	Single active entrance, possibly rabbit. (1,0,0)	Outlying
116	10893 54021	2350	230	Single entrance on top of mound. Entrance currently full of leaves but may have been used in last year (1,0,0)	Outlying
6	10129 54098	2610	351	Four entrance sett in scrub. Holes and spoil heaps quite small, but at least two entrances are badger sized. Looked active at time of survey. Trampled by cattle. (2,2,0).	Outlying
117	10569 53914	2660	85	Single large entrance, partially collapsed, but inhabitable, possibly rabbit. (0,1,0)	Outlying
118	10816 53776	2670	330	Single large entrance, active, , possibly rabbit. (1,0,0)	Outlying
119	10081 53840	2990	300	Single entrance along hedgebank, active, possibly rabbit. (1,0,0)	Outlying
8	10013 52955	3800	115	Possible badger sett, single entrance with no sign of recent activity (0,1,0). Not located during 2009 survey.	Possible outlying
9	09867 52416	4300	0	Possible badger sett. No sign of recent activity (0,1,0)	Possible outlying

Badger Sett (BS) No.*	GPS IS ITM	Chainage	Distance from road	Description	Sett type
					sett
10	09260 51741	5250	7	Six entrances. Ground cover dense. No evidence of recent activity (0,6,0)	Outlying
146	08582 50513	6790	56 CPO	Single entrance, Currently occupied by rabbits (1,0,0)	Outlying
11	08189 50619	6800	179	Single entrance. No sign of recent activity (0,1,0). Snuffle pits, latrine and mammal path found nearby	Outlying
145	08182 50598	6850	190	Active badger sett with 2 entrances, Recent activity (2,0,0)	Outlying
147	07760 49685	7820	0	Inactive sett with at least 5 badger-sized entrances in dense bramble. Some recent signs of activity but only at one entrance, but possibly caused by rabbit. Badger hairs in one entrance. (1,5,2)	Subsidiary
120	07836 49501	7890	67	2 large entrances beside rabbit holes. Rabbit holes may have been taken over by badgers or vice-versa (2,2,0)	Outlying
148	None	7820	240	Single large entrance may support badgers (1,0,0)	Outlying
121	07815 49432	7940	130	Freshly dug, large entrance with medium spoil heap. Possibly fox (1,0,0)	Outlying
12	07535 49556	8000	59	Three entrances badger-sized. No signs of recent activity. (0,3,0)	Outlying
134	07626 49519	8100	0	1 large entrance and spoil heap. Badger hair found at entrance. (1,0,0)	Outlying
135	07764 49420	8100	115	2 large entrances with fresh spoil (2,0,0)	Outlying
149	None	8190	145	Single entrance, possibly rabbit (1,0,0)	Outlying
122	07573 48989	8490	165	Two old entrances which appear inactive, possibly rabbit. Spoil heaps covered with moss (0,2,0)	Outlying
123	07544 48971	8570	120	Single entrance with large tunnels, possibly rabbit. Some recent digging but otherwise appears inactive (1,0,0)	Outlying
136	07180 48917	8800	32	4 inactive entrances, now partially infilled (0,0,4)	Status undetermined
137	06951	9100	6	2 entrances with fresh spoil.	Outlying

Badger Sett (BS) No.*	GPS IS ITM	Chainage	Distance from road	Description	Sett type
	48735			Located in gorse. Musty smell from sett (2,0,0)	
13	06887 48649	9200	0	5 entrances, 1 active. Latrine found nearby (1,4,0)	Subsidiary sett
14	06868 48643	9200	0	11 entrances. All Inactive, with two large spoil heaps. Feeding signs and prints near sett (0,11,0).	Inactive main sett
15	06945 48604	9200	0	11 entrances. 6 active and 5 inactive entrances. Large spoil heap with fresh excavated soil, Bedding found on spoil heap. (6, 5, 0)	Main sett
16	07069 48526	9120	126	6 entrances with paths connecting to BS15,14,13 Feeding signs around sett. Appeared active in 2009. (5,2,0).	Annexe sett
17	06945 48604	9180	77	1 entrance inactive, fern growing over entrance. (0,1,0). Not found in 2009, but may have been overlooked	Subsidiary sett
124	07004 48555	9190	110	2 inactive entrances on mound beside river bank. Appears linked to larger setts (2,0,0).	Subsidiary
18	a 06881 48598 b 06908 48600	9200	0	6 entrances, 1 active. Beside stream (1,5,0). 5 entrances with soil and ivy cover.	Annexe
150	None	9330	0	Single entrance sett (1,0,0)	Outlying
19	No GPS	9750	117	Probably rabbit burrow but entrance is quite large. Not found 2009	Outlying
125	05961 47967	10380	57	Several active entrances. Small spoil heaps, possibly rabbit. (4,0,0)	Outlying
22	05960 47863	10400	26	Unlikely sett. One entrance. No spoil heap. No sign of activity (0,1,0). Not found in 2009 survey.	Outlying
159	05960 47963	10500	80	Unlikely sett. One entrance. No spoil heap. No sign of activity (0,1,0). Not found in 2009 survey.	Outlying
158	05637 47450 (GPS Ref taken 15m NW of sett in wheat field)	11080	145	1 old inactive entrance with large spoil heap. (0,1,0)	Outlying
126	05448	11300	150	Single freshly dug entrance, both	Outlying

Badger Sett (BS) No.*	GPS IS ITM	Chainage	Distance from road	Description	Sett type
	47230			badger and rabbit hair in spoil, several badger droppings on spoil. Probably a rabbit hole, but partially dug out by a badger (1,0,0)	
23	No GPS	11600	35	Single entrance. No signs of recent activity (0,1,0)	Outlying sett
151	None	11430	0	Single entrance large enough to fit a badger, possibly rabbit (1,0,0)	Outlying
152	04098 46926	12560	183	Active main sett with lots of fresh activity including fresh and old bedding, prints, snuffle holes and paths. Also evidence of badgers in wider area (5,0,0)	Main sett
153	04278 46681	12580	4	Single entrance, inactive. Possibly rabbit (0,1,0)	Outlying
154	04092 46800	12620	47	3 large holes found in hedge-bank, linked by established path to latrine. Currently occupied by rabbits (2,1,0)	Outlying
127	03849 46281	13150	8	Single entrance with small, but Badger sized, hole and spoil. Badger droppings at bottom of spoil, and feeding signs nearby (1,0,0)	Outlying
128	03868 46194	13200	95	Large inactive sett with large spoil heaps. Now overgrown. One entrance active but appears to be colonised by rabbits (1,5,1)	Former main sett
129	03816 46138	13250	127	2 entrances, not recently active but may have been in past year. Large spoil heaps. Dead rat found in one entrance. (2,0,0)	Subsidiary
130	03786 46120	13270	91	2 entrances, currently inactive. Possibly rabbit (0,2,0)	Subsidiary
24	03626 46173	13400	0	One entrance. No fresh spoil heap. No signs of recent activity (0,1,0).	Outlying sett
25	03644 46142	13400	0	Five entrance possible sett. No signs of recent activity. Looks unoccupied (0,5,0)	Inactive main sett
26	03697 46131 (furthest west point). Detailed GPS	13400	0	Large sett complex incorporating up to 30 entrances over 100m. Appears to include one active main, one inactive main and three annexe setts (of 2-3 entrances). All joined by a long path. As all are within 30m of	Active main sett

Badger Sett (BS) No.*	GPS IS ITM	Chainage	Distance from road	Description	Sett type
	coverage available			each other they are considered as one large complex. Bedding around several entrances. (20,10,0)	
27	03372 45595	13900	268	Three entrances. Path associated with sett has dead rook and fox scat. Active path and entrances, fresh latrine nearby (3,0,0).	Outlying sett
28	03390 45593	13900	262	One entrance on top of steep bank. No spoil heap. No signs of recent activity (0,1,0). Found in 2009	Outlying sett
131	03405 45561	13980	295	Single entrance with very large spoil heap. Looks inactive, currently quite overgrown (0,1,0)	Outlying
29	02415 45320	14800	15	Possible sett. One entrance with many smaller entrances used by rabbit. No signs of recent activity. Currently occupied by rabbits (0,1,0)	Possible outlying sett
30	002246 44744	15500	92	One entrance with large spoil heap and bedding (1,0,0). Not found 2009	Status unclear
138	02045 44631	15650	0	One entrance on raised bank, possibly rabbit (1,0,0)	Outlying
139	01111 43760	16850	135	In woods. Small spoil heaps. Currently occupied by rabbits (2,1,0)	Outlying
31	01170 43692 (nearest GPS reading taken at eastern edge of woodland)	16900	0	Possible sett. Two inactive entrances blocked with leaves and many smaller entrances. No sign of recent activity. Currently occupied by rabbits (2,0,0)	Possible outlying sett
140	01122 43663	16930	67	Large sett with fresh spoil. Bedding present (4,2,0)	Main sett
141	01107 43653	16940	193	2 entrances among tree roots (1,1,0)	Outlying
34	01074 42738	17800	0	Located within the drainage ditch. Entrance within the root of a felled tree. No signs of recent activity (0,1,0). Not found 2009	Outlying
132	01040 42630	17900	18	At least 7 active entrances found among ruins of old outbuildings – one entrance within the footprint of the building. One very large,	Main sett

Badger Sett (BS) No.*	GPS IS ITM	Chainage	Distance from road	Description	Sett type
				fresh spoil heap on roadside. (6,1,0)	
36	00943 41409	19000	258	Inactive, small entrance, no spoil heap. Possibly rabbit (0,1,0)	Outlying
155	01099 41596	19090	187	Active 4 entrance sett located on steep bank covered by dense vegetation. Fresh bedding found, and lots of badger signs in adjacent fields. (4,0,0)	Main sett
37	00969 41425	19300	282	Fresh spoil, feeding signs, fresh bedding. Located on steep slope, with lots of activity near sett. Large spoil heaps. Old and fresh bedding found (9,0,0)	Main sett
38	01614 40732	19800	303	One large entrance with large sandy spoil heap. Tunnel goes left and right so could be rabbit. Left tunnel looks D shaped (0,1,0)	Outlying
133	01095 40822	20030	73	Three entrances, two inactive. Badger print on one fresh spoil heap, but possibly rabbit. No bedding. (2,1,0)	Outlying
39	00878 40344	20500	53	Two entrances in hedgerow (1,1,0)	Outlying
40	No GPS	20900	180	In woodland (3,2,0).	Main sett
41	99986 39615	21650	64	a (4,1,0) on bank b (6,7,0) by stream in woodland c (3,1,0) east of b	a Subsidiary b Main sett c Subsidiary
42	00079 39400	21900	26	On bank of drainage ditch (1,0,0)	Outlying
43	99627 38754	22450	318	Tracks and feeding signs nearby (3,1,0)	Main sett
44	99871 36641	22550	196	(2,0,0) edge of conifer plantation	Outlying
45	99842 38647	22550	184	a (3,0,0) Entrances from field and plantation woodland. May be more but can't access b (2,0,0) In plantation, can't access	a Main sett b Subsidiary sett
46	99920 38610	22550	145	(0,1,0) Covered by bracken	Subsidiary sett
47	99899 38613	22550	192	(2,0,0) Fresh spoil heap	Subsidiary sett
48	00488	23100	280	(4,0,0) large spoil heap, Lots of	Main sett

Badger Sett (BS) No.*	GPS IS ITM	Chainage	Distance from road	Description	Sett type
	38242			feeding signs	
49	00325 38035	23250	32	(3,0,0) Holes quite small, could be rabbit	Main sett
50	00503 37172	24150	210	(1,0,0) In hedgerow, very visible	Outlying sett
51	00169 37080	24200	69	(0,1,0)	Annexed sett
52	00061 37079	24220	240	(1,1,1) In bank	Subsidiary sett
53	00061 37079	24220	200	(4,4,2) Holes very large, In Woods, feeding signs	Main sett
54	00042 36982	24300	223	(0,1,0)	Annexed sett
55	00130 36846	24400	136	(1,0,0) Badger hair	Annexed sett
56	00164 36804	24600	39	(1,1,0)	Annexed sett
57	00190 36747	24500	0	(4,2,0) In hedgerow behind gorse. Fresh spoil heap. Feeding signs	Main sett
58	00270 36679	24600	12	(2,0,0) Located on bank near corner of field. Feeding signs	Annexed sett
59	99793 35612	25800	0	(2,4,0) Large holes, no spoil heap	Outlying sett
60	99493 35438	26000	303	(2,0,0) Holes quite small, badger prints	Outlying sett
61	99286 35380	26000	363	(1,0,0) Very large hole	Outlying sett
62	99806 35319	26150	155	(1,0,0) In hedge under gorse bush. Prints leading into entrance	Outlying sett
63	99726 35273	26200	46	a (0,2,0) b (0,1,0)	Outlying setts
64	99370 34613	26820	86	(0,1,0) Could be fox den, dead fox found nearby	Outlying sett
65	99292 34367	27100	293	(2,1,0) Fresh spoil heap	Outlying sett
66	99387 33867	27600	0	Possible badger. One small hole in bank of hedgerow (0,1,0)	Outlying sett
67	99470 33610	27800	46	Possible badger/ fox. In earth mound surrounded by grass & scrub in grounds of house. Digging marks in area. Badger trails nearby (0,1,0).	Outlying sett
68	99392 33547	27900	20	Possible badger in dense hedgerow near corner. Latrine and badger near trails (0,1,0)	Outlying sett
69	99307 33255	28000	39	Beside tin hay shed. Latrine at entrance. Fresh spoil heap.	Outlying sett

Badger Sett (BS) No.*	GPS IS ITM	Chainage	Distance from road	Description	Sett type
				Feeding signs, hair snags, (2,1,0)	
70	99307 33255	28,000	17	Possible badger. On bank of ditch four small holes. Trail leading past it, hair snags on fence (0,4,0)	Outlying sett
N80 Link Road					
142	98533 44471	0080	68	Probable rabbit warren but one very large badger-sized entrance (1,0,0)	Outlying
143	98687 43837	0700	26	4 entrances, 1 in field and others in woodland. Badger print in one of the entrances (4,0,0)	Outlying
105	No grid ref.	1100	23	One entrance. No recent activity (0,1,0)	Outlying
106	98620 43296	1300	65	One entrance. Evidence of activity. (1,0,0). Not found 2009	Outlying
144	99216 42819	1910	130	Entrances on both sides of bank. Bedding present (2,0,0)	Outlying
109	99475 42492	2200	230	Six entrance main sett. Large spoil heap with bedding. Recent badger activity. (6,0,0)	Main sett
110	99393 42290	2500	46	One entrance, ivy over entrance with tree root blocking entrance. No signs of recent activity. Not found 2009	Outlying sett
156	99847 42002	3000	59	Large mammal hole, may be fox or badger but was not possible to determine (1,0,0)	Outlying
111	99955 42420	3200	414	Two active entrances found in woodland (2,0,0)	Outlying sett
157	00075 42335	3340	370	4 entrance sett. No signs of activity, but fresh mammal paths found nearby (0,4,0)	Former Main
N30 Mainline					
71	97601 43720	900	31	(1,0,0) Small hole with a spoil heap	Outlying sett
72	No GPS	920	43	(1,0,0) Small burrow most likely fox	Outlying sett
73	96981 43249	1600	7	(1,0,0) One large active hole on bank between stream and drainage ditch, could be fox den, fox scat found within 5m	Outlying sett
74	No GPS	1700	184	(1,1,0)	Outlying sett
75	96894 43180	1800	0	(0,3,0) Inactive, located on bank between ditch and stream. Badger latrine found nearby	Outlying sett
76	No GPS	1900	294	(2,1,0) Fresh spoil heap	Outlying sett

Badger Sett (BS) No.*	GPS IS ITM	Chainage	Distance from road	Description	Sett type
77	95582 42484	3350	21	(9,0,0) Fresh latrines and bedding.	Main sett
78	95467 42597	3400	186	Seven entrances, four active. Fresh latrine (4, 3,0)	Annexed sett
79	95474 42577	3400	153	Entrances being used by rabbits (0,5,0).	Annexed sett
80	95559 42624	3400	140	Two tunnels visible. Attempts to excavate by human (0,2,0)	Annexed sett
81	94891 42149	4100	3	Probable fox earth in gorse hedge (0,1,0)	Outlying sett
82	94821 42062	4250	0	One hole	Outlying sett
83	94842 41958	4300	147	In raised earth bank. Entrance in gorse and bank	Outlying sett
84	94781 42017	4350	36	Lots of rabbit droppings	Outlying sett
85	94213 41290	4700	328	(3,0,0) Fresh spoil heap, feeding signs	Outlying sett
86	94245 41465	5100	63	Inactive main sett, big spoil heap. (0,7,3)	Annexe
87	94255 41423	5100	102	Single entrance with small spoil heap (1,0,0).	Outlying sett
88	94108 41536	5100	0	Eight entrances with feeding signs (6,3,0)	Main sett
89	93922 40788	5800	305	Former sett, now used by rabbits with small spoil. (0,3,0)	Outlying sett
90	93973 40836	5850	383	Edge of wood with small spoil heap (0,1,0)	Subsidiary sett
91	93959 40848	5890	372	Top corner of wood under fallen trees (2,3,1)	Subsidiary sett
92	93864 40799	5900	355	By south edge of woodland. Large spoil heap and large entrances. (4,2,0).	Main sett
93	93752 40879	5900	133	Large entrances and spoil in hedgerow. (1,0,0)	Outlying sett
94	93437 40859	5990	68	Three entrances with 1 active and 2 inactive (2,1,0)	Outlying sett
95 a	93329 40525	6350	35	On open grass and slope to stream. Very fresh spoil heap (3,1,1)	Subsidiary sett
95 b	93301 40545	6350	40	(1/0/0)	Subsidiary sett
95 c	93276 40533	6350	53	(4/0/0) main sett.	Main sett
96	93457 40286	6500	122	On top of earth bank, annex, rabbit (2/1/0)	Outlying sett
97	93315	6600	188	Spoil heap, Holly on top (1/0/0).	Outlying

Badger Sett (BS) No.*	GPS IS ITM	Chainage	Distance from road	Description	Sett type
	40325				sett
98	93376 40291	6600	106	No spoil heap, vegetation within tunnel and entrance (1,0,1)	Outlying sett
99	93457 40286	6600	74	Small spoil, west of sett 6, rabbit evidence, annex (2,3,1)	Annexed sett
100	93670 40272	6600	111	On grassy slope near fence line at edge of holly. Continues down slope and both side of fence annexed (3,4,3)	Main sett
101	93890 40272	6600	357	At top of slope in gorse thicket, small spoil heap (1,0,0)	Outlying sett
102	93599 39478	6600	0	At field edge and hedgerow. Possible rabbit re-occupation (2,2,2)	Annexed sett
103	93457 40286	6600	39	In gorse thicket on fence line at top of slope. Feeding signs present, annex (2,4,0)	Annexed sett
104	93618 39475	7400	0	Lots of feeding signs nearby (2,0,0).	Outlying sett

M11 Gorey to Enniscorthy Scheme

Environmental Impact Statement

Appendix 9.5

River Slaney AA

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**PROVISION OF INFORMATION REQUIRED FOR THE APPROPRIATE ASSESSMENT
OF THE POTENTIAL IMPACTS OF DEVELOPMENT OF LANDS AT CO. WEXFORD**

FOR THE

M11 GOREY TO ENNISCORTHY SCHEME

**PREPARED IN ACCORDANCE WITH REGULATIONS 30 AND 33 OF THE HABITATS
REGULATIONS, 1997 (S.I. NO. 94 OF 1997)**

May 2009

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Introduction

The information in this report, required for a competent authority to undertake an “Appropriate Assessment” (or AA), has been prepared by Scott Cawley Ltd., on behalf of Wexford County Council (‘the applicant’). It provides information on and assesses the potential impacts of the proposed M11 Gorey to Enniscorthy Scheme. An AA is required as the proposed development crosses the Slaney River Valley candidate Special Area of Conservation (cSAC) / proposed Natural Heritage Area (pNHA) (Site code 781) and significant impacts on the cSAC could not be ruled out.

The information in this report forms part of, and should be read in conjunction with, the Environmental Impact Statement (EIS) that has been prepared for the proposed development.

In light of the location of the proposed development, crossing the cSAC, it is necessary that the proposal should have due regard to Regulations 30 and 33 of the Habitats Regulations (1997).

Regulation 30:

(1) Where a proposed road development in respect of which an application for the approval of the Minister for the Environment has been made in accordance with section 51 of the Roads Act, 1993, is neither directly connected with nor necessary to the management of a European site but likely to have a significant effect thereon either individually or in combination with other developments, the Minister for the Environment shall ensure that an appropriate assessment of the implications for the site in view of the site's conservation objectives is undertaken.

(2) An environmental impact assessment as required under subsection (2) of section 51 of the Roads Act, 1993, in respect of a proposed road development referred to in paragraph (1) shall be an appropriate assessment for the purposes of this Regulation.

(3) The Minister for the Environment shall, having regard to the conclusions of the assessment undertaken under paragraph (1), agree to the proposed road development only after having ascertained that it will not adversely affect the integrity of the European site concerned.

(4) In considering whether the proposed road development will adversely affect the integrity of the European site concerned, the Minister for the Environment shall have regard to the manner in which the proposed development is being carried out or to any conditions or restrictions subject to which the approval is given.

(5) The Minister for the Environment may, notwithstanding a negative assessment and where that Minister is satisfied that there are no alternative solutions, decide to agree to the proposed road development where the proposed road development has to be carried out for imperative reasons of overriding public interest.

(6) (a) Subject to paragraph (b) imperative reasons of overriding public interest shall include reasons of a social or economic nature;
(b) If the site concerned hosts a priority natural habitat type or a priority species, the only considerations of overriding public interest shall be—
(i) those relating to human health or public safety,
(ii) beneficial consequences of primary importance for the environment, or

(iii) further to an opinion from the Commission to other imperative reasons of overriding public interest.

Regulation 33:

Where in accordance with Regulations 27 (5), 28 (5), 29 (4), 30 (5), 31 (5) or 32 (5) an operation or activity is agreed to, notwithstanding a negative assessment of the implications for a European site, the Minister shall ensure that the necessary compensatory measures are taken to ensure that the overall coherence of Natura 2000 is protected.

In the absence of any national guidance¹ on how to carry out AA, this report has been prepared in accordance with the EC Environment Directorate-General (DG) document “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”, referred to as the “EC Article 6 Guidance Document”. The guidance within this document provides a non-mandatory methodology for carrying out assessments required under Article 6(3) and (4) of the Habitats Directive, and is also viewed as an interpretation of the EC’s document “Managing Natura 2000 sites: The Provisions of Article 6 of the Habitat’s Directive 92/43/EEC”, referred to as “MN2000”.

It is the responsibility of the competent authority, in this instance An Bord Pleanála (ABP), to make a decision as to whether or not the proposed development should be permitted, taking into consideration any potential impact upon the Natura 2000 site in question.

In order to assist the competent authority in this decision, this report has been prepared in line with the tenets of the EC Environment DG methodological guidance for Appropriate Assessment. This document draws together the findings of the Environmental Impact Assessment, with which it is submitted.

¹ It is Scott Cawley’s understanding, based on conversations with staff from the Department of Environment, Heritage and Local Government that national guidelines on AA are being drafted at the moment but are not yet available.

Stage One: Screening

It is stated within the EC guidelines that “*where, without any detailed assessment at the screening stage, it can be assumed (because of the size or scale of the project or the characteristics of the Natura 2000 site) that significant effects are likely, it will be sufficient to move directly to the appropriate assessment (Stage Two) rather than complete the screening assessments explained below.*”

Applying the precautionary principle, it has been determined that as it could not be ruled out that the proposed development could give rise to potentially significant environmental impacts to the Natura 2000 site in question (the Slaney River Valley cSAC), it was determined that the Assessment should proceed to the next stage; Stage Two: Appropriate Assessment.

In addition, the NPWS were consulted during the pre-planning stage and indicated that an Appropriate Assessment may be required.

Stage Two: Provision of information for an Appropriate Assessment

According to MN2000, paragraph 4.6(3)

“The integrity of a site involves its ecological functions. The decision as to whether it is adversely affected should focus on and be limited to the site’s conservation objectives.”

Within this stage of the summary assessment, the potential impact of the proposed development on the integrity of the Slaney River Valley cSAC is examined with respect to the conservation objectives of the Natura 2000 site and to its general structure and function.

Stage two entails five steps as follows:-

- Step one: Information required
- Step two: Impact prediction
- Step three: Conservation objectives
- Step four: Mitigation measures
- Step five: Outcomes (*this stage is completed by the competent authority*)

Step 1: Information required

Somewhat analogous to the initial stages of an Environmental Impact Assessment, Step 1 serves to gather information about the conservation objectives of the site, an understanding of the biological processes that underlie those conservation objectives, a description of the proposal, and the aspects of this proposal which could affect the conservation objectives.

In order to determine the information required for this assessment it is necessary to identify the conservation objectives of the site and to relate them to those aspects of the proposed development which could affect those objectives. The EC guidance document suggests that these may be obtained from the cSAC site description and any site management plans which may exist.

Table 2.1 on the following pages provides a summary of the information gathered in order to progress this assessment.

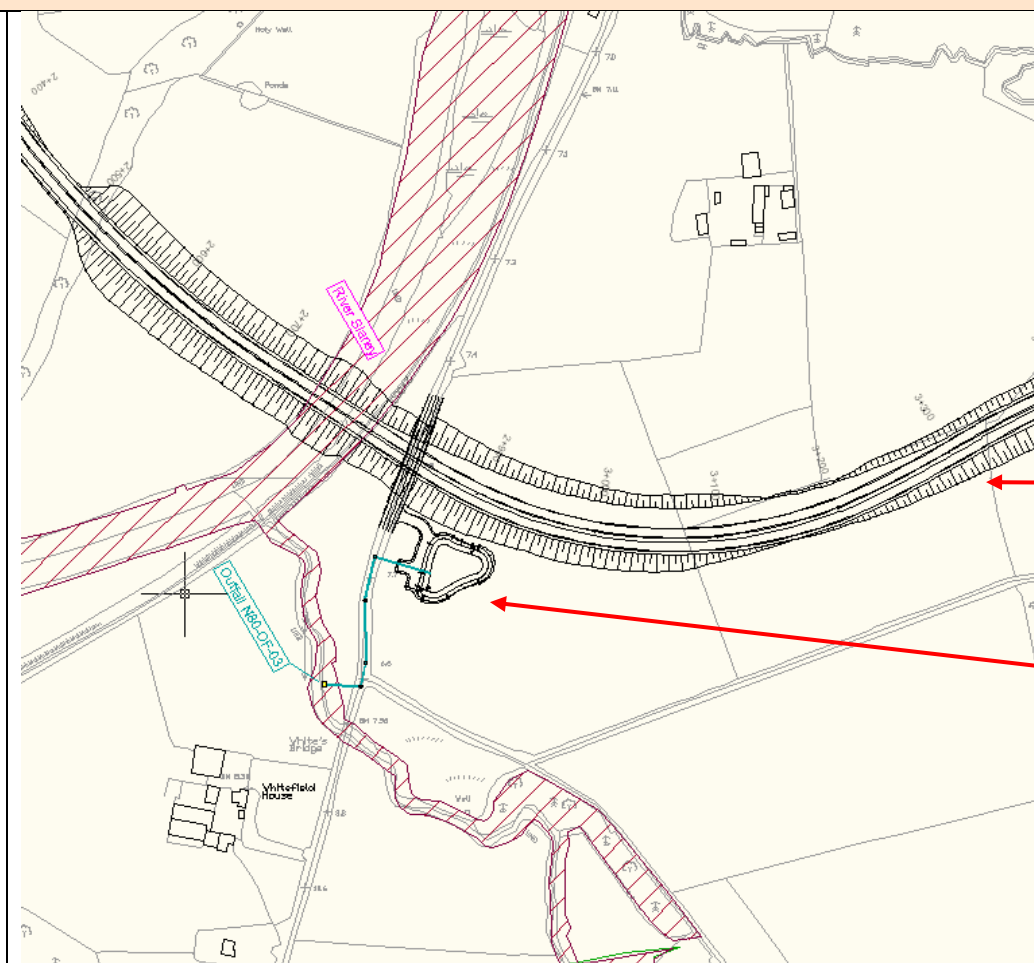
There is currently no Management Plan available for the Slaney River Valley cSAC. The NPWS have prepared draft conservation objectives, although there is no implementation plan at this time. The objectives are shown in Table 2.1.

Table 2.1 Information Checklist for the Appropriate Assessment

Information about Project

	Known or available <input type="checkbox"/> or <input checked="" type="checkbox"/>	Details
Full Characteristics of the project which may affect the Natura 2000 sites	<input checked="" type="checkbox"/>	<p>As described in detail in Chapter 3 of the EIS, the Proposed Scheme comprises the construction of three new sections of road, which will form part of the National Road network, namely: the M11/N11 Mainline, N30 Mainline and the N80 Link Road.</p> <p>The existing area comprises mainly agricultural grassland, tilled land and arable land. Semi-natural habitats present include wet grassland, hedgerows and broadleaved woodland.</p> <p>Elements of the Proposed Scheme that have potential to impact on the cSAC include direct and indirect impacts, resulting from the construction and operation of the development, on the River Slaney and associated features. The Proposed Scheme (N80 Link Road) crosses the River Slaney at one point. However, as this is a clear span bridge, there is no overlap of the footprint of the scheme with the Natura 2000 site. Maps of the sSAC and pNHA boundaries as well as the habitats present at the proposed crossing point are shown below. The main habitat present on the northern bank of the River Slaney is species-poor neutral grassland with occasional scattered scrub and small trees. Beyond that are arable fields and an area of mixed broadleaved woodland further north west at the top of a steep rise. Habitat on the eastern bank side includes overgrown species-poor neutral grassland with elements of scrub. A railway line (not shown) runs parallel to the bank and is lined with scrub and hedgerows of low to moderate ecological value.</p>

Table 2.1 Information Checklist for the Appropriate Assessment



**Slaney River Valley
cSAC boundary in
relation to the
Proposed Scheme**

Proposed Scheme

Proposed balancing
pond

Table 2.1 Information Checklist for the Appropriate Assessment

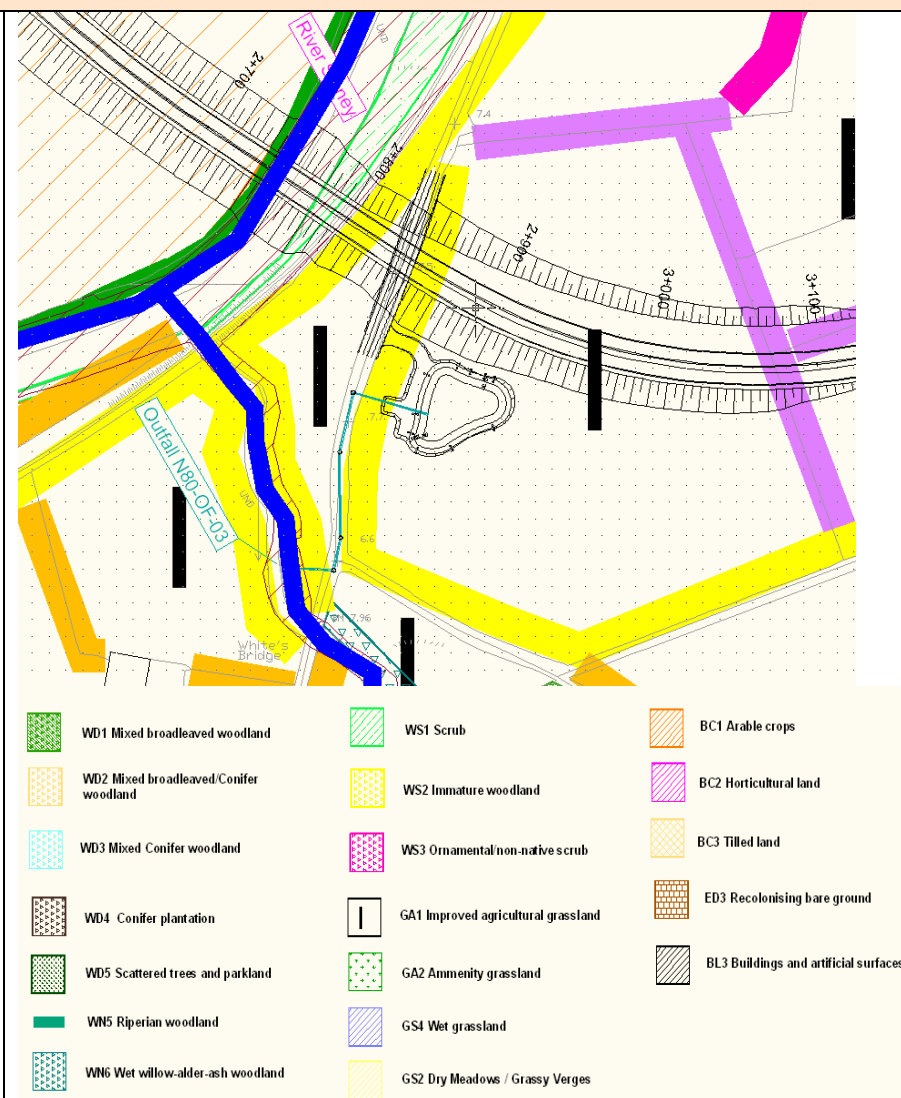


Table 2.1 Information Checklist for the Appropriate Assessment


		 <p>Photograph of habitat at proposed crossing location (taken from eastern bank, looking west)</p> <p>The River Slaney crossing is the only new crossing of the cSAC by the Proposed Scheme. However, the scheme crosses a number of tributaries that are hydrologically linked to the cSAC i.e. feeding into the River Urrin, Corbally River, Tinnacross, River Slaney and River Bann.</p>
The total range or area the plan will cover	<input checked="" type="checkbox"/>	The M11/N11 Mainline stretches southwards from the existing N11 Arklow / Gorey Bypass to Scurlocksbush bypassing Camolin, Ferns and Enniscorthy to their east. The N80 Link Road traverses eastwards from the N80 / N11 Clavass Junction across the River Slaney, approximately 3km north of Enniscorthy, to connect to the M11 Mainline in Ballydawmore. The N30 Mainline runs southwards from the N80 / N11 Clavass Junction crossing the R702 and River Urrin and terminates at the existing N30 in Templescoby. A full description of the Proposed Scheme is provided in Chapter 3 of the EIS.
Size and other specifications of the project	<input checked="" type="checkbox"/>	The proposed development area is approximately 39 km long, with the M11/N11 Mainline approximately 27 km, the N80 Link Road approximately 4 km and the N30 Mainline approximately 8 km in length. M11/N11 Mainline is standard dual motorway; the N80 Link Road is type 2 dual carriageway and the N30 Mainline is standard single carriageway.

Table 2.1 Information Checklist for the Appropriate Assessment

		<p>The Proposed Scheme will include a bridge crossing at the River Slaney and one at the River Urrin. In addition to these two bridges, culverts will generally be included where proposed passes over a watercourse. There will be approximately 23 watercourse crossings (culverts) in addition to the above bridges. These will be a mixture of box and bottomless culverts; bottomless culverts are proposed in locations that have been highlighted by the Eastern Region Fisheries Board (ERFB).</p> <p>A bridge with a main, central span of approximately 70m is the option chosen to cross over the River Slaney. This main span also crosses over the Dublin–Wexford railway, thus providing a clear span over the cSAC and the railway. The total length spanned at this location is approximately 153m. This total span length includes two side spans, each of approximately 42m. One side span is over Local Road L-2020-2. The other side span facilitates uninterrupted flow of flood waters immediately adjacent to the western bank of the river channel. The main span includes a 5m minimum width immediately adjacent to the western bank of the River Slaney that is clear of any structural elements, such as piers.</p> <p>On the western approach to this bridge is an earthworks embankment, which takes the N80 Link Road over an area of the River Slaney flood plain. A series of flood relief culverts are included within this embankment. . These culverts, together with the bridge side span on the western bank of the river channel, will facilitate the continued migration of flood waters down the River Slaney.</p> <p>The design flow for the structure together with the adjacent flood relief culverts will be a 100 year flood rate plus a proposed climate change allowance of a 20% increase in peak flow rates. The structure together with the adjacent flood relief culverts will result in minimal changes to the flood regime and will avoid contraction of the overbank flood flow. Consequently the predicted impact upstream of the structure for the design flood condition is small (refer to the hydraulic assessment of the proposed River Slaney bridge crossing included in Appendix 3.1 in Volume 3 of the EIS). Within the preliminary design, as described in the EIS, the flood relief provisions comprise 10 No. flood relief culverts, 4.8m wide by 3.0m high spaced equally at 14.4m centres</p> <p>At outfall locations, the proposed road drainage systems for the national routes will flow via petrol / oil bypass interceptors into balancing ponds before discharging into watercourses. The balancing ponds will be designed so that the maximum rate of outflow into the receiving waters will be, at most, equivalent to the existing greenfield runoff rate. The design of the balancing pond will be undertaken in accordance with UK DMRB HA 103 and will be based on a 100-year storm event with a duration of 48 hours. The design will also include for a 20% increase in rainfall intensity, to account for climate change in accordance with current best management practice of the UK DMRB HD 33.</p> <p>Balancing ponds will be planted with species such as Common Reed <i>Phragmites australis</i>, Bulrush <i>Typha latifolia</i>, Yellow Iris <i>Iris pseudacorus</i> and Reed Canary-grass <i>Phalaris arundinacea</i> as these wetland species will assist in trapping and removing silt, nutrients and other potential pollutants.</p>
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Table 2.1 Information Checklist for the Appropriate Assessment

		<p>Full details of the development and watercourse crossings are provided in Chapter 3 of the EIS.</p> <p>Modelling of ambient NO_x and NO₂ dry deposition rates for 2013 and 2028, in relation to the impacts of the N80 on the River Slaney cSAC, show that there is no predicted exceedence of critical loads at this location. Therefore there are no predicted significant impacts on the River Slaney cSAC from air emissions from this section of the Proposed Scheme. Full details of this modelling are given in Chapter 12 of the EIS.</p>
The characteristics of the existing, proposed, or other approved projects which may cause interactive or cumulative impacts with the project being assessed and which may affect the Natura 2000 sites.	<input checked="" type="checkbox"/>	<p>Wexford County Council's database of planning consents has been checked and there are no major developments in the planning stage that would have the potential to have cumulative impacts, with the project, on the SAC. The Proposed Scheme is part of a larger strategic road improvement scheme for the N11. The elements to the north of the Proposed Scheme (i.e. the Gorey Bypass) has already been completed and a route has not yet been selected for the element which will connect to the south of the Proposed Scheme.</p>
The relationship between the project and the Natura 2000 sites	<input checked="" type="checkbox"/>	<p>The function of the Proposed Scheme is not directly related to the management of the cSAC.</p> <p>The Proposed Scheme crosses the SAC and tributaries that may be hydrologically linked to the cSAC.</p>
The information requirements of the authorisation body.	<input checked="" type="checkbox"/>	<p>No specific information has been requested by the competent authority.</p> <p>During consultation the National Parks and Wildlife Service (NPWS) stated that an "Appropriate Assessment" may need to be carried in accordance with Article 6(3) and (4) of the EC Habitats Directive in order that it may make a decision as to whether the Proposed Scheme would have a significant negative impact upon the cSAC.</p> <p>The Department of Environment, Heritage and Local Government, in their scoping response, stated that an "Appropriate Assessment" should be carried in accordance with Article 6(3) and (4) of the EC Habitats Directive, in view of the site's conservation objectives.</p>
Information about the Site		
The reasons for the designation of the Natura 2000 site.	<input checked="" type="checkbox"/>	<p>The site synopsis for the states that the cSAC is designated for the presence of the following habitats and Annexed species of the Habitats Directive;</p> <p><i>Annex I Habitats that are a primary reason for selection of this site:</i></p> <ul style="list-style-type: none"> • Old Sessile Oak Woodlands with <i>Ilex</i> and <i>Blechnum</i> in British Isles. • Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i>.

Table 2.1 Information Checklist for the Appropriate Assessment

		<ul style="list-style-type: none"> • Watercourses of plain to montane levels with the <i>Ranunculon fluitantis</i> and <i>Callitricho-Batrachion</i> vegetation. • Estuaries. • Mudflats and sandflats not covered by seawater at low tide. <p><i>Annex II Species that are a primary reason for selection of this site:</i></p> <ul style="list-style-type: none"> • Twaite Shad <i>Alosa fallax</i> • River Lamprey <i>Lampetra fluviatilis</i> • Brook Lamprey <i>Lampetra planeri</i> • Sea Lamprey <i>Petromyzon marinus</i> • Atlantic Salmon <i>Salmo salar</i> • Freshwater Pearl Mussel <i>Margaritifera margaritifera</i> • Otter <i>Lutra lutra</i> <p>Potential impacts are only considered in relation to parts of the cSAC that are hydrogically linked to the Proposed Scheme. It was therefore considered that, as there is no direct landtake from the Proposed Scheme, there are no predicted impacts on the Annex I habitat 'Old Sessile Oak Woodlands'. In addition, it is considered that impacts on the Annex I Habitats 'Estuaries' and 'Mudflats and sandflats not covered by seawater at low tide' are unlikely as these are at considerable distance downstream from the Scheme. These three Annex I habitats are therefore not included in the assessment below.</p>
The conservation objectives of the Natura 2000 sites and the factors that contribute to their conservation value.	<input checked="" type="checkbox"/>	<p>Conservation Objectives:</p> <ul style="list-style-type: none"> • Objective 1: To maintain the Annex I habitats for which the SAC has been selected at favourable conservation status. • Objective 2: To maintain the Annex II species for which the cSAC has been designated at favourable conservation status. • Objective 3: To maintain the extent, species richness and biodiversity of the entire site. • Objective 4: To establish effective liaison and co-operation with landowners, legal users and relevant authorities.
The conservation status of the Natura 2000 sites (favourable or otherwise)	<input checked="" type="checkbox"/>	Data on the conservation status of the Natura site was available on the Natura 2000 data form. The conservation status of relevant designated habitats and species is detailed below where this information was available on the Natura 2000 data form.
The existing baseline condition of	<input checked="" type="checkbox"/>	Data was available from the Natura 2000 data form, survey work undertaken as part of the EIS, from consultation

Table 2.1 Information Checklist for the Appropriate Assessment

the Natura 2000 sites	<p>with the ERFB and NPWS and from National data on the conservation status of protected habitats and species in Ireland (NPWS, 2008)². Data for fish species is considered for both within the cSAC and areas outside of this (but within the scope of influence of the Proposed Scheme) if these are considered to be supporting habitats for designated fish species within the cSAC.</p> <ul style="list-style-type: none"> • <u>Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i>:</u> This habitat is considered to have an overall 'Bad' conservation status in Ireland³. Alluvial forest habitat was present in several locations in the vicinity of the Proposed Scheme but was not present at the proposed River Slaney bridge crossing location. This habitat is considered to have a 'good' conservation status within the cSAC. • <u>Water courses of plain to montane levels with the <i>Ranunculus fluitantis</i> and <i>Callitriche-Batrachion</i> vegetation:</u> This habitat is considered to have an overall 'Bad' conservation status in Ireland³. Two thirds of rivers are at risk of failing to meet their environmental objectives³. Survey work for the EIS showed that this habitat type was present in nearly all of rivers and tributaries that were surveyed³, including at the proposed River Slaney crossing point. This habitat is considered to have a 'good' conservation status within the cSAC. • <u>Twaite Shad <i>Alosa fallax</i>:</u> This species is considered to have an overall 'Bad' conservation status in Ireland³. Spawning activity has been recorded from only five large rivers in Ireland; these are all located in the south-east and include the River Slaney³. Population levels in these rivers are considered to be low and no spawning has been recorded in the recent years in the River Slaney³. These species are considered to have an 'average or reduced' conservation status within the cSAC. • <u>River Lamprey <i>Lampetra fluviatilis</i>; Brook Lamprey <i>Lampetra planeri</i></u> These species are considered to have an overall 'Good' conservation status in Ireland³. Recent field surveys point to a widespread distribution of juvenile River and Brook Lamprey throughout the country³. All watercourses in the vicinity of the Proposed Scheme are considered to have the potential to support Lamprey species (ERFB). These species are considered to have an 'average or reduced' conservation status within the cSAC. • <u>Sea Lamprey <i>Petromyzon marinus</i></u> This species is considered to have an overall 'Poor' conservation status in Ireland³. All watercourses in the vicinity of the Proposed Scheme are considered to have the potential to support Lamprey species (ERFB). This species is considered to have an 'average or reduced' conservation status within the cSAC. • <u>Atlantic Salmon <i>Salmo salar</i></u> This species is considered to have an overall 'Bad' conservation status in Ireland³. Watercourses that are
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² NPWS (2008). *The status of EU Protected Habitats and Species in Ireland*. NPWS, Department of the Environment, Heritage and Local Government.

Table 2.1 Information Checklist for the Appropriate Assessment

		<p>known to be salmonid that are in the vicinity of the Proposed Scheme include the Slaney, Tinnacross, Corbally, Bracken, Bann. Salmon are known to have spawning grounds in the Slaney, Tinnacross and Corbally streams (ERFB). This species is considered to have a 'good conservation status within the cSAC.</p> <ul style="list-style-type: none"> • <u>Freshwater Pearl Mussel <i>Margaritifera margaritifera</i></u> This species is considered to have an overall 'Bad' conservation status in Ireland³. Results of a population structure and viability assessment indicated that no populations in Ireland can be considered viable due to very low levels of recruitment and recent kills related to suboptimal water quality levels³. A survey in 2008 (undertaken to provide information for the EIS) of sections of the River Slaney, the River Urrin, River Urrin and Slaney tributaries west of River Slaney, Slaney tributaries east of River Slaney, Tinnacross Stream and Brackan River and tributaries, found no Freshwater Pearl Mussels. Aquatic macrophyte vegetation was found in all sizes of watercourse throughout the survey. Although an Annex I habitat, <i>Ranunculus</i> beds are a very negative indicator in <i>Margaritifera</i> rivers³. In addition, the silt levels recorded were considered to preclude a viable population⁴. <u>Otter <i>Lutra lutra</i></u> This species is considered to have an overall 'Poor' conservation status in Ireland³. There was a population decline of 24% from 1980-2004³. Survey work for the EIS found signs of Otters on most watercourses. Two holts were recorded within 150m of the Proposed Scheme. One is located at the southern end of the M11/N11 mainline and the second at the northern end of the N30 mainline (full details in EIS). The northern holt is located within 1km from the cSAC; however neither holt is within the cSAC. This species is considered to have an 'excellent' conservation status within the cSAC.
The key attributes of any Annex I habitats or Annex II species in the Natura 2000 sites	<input checked="" type="checkbox"/>	<ul style="list-style-type: none"> • <u>Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i></u> This woodland is dominated by <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> with species such as <i>Angelica sylvestris</i>, a range of sedges, <i>Filipendula ulmaria</i> and <i>Urtica dioica</i> in the ground layer. To maintain this habitat, particular water levels are required and the plant community cannot withstand prolonged periods of water at or above the water table. However, they are also prone to drying out and invasion of species adapted to drier habitats. Eutrophication can lead to losses in plant species diversity. This habitat tends to support a diverse range of invertebrate species which may be sensitive to pollution. • <u>Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitriche-Batrachion</i> vegetation:</u> This habitat includes annual and perennial species such as <i>Ranunculus trichophyllus</i>, <i>R. fluitans</i>, <i>R. peltatus</i>, <i>R. penicillatus</i> ssp. <i>penicillatus</i>, <i>R. penicillatus</i> ssp. <i>pseudofluitans</i>, <i>R. aquatilis</i>, <i>Myriophyllum</i> spp., <i>Callitriche</i> spp., <i>Zannichellia palustris</i>, <i>Potamogeton</i> spp. and <i>Fontinalis antipyretica</i>. This habitat is sensitive to the indirect effects of increases in nutrients (eutrophication), which can lead to an increase in

³ Moorkens, E. (2008). A survey for the freshwater pearl mussel *Margaritifera margaritifera* (L., 1758) in the River Slaney and its tributaries in the vicinity of Enniscorthy, County Wexford. Unpublished report.

Table 2.1 Information Checklist for the Appropriate Assessment

		<p>macroalgae; channel modification, removing suitable substrate for attachment, changing water depth and/ or flow; and siltation, leading to reduced light availability for growth and invasive species, which directly compete with the native plant community.</p> <ul style="list-style-type: none"> • <u>Twaite Shad <i>Alosa fallax</i></u> Twaite Shad are sensitive to changes to water quality, barriers to migration and factors which can alter or destroy spawning grounds, such as sand or gravel extraction, substrate siltation and channel modification. • <u>River Lamprey <i>Lampetra fluviatilis</i>; Brook Lamprey <i>Lampetra planeri</i>; Sea Lamprey <i>Petromyzon marinus</i></u> River Lamprey and Sea Lamprey have similar ecology, whilst Brook Lamprey spend their entire life-cycle in freshwater³. Both species are considered to be unable to climb and jump, unlike other fish species (ERFB). However, the River Lamprey is less restricted by weirs than the Sea Lamprey³. Sea Lamprey migrate up rivers to spawn in areas of clean gravels². These species are sensitive to changes to water quality, barriers to migration, factors which can alter or destroy spawning grounds, such as sand or gravel extraction, substrate siltation and channel modification and factors such as flash floods which can damage larvae habitat⁴. • <u>Atlantic Salmon <i>Salmo salar</i></u> This species requires watercourses with no barriers to migration, unpolluted water and suitable spawning sites. Spawning sites require water with a good oxygen flow for embryo development. • <u>Freshwater Pearl Mussel <i>Margaritifera margaritifera</i></u> Freshwater Pearl Mussel are long-lived and have slow reproductive rates, both of which contribute to their sensitivity to disturbance. Their larval stage requires a salmonid fish as a host in order to develop into young mussels⁵. In Ireland, native Salmon and Trout <i>Salmo trutta</i> are used as a host. Freshwater Pearl Mussel is restricted by dense macrophytic or algal growth, siltation of river beds and stocking of non-salmonid fish, which they are unable to use as a larval host⁶. • <u>Otter <i>Lutra lutra</i></u> Otters are at risk from decreased water quality (which leads to a decline in prey abundance), loss or modification of bankside habitats used for breeding, and mortality e.g. from roads and fragmentation.
The physical and chemical composition of the Natura 2000 sites	<input checked="" type="checkbox"/>	<p>Information from cSAC site synopsis: 'The cSAC is comprised of the freshwater reaches of the River Slaney. The river is up to 100 m wide in places and is tidal at the southern end from Edermine Bridge below Enniscorthy. In the upper and central regions almost as far as the confluence with the Derry River the geology consists of granite. Above Kilcarr Bridge, the Slaney has cut a gorge into the granite plain. The Derry and Bann Rivers are bounded</p>

⁴ Kurz, I. & Costello, M.J. (1999) An outline of the biology, distribution and conservation of Lampreys in Ireland. Irish Wildlife Manuals No. 5. The Heritage Service, Dublin.

⁵ Moorkens, E.A. (1999) Conservation Management of the Freshwater Pearl Mussel *Margaritifera margaritifera*. Part 1: Biology of the species and its present situation in Ireland. Irish Wildlife Manuals, No. 8.

Table 2.1 Information Checklist for the Appropriate Assessment

		by a narrow line of uplands which corresponds to schist outcrops. Where these tributaries cut through this belt of hard rocks they have carved deep gorges, more than two miles long at Tinahely and Shillelagh. South of Kildavin the Slaney flows through an area of Ordovician slates and grits.'
The dynamics of the habitats, species and their ecology	<input checked="" type="checkbox"/>	<ul style="list-style-type: none"> • <u>General river attributes</u> As the river and associated tributaries are lowland watercourses, rapid change in channel course is not expected. Flooding may occur at certain times of the year. Severe flood events may change or remove aquatic vegetation and spawning grounds for fish. • <u>Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i></u> In the absence of management or particular flooding regimes, alluvial forests may become invaded with terrestrial species over time. However, this is a slow process (i.e. on a scale of 50-100 years) • <u>Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitriche-Batrachion</i> vegetation:</u> Macrophyte vegetation can be removed by high flood events and is moderately mobile. However, perennial species may persist in the same location each year. • <u>Twaite Shad <i>Alosa fallax</i></u> Twaite Shad return to the watercourses each year to spawn but also spend time at sea. Juveniles are likely to be present in the watercourses all year round. • <u>River Lamprey <i>Lampetra fluviatilis</i>; Sea Lamprey <i>Petromyzon marinus</i></u> These species return to the watercourses each year to spawn but also spend time at sea. Juveniles are likely to be present in the watercourses all year round. • <u>Brook Lamprey <i>Lampetra planeri</i></u> Brook Lamprey remain in freshwater throughout their life-cycle. • <u>Atlantic Salmon <i>Salmo salar</i></u> These species return to the watercourses each year to spawn but also spend time at sea. Juveniles are likely to be present in the watercourses all year round. • <u>Freshwater Pearl Mussel <i>Margaritifera margaritifera</i></u> Freshwater Pearl Mussel are present in river systems all year round. • <u>Otter <i>Lutra lutra</i></u> Otter will be present in the system all year round.
Those aspects of the Natura 2000 site that are sensitive to change	<input checked="" type="checkbox"/>	<p>As there is currently no management plan for the cSAC, there are no listed threats for the cSAC and its designated features. A summary of the main threats has been compiled below from general information available about the habitats and species as none were provided in the site synopsis.</p> <ul style="list-style-type: none"> • <u>Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i></u>

Table 2.1 Information Checklist for the Appropriate Assessment

		<p>Habitat loss and fragmentation Invasive species Lack of appropriate management Changes to hydrology Pollution (may affect invertebrate communities)</p> <ul style="list-style-type: none"> • <u>Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitriche-Batrachion</i> vegetation:</u> Eutrophication Pollution (may cause direct mortality) Reduced light availability (e.g. from shading, siltation or increased algal growth) Invasive species • <u>Twaite Shad <i>Alosa fallax</i>.</u> Restricted access to spawning grounds (e.g. due to weirs) Pollution (may cause direct mortality) • <u>Sea Lamprey <i>Petromyzon marinus</i> and River Lamprey <i>Lampetra fluviatilis</i></u> Restricted access to spawning grounds (e.g. due to weirs) Damage to spawning habitat (e.g. from channel maintenance which removes silt deposits and gravel shoals used by Lampreys²) Pollution (may cause direct mortality) • <u>Brook Lamprey <i>Lampetra planeri</i></u> Damage to spawning habitat (e.g. from channel maintenance which removes silt deposits and gravel shoals used by Lampreys²) Pollution (may cause direct mortality) • <u>Atlantic Salmon <i>Salmo salar</i></u> Damage to spawning habitat (e.g. from eutrophication, erosion and siltation) Poor water quality (e.g. from eutrophication) Pollution (may cause direct mortality) Over-fishing Mortality at sea² • <u>Freshwater Pearl Mussel <i>Margaritifera margaritifera</i></u> Eutrophication (leading to increased algal and macrophyte growth) Loss of suitable substrate (e.g. from channel modification or siltation) • <u>Otter <i>Lutra lutra</i></u> Habitat fragmentation Direct mortality from roads, fishing nets and lobster pots
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Table 2.1 Information Checklist for the Appropriate Assessment

		Pollution (e.g. leading to decline in prey species)
The key structural and functional relationships that create and maintain the Natura 2000 sites' integrity	<input checked="" type="checkbox"/>	Drainage of water from surrounding land and land upstream contributes to water quality and flow regimes within the cSAC. Watercourses outside of the cSAC provide spawning habitat for fish and foraging habitat for Otter. The integrity of the site depends on species movement both within the site and watercourses that are hydrologically linked to it.
The seasonal influences on the key Annex I habitats and Annex II species on the site	<input checked="" type="checkbox"/>	<ul style="list-style-type: none"> • <u>Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i>.</u> Most plant growth occurs between May to September. • <u>Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitriche-Batrachion</i> vegetation:</u> Macrophyte growth usually occurs between June to September. Plants generally die back during the winter. • <u>Twaite Shad <i>Alosa fallax</i>.</u> Twaite Shad migrate upstream from April to June, with peak spawning activity occurring in late May⁶. • <u>River Lamprey <i>Lampetra fluviatilis</i>; Sea Lamprey <i>Petromyzon marinus</i></u> Sea Lamprey migrate upstream to spawn during spring to early summer and spawn from May to June⁷. River Lamprey migrate upstream to spawn during autumn / spring and spawn from March to April⁷. Downstream migration occurs from summer to early winter in both species. • <u>Brook Lamprey <i>Lampetra planeri</i></u> Brook Lamprey remain in freshwater throughout their life-cycle. They migrate short distances upstream to spawn at about the same time as the River Lamprey⁴. • <u>Atlantic Salmon <i>Salmo salar</i></u> Salmon juveniles will be present in the river all year round. Spawning takes place during the winter, normally between November-December. • <u>Freshwater Pearl Mussel <i>Margaritifera margaritifera</i></u> Freshwater Pearl Mussel are present in river systems all year round. Larvae release in Ireland occurs between August and September (cited in ⁶). • <u>Otter <i>Lutra lutra</i></u> Otter will be present in the system all year round. There is no specific breeding season for Otter and cubs may be born in any month.

⁶ Doherty, D. O'Maoile'idigh, N. & McCarthy, T.K. (2004). The biology, ecology and future conservation of Twaite Shad (*Alosa fallax* lace'pe` de), Allis Shad (*Alosa alosa* L.) and Killarney Shad (*Alosa fallax killarneyensis* tate regan) in Ireland. Biology and Environment: Proceedings of the Royal Irish Academy 104: 93-102.

⁷ Kelly, F.L. & King, J.J. (2001). A review of the ecology and distribution of three Lamprey species, *Lampetra fluviatilis* (L.), *Lampetra planeri* (Bloch) and *Petromyzon marinus* (L.): A context for conservation and biodiversity considerations in Ireland. Biology and Environment: Proceedings of the Royal Irish Academy 101: 165-185.

Table 2.1 Information Checklist for the Appropriate Assessment

Other conservation issues relevant to the site, including likely future natural changes taking place	<input checked="" type="checkbox"/>	As the river is a lowland river, with agricultural land adjacent to the river and its banks throughout much of its length, large scale successional change is not likely to occur.
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Step Two: Impact Prediction

An analysis of assessment typically requires the identification of the type and magnitude of potential impacts; direct and indirect; short and long term; construction, operational and decommissioning effects; and isolated, interactive and cumulative effects. In this instance the assessment requires the identification of the construction and operation related impacts on the cSAC. These impacts have been described in detail in the EIS and are summarised below in Table 2.2.

Note that the table describes impacts in the absence of mitigation. Table 2.4 describes the mitigation measures that avoid, reduce / minimise or remediate the significance of the potential impact.

Impacts relating to watercourses that drain into the cSAC (i.e. upstream) have also been considered as these may have downstream impacts on the cSAC. In addition they may impact on those designated fish species that move upstream from the cSAC to spawn. The indirect impacts listed therefore include impacts on upstream watercourses that may lead to indirect impacts on the cSAC and its designated features.

Based on IEEM guidelines *Guidelines for Ecological Impact Assessment* (IEEM, 2006).), impacts are listed as significant if they have the potential to have a significant impact on the ecological integrity on the habitats and species for which the site is designated. As the site is of International importance, these impacts would be significant at an International level. However, where impacts are expected not to have a significant impact on the integrity of these habitats at an International level but are likely to have National or Local level impacts, this has been stated.

Table 2.2 Impact Prediction

	Construction Phase		Operation Phase	
Parameter	Direct (isolated, interactive, cumulative, short-term, long-term)	Indirect (isolated, interactive, cumulative, short-term, long-term)	Direct (isolated, interactive, cumulative, short-term, long-term)	Indirect (isolated, interactive, cumulative, short-term, long-term)
Vegetation clearance and material excavation (for watercourse crossings)	<ul style="list-style-type: none"> Potential direct impacts on the cSAC (such as direct impacts on fish species and their spawning grounds) resulting from the River Slaney bridge crossing are expected to be neutral as the bridge design is clear span and there will be no in-stream works undertaken. There are no predicted significant impacts on the Freshwater Pearl Mussel as it was not encountered at any of the proposed watercourses crossing locations. The clear span bridge design means that there are no predicted significant impacts from construction on the Annex I habitat 'Floating River Vegetation', which is present at the proposed crossing location point on the River Slaney. As there is no Annex I Habitat 'Alluvial Forests' located at the River Slaney crossing point, there are no predicted significant impacts of the bridge 	<ul style="list-style-type: none"> Some fish spawning gravels and pool habitats, which are integral to the successful development of fry to adult fish, in the Corbally and the Tinnacross Streams will be removed at some watercourse crossing locations, potentially resulting in a small scale but permanent loss of spawning grounds. However, given that these crossings are not located within the cSAC, that these two streams are not the only tributaries to the River Slaney and that the areas lost are small, this is not predicted to have a significant impact on designated fish species in the cSAC. Indian Balsam <i>Impatiens glandulifera</i> was present along the riverbanks of the River Slaney, including in the vicinity of the River Slaney crossing point. Construction work could potentially cause fragments of this plant to be released into the water from where it may spread downstream. In addition, the newly disturbed ground may be 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> None

Table 2.2 Impact Prediction

	Construction Phase		Operation Phase	
Parameter	Direct (isolated, interactive, cumulative, short-term, long-term)	Indirect (isolated, interactive, cumulative, short-term, long-term)	Direct (isolated, interactive, cumulative, short-term, long-term)	Indirect (isolated, interactive, cumulative, short-term, long-term)
	construction on this habitat.	suitable habitat for Indian Balsam, leading to a local increase. If this species spreads into the Annex I Habitat 'Alluvial Forests' it could have a negative impact on native species composition. As Indian Balsam is already established on the banks of the River Slaney system this is considered to be a probable significant impact at a Local level.		
Construction of watercourse crossings (relating to physical structure of crossings)	<ul style="list-style-type: none"> Potential direct impacts on the cSAC resulting from the River Slaney bridge crossing are expected to be neutral as the bridge design is clear span and there will be no in-stream works undertaken. 	<ul style="list-style-type: none"> Injury to and/ or loss of some individuals and temporary restriction of passage of fish (Salmon, Lamprey, and Twaite Shad) during construction of watercourse crossings outside of, but hydrologically linked to the cSAC, would have a probable significant negative impact at a Local level. 	<ul style="list-style-type: none"> A small strip of river channel may become unsuitable for the Annex I habitat, 'Floating River Vegetation', which is present at the proposed crossing location point on the River Slaney. This is due to potential shading by the bridge. As the bridge will be crossing east to west, there will still be some light availability from the southerly direction. Although this could have a local impact on Floating River Vegetation, this habitat was found along the majority of the length of the rivers surveyed in the study area including both upstream and downstream of the proposed 	<ul style="list-style-type: none"> Bridges can potentially cause changes to flood regimes, which can have a negative impact on 'Floating River Vegetation', 'Alluvial Forests', fish spawning grounds and Freshwater Pearl Mussel. However, the River Slaney bridge crossing has been designed to minimise changes to the existing flood regime of the area (refer to EIS for more information). Therefore there are no expected indirect impacts on the River Slaney system and associate features from changes to the existing flood regime.

Table 2.2 Impact Prediction

	Construction Phase		Operation Phase	
Parameter	Direct (isolated, interactive, cumulative, short-term, long-term)	Indirect (isolated, interactive, cumulative, short-term, long-term)	Direct (isolated, interactive, cumulative, short-term, long-term)	Indirect (isolated, interactive, cumulative, short-term, long-term)
			<p>River Slaney crossing point. Therefore this would be a significant negative impact at a Local level.</p> <ul style="list-style-type: none"> Watercourse crossings such as culverts can restrict the movement of species such as Otter and cause habitat fragmentation. This would have a probable significant negative impact at a Local level. Culverts can restrict the movement of migrating fish. Bottomless culverts have been proposed in locations that have been highlighted as sensitive by the ERFB. In addition, the height of long culverts on important Salmonid watercourses has been increased to allow more light into the culvert to facilitate fish passage. If the slope or flow within the culvert acts as a barrier to fish then this would be a probable significant impact at a National level. 	
Traffic and Machinery	<ul style="list-style-type: none"> There were no Otter holts at or near any of the proposed 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> Noise from operational traffic on the Proposed Scheme may cause 	<ul style="list-style-type: none"> None

Table 2.2 Impact Prediction

	Construction Phase		Operation Phase	
Parameter	Direct (isolated, interactive, cumulative, short-term, long-term)	Indirect (isolated, interactive, cumulative, short-term, long-term)	Direct (isolated, interactive, cumulative, short-term, long-term)	Indirect (isolated, interactive, cumulative, short-term, long-term)
Noise	watercourse crossing points. Therefore it is not anticipated that there would be any impacts from construction on Otter breeding sites. However should any new holts have become established between the preparation of the EIS and construction works commencing there would be potential to directly impact on otter breeding sties, potentially having a significant negative impact on this species at a Local level.		disturbance to Otters. However, as the watercourse crossing is a clear span bridge and Otters are known to tolerate some road disturbance (they will cross some roads), it is not predicted that they will be prevented from crossing under the Proposed Scheme at this location. Therefore the impacts of the Proposed Scheme are considered neutral in this location. (see also notes in relation to holts under construction traffic section).	
Collection and / or drainage of surface water on-site	<ul style="list-style-type: none"> During the construction of the River Slaney crossing point there is potential for impacts on water quality in the adjacent River Slaney cSAC as a result of improper management of silt laden surface water run off, pollution from fuels / chemicals used in construction as well as noise and light related impacts. This could have knock-on effects for a range of aquatic flora and fauna as described below. 	<ul style="list-style-type: none"> There is potential for major negative impacts on water quality of watercourses upstream of the cSAC as a result of improper management of silt laden surface water run off, pollution from fuels/ chemicals used in construction as well as noise and light related impacts. This could have knock-on effects for a range of aquatic flora and fauna, the specifics of which are discussed in further detail below. Potential indirect impacts on the cSAC resulting from the River 	<ul style="list-style-type: none"> There is a proposed balancing pond adjacent to the River Slaney crossing, which will discharge, via the Corbally Stream, into the River Slaney (location shown in Habitat Map above). At such outfall locations, the proposed road drainage systems for the national routes will flow via petrol / oil bypass interceptors into balancing ponds before discharging into watercourses. The ponds have been designed according to best practice guidelines, for instance taking 	<ul style="list-style-type: none"> None

Table 2.2 Impact Prediction

	Construction Phase		Operation Phase	
Parameter	Direct (isolated, interactive, cumulative, short-term, long-term)	Indirect (isolated, interactive, cumulative, short-term, long-term)	Direct (isolated, interactive, cumulative, short-term, long-term)	Indirect (isolated, interactive, cumulative, short-term, long-term)
		<p>Urrin bridge crossing is likely to be neutral as the bridge design is clear span and there will be no in-stream works undertaken.</p> <ul style="list-style-type: none"> Other watercourse crossings (culverts) on rivers which are major salmonid fisheries would be probable significant negative impacts at a Local level during the construction of watercourse crossings. This is on the assumption that any construction related impacts would be localised and temporary. Potential impacts on the Tinnacross Stream are likely to be worse than on most other watercourses, as this stream and its tributaries will be crossed seven times by the Proposed Scheme, sometimes in close succession. Despite the upstream location of these in-stream works (in relation to the cSAC), due to the number of crossing of the Tinnacross Stream, there is a potential for unlikely significant negative impacts at a National Level. 	<p>into account predicted storm events and discharge will be at approved locations and approved rates of flow. Therefore there are no expected impacts resulting from this balancing pond on the River Slaney and associated features.</p> <ul style="list-style-type: none"> Similar balancing ponds have been proposed along the length of the Proposed Scheme to collect and treat, via petrol / oil bypass interceptors, surface water run prior to discharging into the various other watercourses. Therefore there are no expected impacts resulting from surface water run-off on other watercourses which are upstream of but hydrologically connected to the cSAC. 	

Table 2.2 Impact Prediction

	Construction Phase		Operation Phase	
Parameter	Direct (isolated, interactive, cumulative, short-term, long-term)	Indirect (isolated, interactive, cumulative, short-term, long-term)	Direct (isolated, interactive, cumulative, short-term, long-term)	Indirect (isolated, interactive, cumulative, short-term, long-term)
		<ul style="list-style-type: none"> There could be indirect downstream impacts caused to Freshwater Pearl Mussel populations in the River Bann. This potential impact is relevant for only one single watercourse crossing point as all other watercourses crossed by the Proposed Scheme drain to the River Slaney and not the River Bann. Any construction related impacts on the Freshwater Pearl Mussel arising from this single watercourse crossing point are expected to be localised and temporary. However, in the unlikely but worst case event of a severe pollution or silt release event at this crossing point, impacts on the freshwater pearl mussel would be a probable significant negative impact at an International Level, as its population numbers are in serious decline. Increase in nutrients and suspended solids in water entering the cSAC may reduce light availability for macrophyte growth and have a 		

Table 2.2 Impact Prediction

	Construction Phase		Operation Phase	
Parameter	Direct (isolated, interactive, cumulative, short-term, long-term)	Indirect (isolated, interactive, cumulative, short-term, long-term)	Direct (isolated, interactive, cumulative, short-term, long-term)	Indirect (isolated, interactive, cumulative, short-term, long-term)
		negative impact on 'Floating river vegetation'. This is likely to be short-term and therefore is considered to be a moderate negative impact.		
Abnormal activities (e.g. spillages)	<ul style="list-style-type: none"> Covered above in 'Collection and/ or drainage of surface water on-site'. 	<ul style="list-style-type: none"> Covered above in 'Collection and / or drainage of surface water on-site'. 	<ul style="list-style-type: none"> As discussed above, balancing ponds are included in the design to collect and treat, via petrol / oil bypass interceptors, surface water run prior to discharging into the various other watercourses. Therefore there are no predicted impacts resulting from run-off of pollutants from other watercourses which are upstream of but hydrologically connected to the cSAC. 	<ul style="list-style-type: none"> None

Step Three: Conservation Objectives

Upon establishing the impacts that the proposed development will present, it is necessary to assess whether or not these impacts will adversely affect the integrity of the site as defined by the conservation objectives. Table 2.3 provides a summary of the effects of the predicted impacts of the project upon the conservation management objectives for the cSAC.

The table describes impacts in the absence of mitigation. Table 2.4 describes the mitigation measures that avoid, reduce / minimise or remediate the significance of the potential impact.

Table 2.3 Integrity of Site Checklist

Conservation Objectives		
<i>Does the project have the potential to:</i>	Yes or No	Details
cause delays in progress towards achieving the conservation objectives of the site?	Yes	The potential significant negative impacts described in Table 2.2 could cause significant long-term declines in populations of designated species. However they are unlikely to cause significant long-term declines in condition of the Annex I habitats.
interrupt progress towards achieving the conservation objectives of the site?	Yes	If the above declines were to occur, particularly for Freshwater Pearl Mussel, then this would delay progress towards conservation objectives.
disrupt those factors that help to maintain the favourable conditions of the site?	No	The potential significant negative impacts listed above are likely to be short-term (e.g. one off pollution incident or siltation arising during construction), although their impacts on species populations may be long-term. Therefore they would not disrupt factors that help to maintain the condition of the site (such as water quality) in the long-term.
interfere with the balance, distribution and density of key species that are the indicators of the favourable condition of the site?	Yes	The potential significant negative impacts described in Table 2.2 could cause significant long-term declines in populations of designated species.
cause changes to the vital defining aspects (e.g. nutrient balance) that determine how the site functions as a habitat or ecosystem?	No	Changes to water quality or nutrient levels are unlikely to change in the long-term as a result of the potential impacts listed in Table 2.2, although could change in the short term and cause long terms impacts on species populations.
change the dynamics of the relationships (between, for example, soil and water or plants and animals) that define the structure and/or function of the site?	Yes	If long-term declines were to occur in fish populations then this could also impact on species such as Otter, which use fish as prey and Freshwater Pearl Mussel, which use Salmonid fish as a larval host.
interfere with predicted or expected natural changes to the site (such as water dynamics or chemical	No	There are no predicted long-term changes to chemical composition and the scheme has incorporated measures to reduce changes to flow regime and flood events in the design stage.

Table 2.3 Integrity of Site Checklist

Conservation Objectives		
<i>Does the project have the potential to:</i>	Yes or No	Details
composition)?		
reduce the area of key habitats?	Yes	The proposed River Slaney bridge as well as other watercourse crossing points outside of the cSAC, will reduce the habitat for 'Floating River Vegetation'. However these are small areas and their loss is not considered to be significant in the context of the presence of this habitat in the general area. Watercourse crossings upstream of the cSAC may require the removal of small amounts of fish spawning beds. However as these areas will be small and localised, this is not considered to be a significant negative impact on site integrity. However, loss / damage spawning sites by siltation could significantly reduce the areas of this key habitat.
reduce the population of key species?	Yes	The probable significant negative impacts described in Table 2.2 could cause significant long-term declines in populations of designated species.
change the balance between key species?	Yes	If long-term declines were to occur in fish populations then this could also impact on species such as Otter, which use fish as prey and Freshwater Pearl Mussel, which use Salmonid fish as a larval host.
reduce diversity of the site?	No	It is unlikely that any of the impacts listed in Table 2.2 would lead to the loss of designated species, or species within designated habitats, from the cSAC, although species population and / or distribution may be affected.
result in disturbance that could affect population size or density or the balance between key species?	Yes	See points above.
result in fragmentation?	No	The scheme has been designed to allow passage of designated fish and Otter populations.
result in loss or reduction of key features (e.g. tree cover, tidal exposure, annual flooding, etc.)?	Yes	Siltation could lead to the reduction in spawning grounds for fish. As outlined above, there are no expected significant impacts on existing flow regimes within the cSAC.

Step Four: Mitigation Measures

Upon establishing the impact that the proposed development will have upon the conservation objectives for the cSAC, it is desirable that wherever a potential impact is identified that mitigation measures are sought to counteract this impact.

Detailed mitigation measures have been proposed within the EIS. Relevant points are summarised below in Table 2.4. The Eastern Region Fisheries Board (ERFB) was consulted during the preparation of this EIS and relevant information has fed into the design and mitigation of the Proposed Scheme.

Table 2.4 Mitigation Measures

Proposed Mitigation Measures	How will the mitigation measures avoid and / or reduce adverse effects on the integrity of the cSAC?	How will the mitigation measures be implemented, when and by whom?	What is the degree of confidence in the likely success of the mitigation measures?	What proposed monitoring of the mitigation measures?
Construction Phase				
<i>Watercourse protection during construction</i>				
<p>Contractors will have regard to the following Best Practice Guidelines to ensure that watercourses are adequately protected from construction work:</p> <ul style="list-style-type: none"> Construction Industry Research and Information Association CIRIA C649: <i>Control of water pollution from linear construction projects: Technical guidance</i> (Murnane et al. 2006) CIRIA C649: <i>Control of water pollution from linear construction projects: Site guide</i> (Murnane et al. 2006) DMRB HD33/06: <i>Surface and sub-surface drainage systems for highways</i>. Design Manual for Roads and Bridges. Volume 4: 2, (2006). The contractor will also follow measures outlined in Chapter 11 of the EIS for the protection of watercourses 	<p>Reduce adverse effects on cSAC as a result of watercourse pollution, sedimentation and erosion as a result of construction activities near watercourses (both on upstream watercourses and on the River Slaney).</p>	<p>Required as part of Construction contractor's responsibilities.</p>	<p>Correct implementation of the measures will result in no significant residual impact on the integrity of the cSAC.</p>	<p>None recommended. The regulatory bodies may require specific monitoring measures.</p>
<p>The contractor will prepare a method statement, which will have regard to the above guidelines and will include specific measure in relation to the following:</p> <ul style="list-style-type: none"> Storage of fuels, oils, greases and hydraulic fluids. Locations for refuelling of machinery and machine servicing. Control of run-off from concrete mixing. 	<p>Reduce adverse effects on cSAC as a result of watercourse pollution, sedimentation and erosion as a result of construction activities near watercourses (both on upstream watercourses and on the River Slaney).</p>	<p>Required as part of Construction contractor's responsibilities.</p>	<p>Correct implementation of the measures will result in no significant residual impact on the integrity of the cSAC.</p>	<p>None recommended. The regulatory bodies may require specific monitoring measures.</p>

Table 2.4 Mitigation Measures

Proposed Mitigation Measures	How will the mitigation measures avoid and / or reduce adverse effects on the integrity of the cSAC?	How will the mitigation measures be implemented, when and by whom?	What is the degree of confidence in the likely success of the mitigation measures?	What proposed monitoring of the mitigation measures?
<ul style="list-style-type: none"> Erosion control in relation to cleared lands. Control of silt run-off. Control of surface-water run-off. Location and size of stockpile areas for sands and gravel. Control of sand and gravel run-off. Inspection and maintenance of settlement ponds. 				
Watercourse crossings				
<p>In addition to the guidelines listed above, when undertaking watercourse crossings and in-stream works, contractors must have regard to the following guidelines to ensure that watercourses are adequately protected from construction work:</p> <ul style="list-style-type: none"> NRA (2005). <i>Guidelines for the crossing of watercourses during the construction of National Road Schemes</i>. ERFB (2006). <i>Requirements for the protection of fisheries and habitats during construction and development works at river sites</i>. The contractor will also follow measures outlined in Chapter 11 of the EIS for the protection of watercourses. 	<p>Reduce adverse effects on cSAC as a result of watercourse pollution, sedimentation and erosion and direct impacts to fauna, during watercourse crossing construction. This applies to upstream culvert and bridge construction and construction of the clear span bridge on the River Slaney.</p>	<p>Required as part of Construction contractor's responsibilities.</p>	<p>Correct implementation of the measures will result in no significant residual impact on the integrity of the cSAC.</p>	<p>None recommended. The regulatory bodies may require specific monitoring measures.</p>
<p>The contractor will prepare a method statement, which will have regard to the above and the consultation advice from ERFB and will include specific measure in relation to</p>	<p>Reduce adverse effects on cSAC as a result of watercourse pollution, sedimentation and erosion and direct impacts to fauna, during</p>	<p>Required as part of Construction contractor's responsibilities.</p>	<p>Correct implementation of the measures will result in no significant residual impact on the integrity of</p>	<p>None recommended. The regulatory bodies may require specific monitoring measures.</p>

Table 2.4 Mitigation Measures

Proposed Mitigation Measures	How will the mitigation measures avoid and / or reduce adverse effects on the integrity of the cSAC?	How will the mitigation measures be implemented, when and by whom?	What is the degree of confidence in the likely success of the mitigation measures?	What proposed monitoring of the mitigation measures?
<p>the following:</p> <ul style="list-style-type: none"> • Timing of works to avoid the Annual Close Season for Salmonids. • Methods to control run-off of silt and suspended solids entering watercourses. • Response measures to potential pollution incidents. • Maintenance of flow during in-stream works (e.g. via temporary stream diversion) and fish removal if required. • Methods to stabilise watercourse banks that have been cleared of vegetation. • Maintenance of machinery to be used in-stream. • Removal and replacement of stream bed material in diverted watercourses. 	<p>watercourse crossing construction. This applies to upstream culvert and bridge construction and construction of the clear span bridge on the River Slaney.</p>		<p>the cSAC.</p>	
<p>As part of the design, bottomless culverts are to be used on important Salmonid watercourses. In addition, the contractor must have regard to the NRA Guidelines: <i>Guidelines for the crossing of watercourses during the construction of National Road Schemes</i> in relation to culvert design and installation. Culvert design aspects that must be suitable for fish passage include:</p> <ul style="list-style-type: none"> • Culvert slope (and hence flow levels through culvert). • Level of the culvert bottom (invert) below the level of the natural stream bed. • Design of pools at entrance and exit to culvert for fish passage. 	<p>Reduce adverse effects on cSAC as a result of habitat fragmentation due to culvert construction on upstream watercourses.</p>	<p>Required as part of Construction contractor's responsibilities.</p>	<p>Correct implementation of the measures will result in no significant residual impact on the integrity of the cSAC.</p>	<p>None recommended. The regulatory bodies may require specific monitoring measures.</p>

Table 2.4 Mitigation Measures

Proposed Mitigation Measures	How will the mitigation measures avoid and / or reduce adverse effects on the integrity of the cSAC?	How will the mitigation measures be implemented, when and by whom?	What is the degree of confidence in the likely success of the mitigation measures?	What proposed monitoring of the mitigation measures?
<ul style="list-style-type: none"> Maintenance of minimum water level within culvert.* <p>*Baffles are to be used to ensure maintenance of required minimum water levels through culverts. As all watercourses have the potential to support Lamprey species (ERFB, pers. comm.) all baffles will be notched to facilitate Lamprey passage.</p>				
<p>Special mitigation measures will be used in relation to Culvert M11-C-03 (A-C), which crosses the Bracken Tributary BRT02. This flows into the River Bann, which supports Freshwater Pearl Mussel. Given the sensitivity of this species to increased silt load, measures are required to prevent downstream erosion of the watercourse banks below the culvert. This will reduce the risk of silt entering the River Bann as a result of construction works. An ecologist will be involved in the exact design of the bank erosion protection measures.</p>	<p>Reduce adverse effects on Freshwater Pearl Mussel in the River Bann (and cSAC) as a result of watercourse pollution, sedimentation and erosion as a result of construction activities on Bracken Tributary BRT02.</p>	<p>Required as part of Construction contractor's responsibilities.</p>	<p>Correct implementation of the measures will result in no significant residual impact on the integrity of the cSAC.</p>	<p>None recommended. The regulatory bodies may require specific monitoring measures.</p>
<i>Invasive species</i>				
<p>Indian Balsam was recorded at the crossing point of the River Slaney. Invasive plant species were not recorded at any other watercourse crossing location. Indian Balsam and Japanese Knotweed are both present in the area (NPWS, pers. comm.) and as these species can rapidly invade new habitats, particularly on watercourse banks, their</p>	<p>Reduce adverse effects on cSAC as a result of invasive species spread within Annex I habitat 'Alluvial Forest'.</p>	<p>Required as part of Construction contractor's responsibilities.</p>	<p>Correct implementation of the measures will result in no significant residual impact on the integrity of the cSAC.</p>	<p>None recommended. The regulatory bodies may require specific monitoring measures.</p>

Table 2.4 Mitigation Measures

Proposed Mitigation Measures	How will the mitigation measures avoid and / or reduce adverse effects on the integrity of the cSAC?	How will the mitigation measures be implemented, when and by whom?	What is the degree of confidence in the likely success of the mitigation measures?	What proposed monitoring of the mitigation measures?
presence at watercourse crossings prior to construction works cannot be ruled out. NPWS recommended therefore that pre-construction surveys, by a suitably qualified ecologist, are undertaken for invasive plant species at all watercourse crossing points. Appropriate mitigation will be outlined for crossing points where invasive plant species are found to be present. This will have regard to the 'Invasive species Ireland' Best Practice Guidelines and Management Plans, where these exist for the species concerned.				
Planting of riparian habitat				
<p>Watercourse banks may require planting for stabilisation and to prevent invasive species such as Indian Balsam from becoming established. Planting of riparian habitats will have regard to the following guidelines:</p> <ul style="list-style-type: none"> NRA (2005). <i>A guide to landscape treatments for National Road Schemes in Ireland</i>. <p>The planting scheme will ensure that the species used are native, reflect the existing plant communities at that location and do not contain invasive species. If translocation of existing plant material is to be used then this must be free of invasive species. A suitable qualified ecologist will be consulted in relation to the planting scheme in these locations.</p>	Reduce adverse effects on cSAC as a result of bank erosion and invasive species colonisation of riverbanks.	Required as part of Construction contractor's responsibilities.	Correct implementation of the measures will result in no significant residual impact on the integrity of the cSAC.	None recommended. The regulatory bodies may require specific monitoring measures.
Otter				

Table 2.4 Mitigation Measures

Proposed Mitigation Measures	How will the mitigation measures avoid and / or reduce adverse effects on the integrity of the cSAC?	How will the mitigation measures be implemented, when and by whom?	What is the degree of confidence in the likely success of the mitigation measures?	What proposed monitoring of the mitigation measures?
<p>Otter mitigation measures will have regard to international good practice and national guidelines:</p> <ul style="list-style-type: none"> Guidelines for the Treatment of Otters Prior to the Construction of National Road Schemes (NRA, 2006). Design Manual for Roads and Bridges: Nature Conservation Advice in Relation to Otters (Highways Agency, 2001). <p>Mitigation measures that the contractor must follow are summarised below; refer to the above NRA and DMRB guidelines for full details:</p> <ul style="list-style-type: none"> Pre-construction Otter surveys of holts within 150m of the Proposed Scheme. Exclusion and removal* of any holts that are within the landtake for the Proposed Scheme. Exclusion and/ or removal* of holts close to landtake, where there may be temporary disturbance. Specification of distances within which work should not be undertaken near holts where breeding females or cubs are present. Timing of works to avoid breeding season (requires survey to determine as Otters may breed at any time of year) where holt is not to be excluded. Specification of distances within which work should not be undertaken near 	<p>Reduce adverse effects on cSAC as a result of direct and indirect impacts to Otters from disturbance and injury, culvert construction, road mortality and habitat fragmentation.</p>	<p>Required as part of Construction contractor's responsibilities.</p>	<p>Correct implementation of the measures will result in no significant residual impact on the integrity of the cSAC.</p>	<p>None recommended. The regulatory bodies may require specific monitoring measures.</p>

Table 2.4 Mitigation Measures

Proposed Mitigation Measures	How will the mitigation measures avoid and / or reduce adverse effects on the integrity of the cSAC?	How will the mitigation measures be implemented, when and by whom?	What is the degree of confidence in the likely success of the mitigation measures?	What proposed monitoring of the mitigation measures?
<p>active, non-breeding holts.</p> <ul style="list-style-type: none"> • Protection (e.g. fencing) of holts and prohibited working areas. • Clear identification (e.g. signing) of holts and prohibited working areas. • Fencing of relevant areas of Proposed Scheme to prevent Otters from crossing a road at unsafe locations and will help to guide them to underpass locations where they can cross under the road safely. <p>*Excavation and removal of Otter holts will follow the NRA (2005) <i>Guidelines for the Treatment of Badgers prior to the Construction of National Road Schemes</i>, as recommended by the <i>Guidelines for the Treatment of Otters Prior to the Construction of National Road Schemes</i> (NRA, 2006).</p> <p>In relation to watercourse crossings, the following mitigation will be specified in the contractor's method statement.</p> <ul style="list-style-type: none"> • Inclusion of mammal ledges or dry culvert, suitable for Otter passage, in all culverts. • Inclusion of ramps for access to ledges or dry culverts, where required. • Measures to guide Otters to ledges or dry culverts. 				
Operational phase				
Measures to facilitate designated fish species and Otter through watercourse crossings have	n/a	n/a	n/a	n/a

Table 2.4 Mitigation Measures

Proposed Mitigation Measures	How will the mitigation measures avoid and / or reduce adverse effects on the integrity of the cSAC?	How will the mitigation measures be implemented, when and by whom?	What is the degree of confidence in the likely success of the mitigation measures?	What proposed monitoring of the mitigation measures?
been outlined in the construction mitigation section above.				
Methods to prevent pollution of watercourses from pollution incidents and surface run-off have been included in the design stage (balancing ponds, interceptors and wetland planting). Maintenance procedures are included in the best practice guidelines listed in the construction mitigation section.	n/a	n/a	n/a	n/a

RESIDUAL IMPACT

Table 2.5 lists the impacts to the integrity of the cSAC in relation to residual impacts, after correct implementation of mitigation measures. As there are no significant residual negative impacts, it is concluded that the Proposed Scheme will not have a significant negative impact on the cSAC.

Table 2.5 Integrity of Site in relation to residual impacts		
Conservation Objectives		
<i>Does the project have the potential to:</i>	Yes or No	Details
cause delays in progress towards achieving the conservation objectives of the site?	No	No significant residual negative impacts
interrupt progress towards achieving the conservation objectives of the site?	No	No significant residual negative impacts
disrupt those factors that help to maintain the favourable conditions of the site?	No	No significant residual negative impacts
interfere with the balance, distribution and density of key species that are the indicators of the favourable condition of the site?	No	No significant residual negative impacts
cause changes to the vital defining aspects (e.g. nutrient balance) that determine how the site functions as a habitat or ecosystem?	No	No significant residual negative impacts
change the dynamics of the relationships (between, for example, soil and water or plants and animals) that define the structure and/or function of the site?	No	No significant residual negative impacts
interfere with predicted or expected natural changes to the site (such as water dynamics or chemical composition)?	No	No significant residual negative impacts
reduce the area of key habitats?	No	No significant residual negative impacts
reduce the population of key species?	No	No significant residual negative impacts
change the balance between key species?	No	No significant residual negative impacts
reduce diversity of the site?	No	No significant residual negative impacts

Table 2.5 Integrity of Site in relation to residual impacts

Conservation Objectives

<i>Does the project have the potential to:</i>	Yes or No	Details
result in disturbance that could affect population size or density or the balance between key species?	No	No significant residual negative impacts
result in fragmentation?	No	No significant residual negative impacts
result in loss or reduction of key features (e.g. tree cover, tidal exposure, annual flooding, etc.)?	No	No significant residual negative impacts

M11 Gorey to Enniscorthy Scheme

Environmental Impact Statement

Appendix 9.6

Wexford Slobs & Harbour FONSE (Finding Of No Significant Effect)

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**APPROPRIATE ASSESSMENT
“FINDINGS OF NO SIGNIFICANT EFFECTS REPORT”**

**FOR
M11 GOREY TO ENNISCORTHY SCHEME**

IN RELATION TO

WEXFORD HARBOUR AND SLOBS SPECIAL PROTECTION AREA

**PREPARED IN ACCORDANCE WITH ARTICLE 6(3) AND (4)
OF THE EUROPEAN COMMISSION HABITATS DIRECTIVE 92/43/EUROPEAN
COMMISSION
April 2009**

Scott Cawley, 27 Lower Baggot Street, Dublin 2, Ireland

Tel+353(1)676-9815 Fax +353(1) 676-9816

1. Introduction

The information in this report, has been prepared by Scott Cawley Ltd., on behalf of Wexford County Council ('the applicant'). It provides information on and assesses the potential impacts of the proposed M11 Gorey to Enniscorthy Scheme. The information in this report forms part of, and should be read in conjunction with, the Environmental Impact Statement (EIS) that has been prepared for the proposed development.

In light of the location of the proposed development, in the vicinity of the SPA, it is necessary that the proposal should have due regard to Regulations 30 and 33 of the Habitats Regulations (1997).

Regulation 30:

(1) Where a proposed road development in respect of which an application for the approval of the Minister for the Environment has been made in accordance with section 51 of the Roads Act, 1993, is neither directly connected with nor necessary to the management of a European site but likely to have a significant effect thereon either individually or in combination with other developments, the Minister for the Environment shall ensure that an appropriate assessment of the implications for the site in view of the site's conservation objectives is undertaken.

(2) An environmental impact assessment as required under subsection (2) of section 51 of the Roads Act, 1993, in respect of a proposed road development referred to in paragraph (1) shall be an appropriate assessment for the purposes of this Regulation.

(3) The Minister for the Environment shall, having regard to the conclusions of the assessment undertaken under paragraph (1), agree to the proposed road development only after having ascertained that it will not adversely affect the integrity of the European site concerned.

(4) In considering whether the proposed road development will adversely affect the integrity of the European site concerned, the Minister for the Environment shall have regard to the manner in which the proposed development is being carried out or to any conditions or restrictions subject to which the approval is given.

(5) The Minister for the Environment may, notwithstanding a negative assessment and where that Minister is satisfied that there are no alternative solutions, decide to agree to the proposed road development where the proposed road development has to be carried out for imperative reasons of overriding public interest.

- (6) (a) Subject to paragraph (b) imperative reasons of overriding public interest shall include reasons of a social or economic nature;*
(b) If the site concerned hosts a priority natural habitat type or a priority species, the only considerations of overriding public interest shall be—
- (i) those relating to human health or public safety,*
 - (ii) beneficial consequences of primary importance for the environment, or*
 - (iii) further to an opinion from the Commission to other imperative reasons of overriding public interest.*

Regulation 33:

Where in accordance with Regulations 27 (5), 28 (5), 29 (4), 30 (5), 31 (5) or 32 (5) an operation or activity is agreed to, notwithstanding a negative assessment of the implications for a European site, the Minister shall ensure that the necessary compensatory measures are taken to ensure that the overall coherence of Natura 2000 is protected.

In the absence of any national guidance¹ on how to carry out AA, this report has been prepared in accordance with the EC Environment Directorate-General (DG) document "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", referred to as the "EC Article 6 Guidance Document". The guidance within this document provides a non-mandatory methodology for carrying out assessments required under Article 6(3) and (4) of the Habitats Directive, and is also viewed as an interpretation of the EC's document "Managing Natura 2000 sites: The Provisions of Article 6 of the Habitat's Directive 92/43/EEC", referred to as "MN2000".

The European Commission guidance document sets out a four stage process for carrying out Appropriate Assessment, the first of which, referred to as "Stage One: Screening", identifies the likely impacts on a Natura 2000 site, if any, which would arise from a proposed development, and further considers whether these impacts are likely to be significant.

If the conclusions at the end of the Stage One Screening are that there would be no significant impacts on the Natura 2000 site, there is no requirement to proceed to subsequent stages. However, even if the Stage One Screening makes a finding of no significant impacts, and therefore concludes that further stages of the Appropriate Assessment process are not required, a 'Findings of No Significant Effects' report is required in order to provide transparency of decision-making, and to ensure the application of the 'precautionary principle'². This document presents a 'Findings of No Significant Effects' report (FONSE).

It is the responsibility of the competent authority, in this instance An Bord Pleanála (ABP), to make a decision as to whether or not the proposed development should be permitted, taking into consideration any potential impact upon the Natura 2000 site in question.

In order to assist the competent authority in this decision, this report has been prepared in line with the tenets of the EC Environment DG methodological guidance for Appropriate Assessment. This document draws together the findings of the Environmental Impact Assessment, with which it is submitted.

¹ It is Scott Cawley's understanding, based on conversations with staff from the Department of Environment, Heritage and Local Government that national guidelines on AA are being drafted at the moment but are not yet available.

² One of the primary foundations of the precautionary principle, and globally accepted definitions, results from the work of the Rio Declaration. Principle #15 declaration notes:

"In order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation."

2. Appropriate Assessment Stage One Screening Exercise

The Appropriate Assessment Stage One Screening Exercise comprises four steps:

1. Determining whether the project or plan is directly connected with or necessary to the conservation management of any Natura 2000 sites;
2. Describing the specifications of the development and other cumulative developments that may affect any Natura 2000 sites;
3. Describing the characteristics of the Natura 2000 site and identifying the potential effects on any Natura 2000 sites; and
4. Assessing the significance of any effects on any Natura 2000 sites.

The outcome of Steps 1-4 for this project was that 'it can be objectively concluded that there are not likely to be significant effects on the Natura 2000 site'. Therefore no further assessment is required. Table 2.1 (FONSE report matrix) provides a summary of the information gathered for Steps 1 to 3 and the assessment of significance for Step 4.

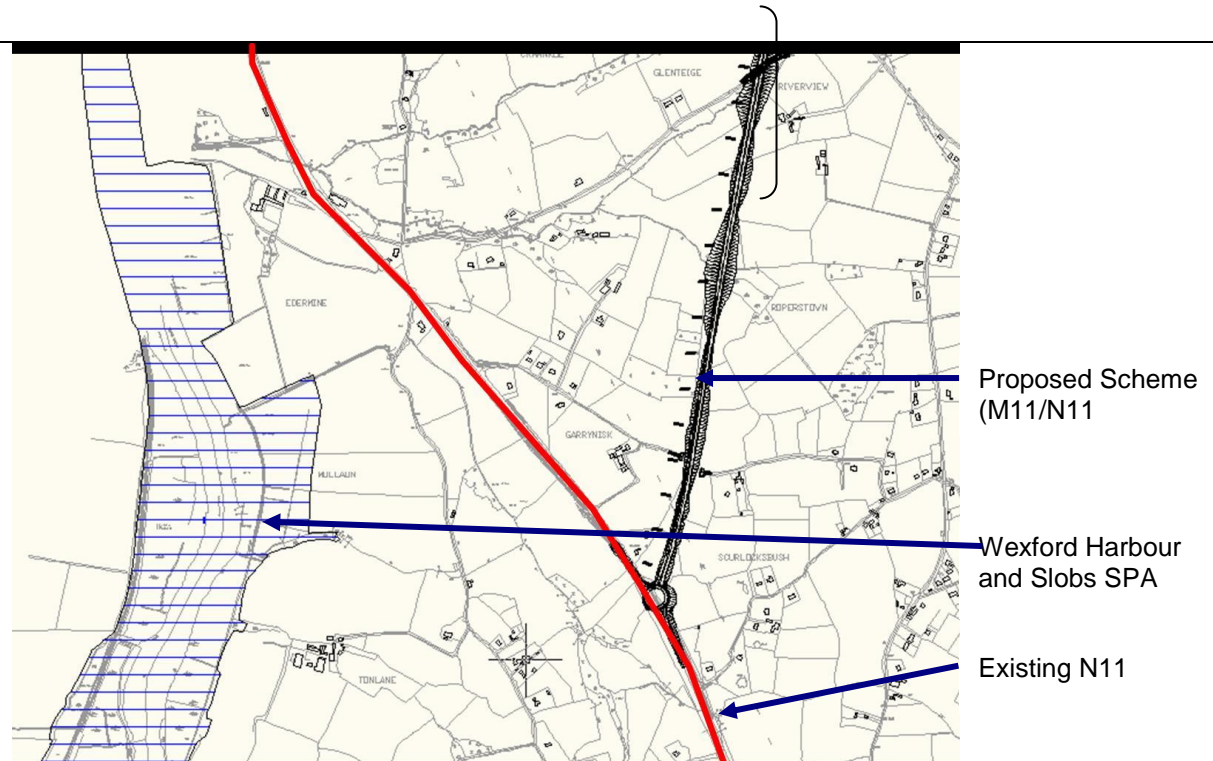
Table 2.1: Finding of No Significant Effects report matrix

Information about project

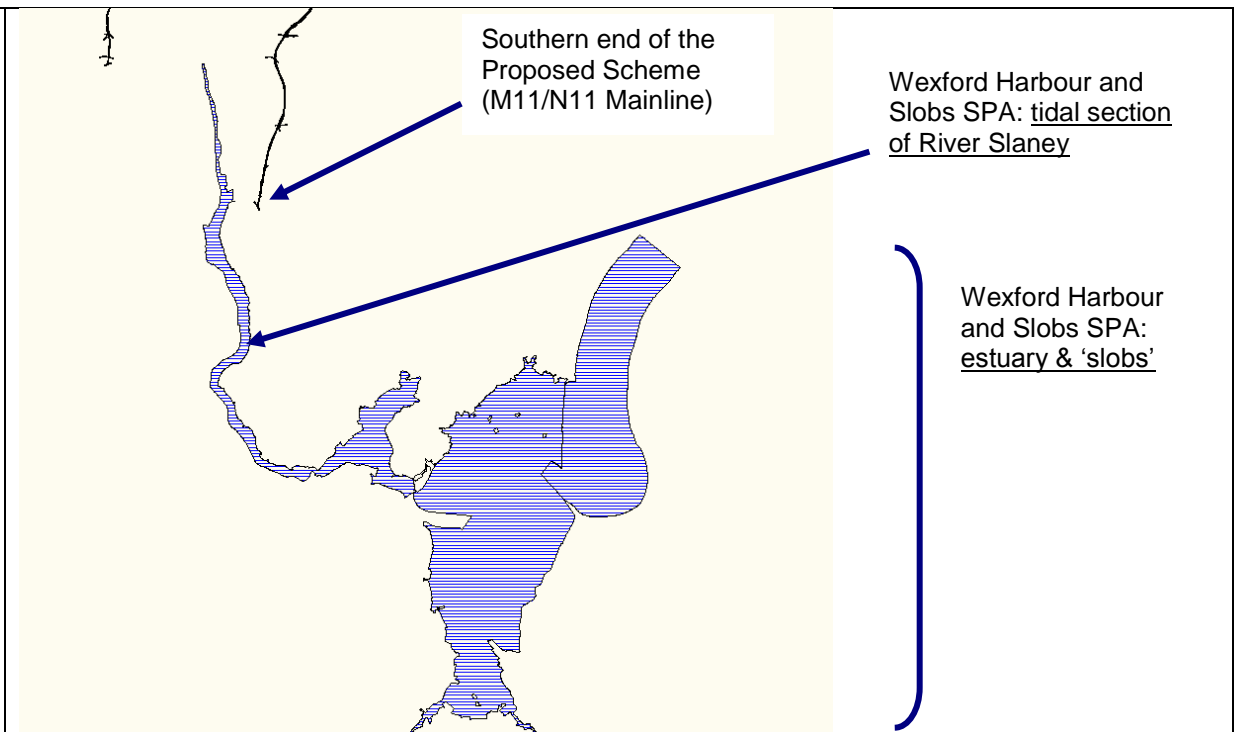
Brief description of the project or plan	<p>The proposed development area is approximately 39 km long, with the M11/N11 Mainline approximately 27 km, the N80 Link Road approximately 4 km and the N30 Mainline approximately 8 km in length. M11/N11 Mainline is standard dual motorway; the N80 Link Road is type 2 dual carriageway and the N30 Mainline is standard single carriageway.</p> <p>The Proposed Scheme will include a bridge crossing at the River Slaney and one at the River Urrin. In addition to these two bridges, culverts will generally be included where proposed passes over a watercourse. There will be approximately 23 watercourse crossings (culverts) in addition to the above bridges. These will be a mixture of box and bottomless culverts; bottomless culverts are proposed in locations that have been highlighted by the Eastern Region Fisheries Board (ERFB).</p> <p>A bridge with a main, central span of approximately 70m is the option chosen to cross over the River Slaney. This main span also crosses over the Dublin–Wexford railway, thus providing a clear span over the cSAC and the railway. The total length spanned at this location is approximately 153m. This total span length includes two side spans, each of approximately 42m. One side span is over Local Road L-2020-2. The other side span facilitates uninterrupted flow of flood waters immediately adjacent to the western bank of the river channel. The main span includes a 5m minimum width immediately adjacent to the western bank of the River Slaney that is clear of any structural elements, such as piers. On the western approach to this bridge is an earthworks embankment, which takes the N80 Link Road over an area of the River Slaney flood plain. A series of flood relief culverts are included within this embankment. . These culverts, together with the bridge side span on the western bank of the river channel, will facilitate the continued migration of flood waters down the River Slaney.</p> <p>The design flow for the structure together with the adjacent flood relief culverts will be a 100 year flood rate plus a proposed climate change allowance of a 20% increase in peak flow rates. The structure together with the adjacent flood relief culverts will result in minimal changes to the flood regime and will avoid contraction of the overbank flood flow. Consequently the predicted impact upstream of the structure for the design flood condition is small (refer to the hydraulic assessment of the proposed River Slaney bridge crossing included in Appendix 3.1 in Volume 3 of the EIS). Within the preliminary design, as described in the EIS, the flood relief provisions comprise 10 No. flood relief culverts, 4.8m wide by 3.0m high spaced equally at 14.4m centres</p>
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	<p>At outfall locations, the proposed road drainage systems for the national routes will flow via petrol / oil bypass interceptors into balancing ponds before discharging into watercourses. The balancing ponds will be designed so that the maximum rate of outflow into the receiving waters will be, at most, equivalent to the existing greenfield runoff rate. The design of the balancing pond will be undertaken in accordance with UK DMRB HA 103 and will be based on a 100-year storm event with a duration of 48 hours. The design will also include for a 20% increase in rainfall intensity, to account for climate change in accordance with current best management practice of the UK DMRB HD 33.</p> <p>Balancing ponds will be planted with species such as Common Reed <i>Phragmites australis</i>, Bulrush <i>Typha latifolia</i>, Yellow Iris <i>Iris pseudacorus</i> and Reed Canary-grass <i>Phalaris arundinacea</i> as these wetland species will assist in trapping and removing silt, nutrients and other potential pollutants.</p> <p>Full details of the development and watercourse crossings are provided in Chapter 3 of the EIS.</p>
Brief description of the Natura 2000 site	<p>Wexford Harbour and Slobs SPA comprises the lower part of the estuary of the River Slaney. The site is divided between the natural estuarine habitats of Wexford Harbour, the reclaimed polders known as the North and South 'Slobs', and the tidal section of the River Slaney.</p> <p>This SPA is designated for a range of bird species and regularly supports in excess of 20,000 waterbirds, including internationally important populations of Greenland White-fronted Goose <i>Anser albifrons flavirostris</i>, Mute Swan <i>Cygnus olor</i>, Light-bellied Brent Goose <i>Branta bernicla hrota</i>, Bar-tailed Godwit <i>Limosa lapponica</i> and Black-tailed Godwit <i>Limosa limosa</i> and is nationally important for a further 25 species of waterbird.</p> <p>The National Parks and Wildlife Service (NPWS) site synopsis states that 'there are no imminent significant threats to the wintering bird populations'. Threats listed for the Wexford Harbour and Slobs SPA are sea-level rise, changes in land-use (including forestry operations), disturbance (as result of recent housing developments) and land reclamation.</p>
Is the project or plan directly connected with or necessary to the management of the site?	The function of the Proposed Scheme is not directly related to the management of the cSAC.
Are there other projects or plans that together with the project or plan being assessed could affect the site	Wexford County Council's database of planning consents has been checked and there are no major developments in the planning stage that would have the potential to have cumulative impacts, with the project, on the SAC. The Proposed Scheme is part of a larger strategic road improvement scheme for the N11. The element to the north of the Proposed Scheme (i.e. the

	Gorey Bypass) has already been completed and a route has not yet been selected for the element which will connect to the south of the Proposed Scheme.
Assessment of significance of effects	
Describe the individual elements of the project (either alone or in combination with other plans or projects) likely to give rise to impacts on the Natura 2000 site.	<p>There is <u>no overlap</u> of the footprint of the Proposed Scheme with Wexford Harbour and Slobs SPA; therefore there will be no loss or fragmentation of habitat.</p> <p>Elements of the proposed scheme that could potentially impact on the SPA include direct and indirect impacts, resulting from the construction and operation of the development:</p> <ul style="list-style-type: none"> • disturbance (during construction and from traffic during operation); • direct mortality through vehicle collision (during construction and operation); and, • a decrease in water quality (such as increased nutrients, pollution and siltation) either during the construction of the proposed development or its operation. For instance, waterbirds could be negatively affected by reductions in water quality if this led to a decline in populations of invertebrates upon which they feed. The main potential source of such pollutants would be as a result of watercourse crossing construction upstream of the SPA.
Explain why these effects are not considered significant.	As the SPA is located 1km away from the Proposed Scheme at its closest point and the existing N11 is located between the Proposed Scheme and the SPA, it is not considered that there would be any impact of disturbance or direct mortality through vehicle collision on the Annex II bird species for which the site is designated. The relative location of the existing N11, Proposed scheme and SPA are shown in the figure below.



The estuary and north and south slob are located over 9km to the south of the end of the Proposed Scheme. These are the main feeding areas for the waterbirds for which the site is designated. Due to the distance from the Proposed Scheme there is no predicted impact of disturbance or collision mortality on these key areas of the SPA. The relative location of these to the Proposed Scheme is shown in the figure below.



In the absence of mitigation there is the potential for nutrients, silt and pollutants to enter the River Slaney system upstream of the SPA. This is covered in Chapter 9 of the EIS. However, even in the absence of mitigation it is not expected that there would be any significant negative impacts on the qualifying interests of the SPA (i.e. waterfowl) as a result of reduced water quality. This is due to the distance downstream of the SPA from potential sources of nutrients, silt and pollution, and in particular the large distance downstream of the main bird feeding grounds, the tidal nature of the River Slaney within the SPA, which would assist in removing pollutants from the system, and the already naturally existing high levels of silt load which occur in estuaries. The potential sources of pollution (from construction activities and road run-off) are not considered large enough to have a significant negative impact on the SPA and its qualifying interests given the above factors.

List of agencies consulted.	Meetings were held on 27.02.08 & 21.11.08 with ERFB environmental and fisheries staff and NPWS local and regional staff NPWS and ERFB to discuss issues pertinent to nature conservation in relation to the M11 Gorey to Enniscorthy Scheme. The Department of Environment, Heritage and Local Government were also consulted.
Response to consultation.	No issues raised in relation to impacts from Proposed Scheme on Wexford Harbour and Slob SPA from any of the consultees.

M11 Gorey to Enniscorthy Scheme

Environmental Impact Statement

Appendix 9.7

Bat Derogation Licence Application

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DRAFT BAT MITIGATION STRATEGY

M11 GOREY TO ENNISCORTHY SCHEME, CO. WEXFORD

DRAFT APPLICATION FOR DEROGATION FROM THE EUROPEAN COMMUNITIES
(NATURAL HABITATS) REGULATIONS 1997-2005

APPLICANT NAME: SUCCESSFUL CONTRACTOR

SCIENTIFIC AGENT: CONTRACTOR'S APPOINTED ECOLOGIST

May 2009

1.0 Introduction

This document presents a proposed approach to mitigating the impacts of the M11 Gorey to Enniscorthy Scheme on Bats. This information supports an application for derogation from the European Communities (Natural Habitats) Regulations 1997-2005. This derogation application is made in advance of seeking planning permission in accordance with NPWS guidelines '*Guidance on compliance with Regulation 23 of the Habitats Regulations 1997*' (NPWS Circular 2/07).

Scott Cawley has undertaken Bat surveys as part of the survey work undertaken for the Ecological Impact Assessment for the M11 Gorey to Enniscorthy Scheme. This work was undertaken on behalf of Wexford County Council. The M11 Gorey to Enniscorthy Scheme comprises the M11/N11 Mainline, N30 Mainline and the N80 Link Road.

This Bat Mitigation Strategy has been prepared in accordance with the Bat Mitigation Guidelines for Ireland (2006)¹.

2.0 Survey methodology and results

Bat surveys were undertaken with regard to the following guidelines:

- *Best Practice Guidelines for the Conservation of Bats in the Planning of National Road Schemes* (NRA, 2006).
- *Guidelines for the Treatment of Bats during the Construction of National Road Schemes* (NRA, 2005).
- *Bat Mitigation Guidelines for Ireland* (NPWS, 2006).
- *Design Manual for Roads and Bridges: Nature Conservation Advice in Relation to Bats* (Highways Agency, 2001).
- *Bat Surveys: Good Practice Guidelines* (UK Bat Conservation Trust, 2007).

The timing of Bat survey work is shown in Table 1.

¹ **Kelleher, C. & Marnell, F.** (2006). Bat Mitigation Guidelines for Ireland. *Irish Wildlife Manuals. No. 25.* NPWS, Department of Environment, Heritage and Local Government, Dublin.

Table 1: Timing of Bat survey work

Scheme section	Timing
M11/ N11 Mainline southern section	January to August 2007
M11/N11 Mainline northern section	May to September 2008
N80 Link Road	May to September 2008
N30 Mainline	January to August 2007

Roost inspection and survey

The aim of the bat surveys was to identify any areas important to Bats (including roosts, flight paths, commuting routes and foraging areas). All potential Bat roosts within 1km of the Proposed Scheme were identified during a 'windscreen survey'. These comprised structures and habitats such as Broadleaved Woodland and treelines. The owners of all buildings that were considered to have good potential for Bats were contacted by letter and questionnaire enquiring whether they were aware of Bats in their properties and seeking permission to access properties for internal inspections. Day time internal and external building inspections were carried out for the vast majority of these potential Bat roosts.

During the Habitat survey, habitats such as Broadleaved Woodland that have the potential to support Bat roosts were identified and their potential to support Bat roosts assessed.

Follow up dusk and dawn surveys Batwere undertaken using heterodyne and time expansion detectors (Pettersson D-100, Bat box III & Pettersson D-240x) as well as frequency division detectors (Anabat SD1). Recordings were analysed using sound analysis software (Bat Sound and Analook).

Bat activity survey

Evening surveys of potential foraging habitats were also carried out in the wider area around potential roosts. In addition, point counts and car based surveys, with Anabat detectors and GPS devices, were carried out to map and quantify the commuting and routes and foraging habitats of Bat species within the study area.

Bat roosts of six Bat species were recorded: Whiskered Bat, Leisler's Bat, Soprano Pipistrelle, Brown Long-eared Bat, Common Pipistrelle and Natterer's Bat. Bat commuting activity was recorded for Common Pipistrelle, Soprano Pipistrelle, Leisler's Bat, Natterer's

Bat, Daubenton's Bat, Whiskered Bat and Brown Long-eared Bat and unidentified Pipistrelle and *Myotis* species. Bat foraging activity was recorded for Common Pipistrelle, Soprano Pipistrelle and Daubenton's Bat. Full details and maps showing the locations of activity and roosts are given in the EIS.

3.0 Proposed mitigation strategy

As part of the construction works, eight buildings will be demolished (five buildings are located within the same property), details of these are given in Table 2. None of these were found to contain Bat roosts at the time of the survey.

Table 2: Buildings within the land acquisition extents of the Proposed Scheme that are to be demolished.

Townland	Chainage (m)	Description	Location
M11/N11 Mainline			
Ballymore	7580	Cottage	Under M11 Mainline
Rockspring	8380	Ruins	Under Access Road
Tomnafunshoge	21000	Partially constructed house	Under M11 Mainline
N30 Mainline			
Bessmount	6180	Shed	Under N30 Mainline
	6205	Motor vehicle repair workshop	Under N30 Mainline
	6230	Shed	Under N30 Mainline
	6240	Shed / Boiler House	Under N30 Mainline
	6250	House	Under N30 Mainline

In addition, some areas of woodland and scrub that are located within the road alignment, or adjacent to it, will be removed during the construction phase. Some of these woodland areas were found to contain mature trees that have the potential to support Bat roosts. One Leisler's tree roost (approximately 10 to 20 Bats) was identified in a strip of woodland at approximate Chainage N80:2,500m. These are listed in the EIS and in Table 3 below.

The proposed mitigation strategy is detailed within the EIS and is also summarised below.

All Bat mitigation measures will have regard to international good practice and national guidelines:

- *Guidelines for the Treatment of Bats during the Construction of National Road Schemes* (NRA, 2005).
- *Bat Mitigation Guidelines for Ireland* (NPWS, 2006).
- *Design Manual for Roads and Bridges: Nature Conservation Advice in Relation to Bats* (Highways Agency, 2001).

1) Mitigation in respect of the buildings to be demolished

- Pre-construction bat surveys of the structures to be demolished must be carried out to ensure that Bats have not taken up residence in them between the time of the EIS surveys and the commencement of construction works.
- If Bats are not found to be present then the Bat specialist will determine whether it is still necessary to be present during building demolition.
- A derogation licence will be required for the removal or disturbance of any confirmed Bat roosts.
- No Bat roosts were confirmed in buildings to be demolished during the survey work. If Bats are found during pre-construction surveys of these buildings then revision of this derogation licence will be required and an experienced bat specialist will need to prepare a mitigation strategy. Any changes to the proposed mitigation will need to be agreed in advance of demolition works commencing with the NPWS.

2) Mitigation in respect of vegetation clearance within woodlands and hedgerows

- Prior to the commencement of construction works a survey will need to be undertaken by a suitably qualified and experienced bat worker to identify any trees which have potential for bat roosts within the landtake of the Proposed Scheme.
- Where trees with potential for bats are situated along the boundary of the landtake, the potential of retaining these trees will need to be discussed with the appointed contractor. Those trees regarded as having potential for bats will need to be clearly marked.

- Trees which have high potential for bat roosts must be surveyed by a bat specialist at night prior to felling. Where Bats are not recorded during this survey, these should be felled the day immediately following the survey. The bat specialist will determine the level of survey work required and whether they are required to be present for the tree felling works.
- Trees which have low potential for bat roosts will not require pre-felling night time surveys, but will require some precautionary measures during felling. The bat specialist will determine the level of survey work required and whether they are required to be present for the tree felling works.
- The precise methodology for felling trees with Bat potential will be determined by the bat specialist. In some cases it will be appropriate to fell trees by gently pushing them over by machine, while in others it would be better to fell them in sections and lower sections to the ground.
- Locations where bat boxes will be installed on trees and in woodland are listed for each section of the Proposed Scheme. The precise number and locations within woodland and on trees will be determined by the bat specialist. This bat worker will also provide instruction to contractors on the proper erection of bat boxes. The pre-construction assessment of trees for bat potential by the bat specialist will identify further suitable locations for bat boxes.
- All trees that are identified by the bat specialist to have potential to support Bats, regardless of whether they are high or low potential and whether or not Bats are found present, must be felled between either late August to early November or late February to mid-April. These are times when bats are capable of flight and are outside of the summer breeding and winter hibernation periods when they would be most vulnerable to disturbance.

Table 3: Provisional location of mitigation Bat boxes

Chainage	Description of existing potential roost	Distance from Proposed Scheme (m) ²	Mitigation
M11/ N11 Mainline			

Table 3: Provisional location of mitigation Bat boxes

Chainage	Description of existing potential roost	Distance from Proposed Scheme (m)²	Mitigation
1,400	Large oak trees in the vicinity may need to be removed for works or be at risk of damage.	Adjacent to alignment to the south.	Determine which trees are outside of the Lands Made Available and may be retained and implement tree protection measures if necessary. Provide bat boxes in adjacent broadleaved woodland on south eastern edge of alignment at 1,450.
1,500	Large oak trees	On alignment	Provide bat boxes in broadleaved adjacent woodland on south eastern edge of alignment at 1,450.
1,600 to 1,700	Large Scot's pine trees	On alignment	Provide bat boxes in broadleaved adjacent woodland on south eastern edge of alignment at 1,450.
1,900 to 2,000	Large Scot's pine trees	On alignment	Provide bat boxes in broadleaved adjacent woodland on south eastern edge of alignment at 1,450.
2,100	Large ash trees	On alignment and 30m north of alignment.	Determine which trees are outside of the Lands Made Available and may be retained and implement tree protection measures if necessary. Provide bat boxes on ash trees to be retained in this hedgerow and / or in high value hedges north of M11 / N11 2,300.
3,300	Number of large Ash trees across alignment along the Bracken Stream	On alignment	Provide bat boxes in adjacent trees along railway line, along Bracken stream and / or wet woodland to east of alignment at M11 / N11 Chainage 3,200.
5,350	Number of large Oak and Ash trees within hedgerow.	On alignment.	Provide bat boxes in adjacent broadleaved woodland, high value hedgerow and / or wet woodland, all west of alignment between 5250 and 5,750.
5,550	Number of large Oak and Ash trees within hedgerow.	On alignment and immediately adjacent to west of alignment.	Determine which trees are outside of the Lands Made Available and may be retained and implement tree protection measures if necessary. Provide Bat boxes in adjacent broadleaved woodland, high value hedgerow and / or wet woodland, all west of alignment between 5250 and 5,750.
5,800 to 6,000	Number of large Oak and Ash trees within hedgerow.	On alignment and immediately adjacent to west of alignment.	Determine which trees are outside of the Lands Made Available and may be retained and implement tree protection measures if necessary. Provide Bat boxes in adjacent broadleaved woodland, high value hedgerow and / or wet woodland, all west of alignment between 5250 and 5,750.

Table 3: Provisional location of mitigation Bat boxes

Chainage	Description of existing potential roost	Distance from Proposed Scheme (m)²	Mitigation
6,300	Number of large Oak trees within hedgerow/ Bracken Stream.	On alignment.	Provide bat boxes in suitable trees to be identified in adjacent hedgerows.
8,050	Large trees	On alignment	Provide Bat boxes in suitable trees to be identified in adjacent hedgerows. Consideration should be given to using trees on Local Road - 5096 to the south on the eastern side of the alignment as the proposed re-routing of this local road will result in it carrying less traffic and activity.
8,250 to 8,300	Large trees	On alignment	Provide Bat boxes in suitable trees to be identified in adjacent hedgerows. As with comment above, consideration should be given to using trees on Local Road - 5096 to the south on the eastern side of the alignment.
11,550	One mature Ash tree.	On western edge of alignment.	Provide bat boxes in suitable trees to be identified in adjacent hedgerows.
13,400	A number of mature Ash trees.	On alignment.	Provide Bat boxes in suitable trees in existing adjacent woodland along the Tinnacross Stream.
14,100	One mature Ash tree.	On eastern edge of alignment.	Provide Bat boxes in trees along tributary of the Tinnacross to the east or west and / or in block of broadleaved woodland approx. 300m to the east.
14,200	Cluster of mature Beech trees at bend in track and one mature Ash on stream bank.	On western edge of alignment.	Provide Bat boxes in trees along tributary of the Tinnacross to the east or west and / or in block of broadleaved woodland approx. 300m to the east
14,225	One mature Ash on northern bank of tributary of Tinnacross (TT-06) and western edge of track.	On alignment	As for above.
14,450	Mature Oak trees	On western edge of alignment.	Provide Bat boxes in trees along the Tinnacross to the west.
N80 Link Road			
2,500	Mature oak trees	On alignment.	Provide bat boxes in trees in remaining woodland to be retained to east of alignment.
N30 Mainline			

Table 3: Provisional location of mitigation Bat boxes

Chainage	Description of existing potential roost	Distance from Proposed Scheme (m)²	Mitigation
5,100	Semi-mature trees	On or immediately adjacent to northern edge of alignment	Determine which trees are outside of the Lands Made Available and may be retained and implement tree protection measures if necessary. Provide bat boxes in adjacent broadleaf woodland to be retained to the north of the alignment.
6,500 to 6,600	Mature trees	On alignment	Provide bat boxes in trees in remaining woodland to be retained to east of alignment.

4.0 Monitoring

The Derogation Licence is likely to include requirements for short and long term scientific monitoring programmes. Once these licences have been received the licensee will be responsible for implementing these short and long term monitoring requirements and for the associated reporting requirements to the NPWS.

M11 Gorey to Enniscorthy Scheme

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Appendix 9.8

Otter Derogation Application

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DRAFT OTTER MITIGATION STRATEGY
M11 GOREY TO ENNISCORTHY SCHEME, CO. WEXFORD

DRAFT APPLICATION FOR DEROGATION FROM THE EUROPEAN COMMUNITIES
(NATURAL HABITATS) REGULATIONS 1997-2005

APPLICANT NAME: SUCCESSFUL CONTRACTOR
SCIENTIFIC AGENT: CONTRACTOR'S APPOINTED ECOLOGIST

May 2009

1.0 Introduction

This document presents a proposed approach to mitigating the impacts of the M11 Gorey to Enniscorthy Scheme on Otters. This information supports an application for derogation from the European Communities (Natural Habitats) Regulations 1997-2005. This derogation application is made in advance of seeking planning permission in accordance with NPWS guidelines '*Guidance on compliance with Regulation 23 of the Habitats Regulations 1997*' (NPWS Circular 2/07).

Scott Cawley has undertaken Otter surveys as part of the survey work undertaken for the Ecological Impact Assessment for the M11 Gorey to Enniscorthy Scheme. This work was undertaken on behalf of Wexford County Council. The M11 Gorey to Enniscorthy Scheme comprises the M11/N11 Mainline, N30 Mainline and the N80 Link Road.

2.0 Survey methodology and results

Otter surveys were undertaken with regard to the following guidelines:

- *Guidelines for the Treatment of Otters Prior to the Construction of National Road Schemes* (NRA, 2006).

The timing of the Otter surveys for each section of the Proposed Scheme is shown in Table 1.

Table 1: Timing of Otter surveys

Scheme section	Timing
M11/ N11 Mainline southern section	January to August 2007
M11/N11 Mainline northern section	May to September 2008
N80 Link Road	May to September 2008
N30 Mainline	January to August 2007

Watercourses were surveyed 250 metres either side of the centreline of the Proposed Scheme for signs of Otter. Evidence of Otter activity was noted in the form of spraints, prints, holts and couches (resting areas on river banks). Where holts were encountered they were described and their locations mapped.

All main watercourses within the vicinity of the Proposed Scheme were considered to have the potential to be used by Otter for foraging and commuting. Table 2 shows the Otter holts, located within 250m of the Proposed Scheme, that were recorded during the surveys.

Table 2: Otter Holts located within 250m of the Proposed Scheme

Otter Holt (OH) Number	GPS REF (IS ITM)	Chainage	Distance from Proposed Scheme	Description
M11/N11 Mainline				
1	99428 33851	27,500	19	Large hole, entrance path leads directly from water. Low flow stream.
3	06984 48543	9,180	87	Fairly inactive entrance, but with path to the river
4	06981 48557	9,180	62	Large active hole under tree. Appears to be a rough path directly to the stream. Some loose straw nearby, may be bedding
5	02121 44740	15,560	36	1 entrance with moderate spoil and tracks to river
6	01161 44271	16,150	0	Open hole in ditch, with tracks to river possible Otter holt
N30 Mainline				
2	97931 44283	0,200	129	In woodland scrub beside stream.

3.0 Proposed mitigation strategy

Otter mitigation measures will have regard to international good practice and national guidelines:

- *Guidelines for the Treatment of Otters Prior to the Construction of National Road Schemes* (NRA, 2006).

- *Design Manual for Roads and Bridges: Nature Conservation Advice in Relation to Otters* (Highways Agency, 2001).

Mitigation measures that the contractor must follow are summarised below; refer to the above NRA and DMRB guidelines for full details:

- Pre-construction Otter surveys of holts within 150m of the Proposed Scheme.
- Exclusion and removal* of any holts that are within the landtake for the Proposed Scheme.
- Exclusion and/ or removal* of holts close to landtake, where there may be temporary disturbance.
- Specification of distances within which work should not be undertaken near holts where breeding females or cubs are present.
- Timing of works to avoid breeding season (requires survey to determine as Otters may breed at any time of year) where holt is not to be excluded.
- Specification of distances within which work should not be undertaken near active, non-breeding holts.
- Protection (e.g. fencing) of holts and prohibited working areas.
- Clear identification (e.g. signing) of holts and prohibited working areas.
- Fencing of relevant areas of Proposed Scheme to prevent Otters from crossing a road at unsafe locations and will help to guide them to underpass locations where they can cross under the road safely.

*Excavation and removal of Otter holts will follow the NRA (2005) *Guidelines for the Treatment of Badgers prior to the Construction of National Road Schemes*, as recommended by the *Guidelines for the Treatment of Otters Prior to the Construction of National Road Schemes* (NRA, 2006).

In relation to watercourse crossings, the following mitigation will be specified in the contractor's method statement. Regard should also be had to the NRA (2005). *Guidelines for the crossing of watercourses during the construction of National Road Schemes*.

- Inclusion of mammal ledges or dry culvert, suitable for Otter passage, in all culverts.
- Inclusion of ramps for access to ledges or dry culverts, where required.

- Measures to guide Otters to ledges or dry culverts.

4.0 Monitoring

The Derogation licence is likely to include requirements for short and long term scientific monitoring programmes. Once these licences have been received the licensee will be responsible for implementing these short and long term monitoring requirements and for the associated reporting requirements to the NPWS.

M11 Gorey to Enniscorthy Scheme

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Appendix 10.1

Glossary of Geological Terms

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APPENDIX 10.1 GLOSSARY OF GEOLOGICAL TERMS

alluvium deposits from a river or stream

amphibolite a coarse grained, dark coloured regional metamorphic rock, formed from the metamorphism of igneous rocks

Arenig a series of the Lower Ordovician which occurred about 488-478 million years ago

Avalonian an episode of mountain building that occurred about 650-500 million years ago

brown earths The term given to brown soils which once supported a thick cover of deciduous forests. Brown earths often formed on Pleistocene glacial deposits. They are generally free draining, weathered, slightly leached and only slightly horizonated.

Caradoc a series of the Upper Ordovician which occurred 458-448million years ago

cleavage the tendency of certain minerals to split in particular directions, yielding relatively smooth plane surfaces

Devonian the fourth oldest period of the Palaeozoic Era (415-355 million years ago)

dolerite a medium-grained basic (low silica content) igneous rock which is intruded into another rock type

dyke cross-cutting tabular intrusion into rock, often vertical or near vertical

felsic a term used to describe light coloured rocks containing an abundance of feldspar and quartz. Felsic volcanics are medium grained, acidic (high silica content) igneous rocks

geological fault a rupture or fracture of rock strata due to strain, in which displacement is observable

glacial till a term given to sediment which is deposited beneath a glacier or ice sheet

glacial outwash a term referring to the sands and gravels deposited at or near to ice margins by meltwater escaping from the terminal zone of the glacier

glacio-fluvial a term referring to the processes and landforms related to the action of glacial meltwater. Such processes may occur beyond the edge of the glacier or ice sheet, or within or beneath a glacier or ice sheet. Due to the large volumes of water available, glacio-fluvial deposition frequently results in the formation of extensive outwash plains

glacio-marine a term referring to sediments laid down in a sea environment near a glacier

gley soils characteristically affected by periodic or permanent saturation by water in the absence of artificial drainage

granite a granular igneous rock composed mostly of quartz, feldspar, and commonly mica or hornblende

ice wedge polygons a term referring to an assemblage of small scale geometric features typically found in unconsolidated, weathered geological materials disturbed by frost action

igneous rocks rock which has solidified from lava or molten rock called magma

interglacial period of warmer climate that separates two colder glacial periods

intermediate volcanics any igneous rock which contains between 52% and 66% silica by weight

intrusive rocks rock that has been pushed among pre-existing rock strata, commonly along faults or fissures

lithosol a group of shallow soils lacking well defined horizons, consisting of partially weathered rock fragments

made ground a term which refers to soil deposits which have either been disturbed in-situ or transported and placed in-situ by human activity

metamorphic rocks (metamorphism) a term covering all the processes by which rocks are altered in their mineralogy, texture and internal structure owing to external sources of heat, pressure and the introduction of new chemical substances rather than changes induced by burial

Midlandian the name given to the last Pleistocene glacial stage in Ireland. During this stage the southern most portion of Ireland was not covered by the ice sheet and experienced permafrost conditions

moraine an accumulation of material which has been transported by and deposited at the margins of a glacier or Ice sheet

mudstone an argillaceous (clay bearing) sedimentary rock which is non-plastic and has massive non-foliated appearance (no consistent orientation of clay minerals)

Munsterian the name given to the penultimate glacial stage of the Pleistocene in Ireland. During this stage, almost the whole of Ireland was covered by an Ice sheet.

Ordovician the second geological period of the Palaeozoic era. The term refers to all rocks formed between 525 and 440 million years ago

outwash kame a low, long steep sided mound of glacial drift, commonly of stratified sand and gravel, deposited as an alluvial fan or delta at the terminal margin of a melting glacier

periglacial the term given to processes and features of cold climates which occur in proximity to ice sheets. It generally coincides with the zone of permafrost.

permafrost the term given to areas of permanently frozen ground

Pleistocene earliest epoch of the Quaternary Period from approximately 2 million years ago to 10,000 years ago (end of the last ice age)

pingo a low hill or mound forced up by hydrostatic pressure in an area underlain by permafrost and consisting of an outer layer of soil covering a core of solid ice

podzol the term given to soils which form in cool, seasonally humid climatic regions, where leaching is a dominant process

podzolic soils The term given to soils in Ireland and Britain which range from well-drained to poorly-drained, and are typified by a black to dark brown B-horizon (in which mineral and organic material from upper layers is deposited)

Quaternary the last 1.8 to 2 million years in geological time. The quaternary was characterised by up to 17 periods of glaciation in the northern hemisphere. Evidence for the last two glaciations may be found in Ireland (the Munsterian and Midlandian)

regosol a type of soil consisting of unconsolidated material from freshly deposited alluvium or sand

rhyolite a fine grained extrusive (volcanic) igneous rock, mineralogically similar to granite, but possessing more quartz (silica) and having its ferromagnesian minerals less obvious than in corresponding plutonic rocks formed as large intrusions and/or at depth

shale the term given to a well-laminated rock composed largely of clay. Shale splits easily along its bedding planes because of its fissility.

sill a tabular igneous intrusion with surfaces of contact parallel with the structure (bedding, foliation etc.) of the intruded rock

siltstone a typically layered and flaggy rock composed of two thirds silt sized particles

sinkhole a natural depression in the land surface formed by solution or collapse of bedrock or by suffusion of unconsolidated soils / subsoils infilling a solution or collapse landform

slate a fine-grained metamorphic rock characterised by well developed cleavage along which it splits easily.

syncline a basin or trough shaped fold, whose upper component strata are younger than those below

terrace a nearly flat portion of a landscape terminated by a steep edge

turlough a seasonal lake which occurs in winter and early spring when the groundwater table rises above the land surface

M11 Gorey to Enniscorthy Scheme

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Appendix 10.2

Historical and Existing Land Uses

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APPENDIX 10.2 HISTORICAL AND EXISTING LAND USE

Historical Land Use

Historical Ordnance Survey 6 inch (1:10,560 scale) maps from 1829 to 1841 and later 25 inch (1:2500) scale maps from 1897 to 1913 were reviewed for evidence of former land-uses along the Proposed Scheme. This review did not identify any former industrial or commercial activities along the Proposed Scheme which could have given rise to potential soil contamination. The historical maps indicate that former land-use along and in the immediate vicinity of the Proposed Scheme was predominantly agricultural and residential, much as it remains today.

The historical geology maps (notes drawn on 1829-1841 maps held by the GSI) identified a number of ponds and depressions (noted as marl, marsh or peaty) which typically correlate with low-lying, poorly drained soils and / or alluvial deposits. It is likely that where such ponds and depressions occur along the Proposed Scheme, they will have been backfilled with inert material and / or wood and vegetation, for ground improvements related to agricultural usage.

Former Quarries

A number of former quarries and pits have been identified from historical Ordnance Survey maps at varying distances from the Proposed Scheme. The approximate locations of these sites are identified on the subsoils map in Figure 10.3 in Volume 4 of this EIS.

As would be expected, these former extractive sites are located in areas underlain by sand and gravel deposits or where soil / subsoil cover is thin. In the majority of cases, there is no remaining evidence of these quarries or pits in the modern landscape, suggesting that some backfilling or levelling of these sites has taken place in the past.

There are three former extractive sites located close to the Proposed Scheme. One, a former quarry, is located in Solsborough, north-east of the Ballydawmore Junction along the M11 / N11 Mainline. Another, a former sand and gravel pit, is located in Ballynahallin, on the western side of the N80 Link Road. The third, a discussed quarry is located is located in Clavass, immediately west of the N80 Link Road and south of the Clavass Junction.

Former Waste Sites

A list of waste sites in County Wexford was obtained from Wexford County Council. The details obtained from the Council included lists of:

- Unauthorised Disposal Sites;
- Closed Landfills; and
- Landfills Closed Prior to 1977.

A closed landfill site was identified by Wexford County Council's records in Tomnafunshoge townland. The former landfill facility which accepted municipal waste from local households and industry is located approximately 400m to 500m west of the M11 Mainline, approximately midway between the Tomnafunshoge Roundabout and the Ballydawmore Junction. The presence of waste materials at this site was confirmed by preliminary ground investigations undertaken in 2006. The location of the former landfill facility is shown on the subsoils map in Figure 10.3 in Volume 4 of this EIS. As available subsoil mapping indicates that the area around this landfill site is underlain by sand and gravel, it is reasonable to infer that there were minor quarry workings at this site prior to commencement of landfilling.

Existing Land-Use

Walkover surveys, present day mapping and aerial photography all indicate that present day land use along and in the immediate vicinity of the M11 Gorey to Enniscorthy Scheme is predominantly agricultural and residential, much as it has been historically.

Waste Permit Sites

A list of waste permit applications made to Wexford County Council between 1998 and 2006 indicates that a waste permit application (Ref. No. 04/44) was submitted for a site along the M11 / N11 Mainline in Tomnafunshoge, immediately south of the R744 Regional Road. The available ground investigation data indicates that this site has been backfilled with largely inert soil, although some construction and demolition wastes may also be included within it. The location of this facility is shown on the subsoils map in Figure 10.3 in Volume 4 of this EIS. There are no other waste permit facilities or known unauthorised landfill sites in close proximity to the Proposed Scheme.

Licensed Waste / Industrial Sites

There are no Waste Licences or Integrated Pollution and Prevention and Control (IPPC) Licences issued in respect of any sites or facilities along or in the vicinity of the Proposed Scheme. The nearest licensed facility is at Custom Compost at Ballyminaun Hill, approximately 2.5km east of the Frankfort Junction.

M11 Gorey to Enniscorthy Scheme

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Appendix 11.1:

Hydrology Impact Assessment Workshop

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METHODOLOGY FOR THE WATER QUALITY, HYDROLOGICAL AND HYDROGEOLOGICAL IMPACT ASSESSMENT

The water assessment for the Proposed Scheme was carried out according to the methodology specified by the Environmental Protection Agency (EPA, 2002 and 2003). *Guidelines for the Crossing of Watercourses during the Construction of National Road Scheme* (NRA, 2006) were referred to whilst undertaking this impact assessment. In addition, the draft guideline document *Guidelines on Procedures for Assessment and Treatment of Geology, Hydrology and Hydrogeology for National Road Schemes* by the NRA was referred to

The baseline assessment involved a review of desktop information as follows:

- Geological Survey of Ireland (GSI) maps and well card data;
- Office of Public Works (OPW) flood hazard maps;
- EPA water quality database and maps; and
- South Eastern River Basin District reports / data.

Preliminary ground investigations were carried out along the line of the Proposed Scheme during 2006 and 2008, as described in Chapter 10 (Soils and Geology) of this EIS in order to obtain site specific information to feed into the preliminary design of the scheme.

The preparation of this chapter of the EIS involved a review of the preliminary drainage design for the Proposed Scheme, which indicated the location of the various drainage structures.

In addition, the desktop study was supplemented by site visits, in order to further establish the overall hydrological and hydrogeological regime within the study area. Site visits were carried out by suitably qualified scientists in July and November 2007 and in August 2008.

M11 Gorey to Enniscorthy Scheme

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Appendix 11.2:

Information on the Water Framework Directive

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WATER QUALITY, HYDROLOGICAL AND HYDROGEOLOGICAL IMPACT ASSESSMENT

LEGISLATIVE CONTEXT

Water Framework Directive – South Eastern River Basin District (SERBD)

The *European Water Framework Directive* (WFD) 2000/60/EC (EC, 2000) was implemented in Ireland by the *European Communities (Water Policy) Regulations 2003* (S.I. 722 of 2003). These regulations established in Irish law a framework for Community action in the field of water policy. The WFD has set out that a Member State shall implement the necessary measures to prevent deterioration of the status of all bodies of surface water, and shall protect, enhance and restore all bodies of surface water with the aim of achieving good status by 2015.

The WFD provides for water management on the basis of River Basin Districts (RBDs). The subject site lies within the South Eastern River Basin District (SERBD). The overall objective of river basin projects is to establish an integrated monitoring and management system for all waters within a RBD, to develop a dynamic programme of management measures and to produce a River Basin Management Plan, which will be continually updated.

The WFD is being implemented in the South Eastern RBD (SERBD) on the following timescale:

2000	Directive entered into force.
2003	Directive transposed into domestic law. River Basin Districts (RBDs) and International River Basin Districts (IRBDs) identified and the competent authorities appointed to implement the Directive.
2004	An analysis of pressures and impacts on water in the SERBD was completed including an Economic analysis – Characterisation Report. Register of Protected Areas established in each RBD.
2006	Based on the Characterisation Report Monitoring Programmes have to be designed and operated as the basis for the Water Management Plan. Timetable and work programme for producing the first River Basin Management Plans (RBMPs) established for consultation. Preparation of the EPA of a classification system for the status of waters.
2008	River Basin Management Plans must be presented to the public for consultation.
2009	Establish and publish a Programme of Measures. First River Basin Management plans to be published.
2012	Programme of measures to be fully operational.
2015	Waters within the South Eastern River Basin District to meet at least "good status".

Characterisation reports have been prepared and submitted to the European Commission for all RBDs in Ireland. The EPA has prepared and implemented a monitoring programme all water

categories: rivers, lakes, transitional and coastal waters; groundwater and canals to meet the requirements of the WFD.

A register of protected areas has been compiled and these areas have been mapped and can be viewed on the EPA's online mapping system. Significant water management issues in the South Eastern River Basin District were identified in a booklet published in December 2007 entitled Water Matters. A Draft SERBD Management Plan was issued in December 2008 and the envisaged date for adoption of a final plan further to public consultation and agreement by all the relevant Local Authorities is December 2009.

The Draft SERBD Management Plan contains an action plan for the District to prevent deterioration, restore good status and reduce chemical pollution. Specific proposed objectives and measures for individual rivers and canals, lakes and reservoirs, coastal and estuarine waters and groundwater will be devised as part of the Management Plan.

Wexford County Development Plan (2007 – 2013) Water Quality and Surface Water Drainage Context

Reference to Chapter 6 (Infrastructure, Energy and Waste) of the Wexford County Development Plan (2007 to 2013) indicates that the adequacy of water resources and possible risks to water quality and conservation will assume a high priority in considering development proposals. The Development Plan includes the following policies in relation to the protection of surface water and groundwater:

- **Policy WS.1:** To provide the County with an adequate and reliable public water supply system from which to accommodate an increase in domestic, commercial and industrial needs and to improve the quality and reliability of rural water supply schemes;
- **Policy WS .2:** To continue to implement, monitor and refine the Aquifer Protection Guidelines and prohibit development which would contravene these guidelines;
- **Policy WS .3:** To prepare and implement a comprehensive Groundwater Protection Policy with the overall aim of preserving the quality of groundwater particularly for abstraction purposes;
- **Policy WS .4:** To improve the quality of wastewater effluent discharges to meet appropriate wastewater treatment standards including the requirements of European Union Directives;
- **Policy WS .5:** To safeguard potable water sources by controlling afforestation, agricultural, commercial, industrial and domestic development within the identified source protection areas;
- **Policy WTI. 10** The discharge of surface water run-off and rainwater into foul water sewer drainage systems is strictly prohibited;

- **Policy WTI 10.1** 1) Surface water storage shall be provided to temporarily store the surface water in excess of the permissible discharge arising from a one in thirty year return period rainfall event. 2) Excess surface water arising from a rainfall event of between a one in thirty year and a one in fifty year return period shall be retained within the boundaries of the site. 3) The route of excess surface water runoff in excess of the one in fifty year return period rainfall event shall be clearly identified;
- **Policy WT1.11** To require developments to be kept at an appropriate distance from watercourses to protect them from contamination, allow for natural drainage and facilitate channel clearing maintenance;
- **Policy WTI.12** To protect wetland areas and floodplains from development except where such development does not reduce the floodplain area or otherwise restrict flow across floodplains e.g. parks, sports pitches; and
- **Policy Inf.25** Wexford County Council will implement the provisions of the River Basin Management Plans (Eastern & South Eastern River Basin Management Plans) in order to protect the environment, public health and the recreational potentials of these water bodies.

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Appendix 11.3:

Information on the Hydrological Environment

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APPENDIX 11.3

HYDROLOGICAL ENVIRONMENT OF THE M11 / N11 MAINLINE

The streams that flow through and in the vicinity of Clogh are largely within the catchment area for the Owenavorrhagh River, which flows to the east/southeast of the Proposed Scheme. That is to say the Bracken River and its tributaries crossed by the northern end of the M11/N11 Mainline up to approximate chainage M11:3,350m eventually outfall into the Owenavorrhagh River, whilst the tributaries of the Bracken River crossed by the M11/N11 Mainline south of approximate chainage M11:3,350m outfall into the River Bann. However, this only comprises a small section of the catchment area for the Owenavorrhagh River. Figure 11.1 in Volume 4 of this EIS presents the hydrological environment for the study area.

The River Slaney rises in the Lugnaquilla Mountains, flowing in a southerly direction through the towns of Tullow and Bunclody before reaching Enniscorthy. Just south of the town, according to EPA classification, it becomes the Slaney Estuary (Upper and then Lower) and is tidal, flowing in a southerly direction through Wexford Town before discharging into Wexford Harbour.

The main tributaries of the River Slaney in the vicinity of the M11/N11 Mainline are the Tinnacross Stream, Corbally Stream and River Bann.

The River Bann flows from the north-east in a south-westerly direction through the study area until it merges with the River Slaney. The River Bann rises in Croghan Mountain and flows through or in the vicinity of Hollyfort, Craanford, Camolin and Ferns. The River Slaney / Bann confluence is approximately 4km upstream of Enniscorthy Town, and just north east of the start of the N80 Link Road at the Clavass Junction.

As previously mentioned, streams in the vicinity of Clogh are largely within the catchment area for the Owenavorrhagh River. A stream flows through Clogh and another stream is located to the southwest of Clogh. Both of these streams flow in a south-easterly direction before merging with the Brackan River approximately 2km to the southeast of Clogh. Based on the preliminary design drawings available, the proposed scheme will not intercept these water bodies. Another tributary of the Owenavorrhagh River rises to the south of the proposed Scheme in Knockrobin Lower and flows in a north-easterly direction towards Ballycanew. The available information indicates that the stream will not be intercepted or used for the discharge of surface water (thus will not be impacted) by the proposed scheme. The stream then flows further northeast until it merges with the Brackan River in Ballinamona before its confluence with the Owenavorrhagh River to the east of Essex Bridge. The Owenavorrhagh River rises to the north of the town of Oulart and flows in a northerly direction towards Ballycanew and then to Coolnahinch. It then begins to flow in an easterly direction before entering coastal water at Courtown.

The report *A Survey For The Freshwater Pearl Mussel Margaritifera margaritifera (L., 1758) In The River Slaney and Its Tributaries in the Vicinity of Enniscorthy, County Wexford* by Dr. Evelyn A. Moorkens (December 2008) confirms that the Brackan River and its tributaries flow largely into the Owenavorrage River. Tributaries join the Brackan River from the north in Toberanierin Upper, Balyclogh and Ballydaniel.

There are also a number of other minor tributaries located along or in close proximity of the M11/N11 Mainline, some of which drain into the rivers mentioned above, and some of which drain directly into the River Slaney. This includes the Camolin Stream, which is located within the hydrometric area of the River Slaney. A number of tributaries flow from the north towards the River Bann but these are located a distance of at least 3km to the north of the Proposed Scheme and are not considered further in this report. The main tributaries that drain directly to the River Slaney in the vicinity of the M11/N11 Mainline are: the Tinnacross Stream, the Ballydawnmore Stream, the Corbally Stream, the Drumgold Stream, the Monroe Stream and the Scurlocksbrush Stream. All these streams join the River Slaney directly and from the east.

The Tinnacross Stream rises to the north (according to the OS Discovery Series Map Sheet 69 Wexford). Tributaries of the Tinnacross Stream are located in Kilcasey Lower, Rockspring and to the south (in Kilcoilshy) of the Proposed Scheme. The Tinnacross Stream flows in a south-westerly direction through Carrigeen, Tinnacross and Crane before merging with the River Slaney in Solsborough.

The Ballydawnmore Stream rises approximately 3 km to the east of the River Slaney and crosses the M11/N11 Mainline to the east of the Slaney. It flows in a westerly direction to its confluence with the Slaney, 2.5 km north east of Enniscorthy Town.

The Corbally Stream, a major tributary of the River Slaney, rises approximately 8 km to the east northeast of Enniscorthy town and is joined by minor tributaries as it flows towards Enniscorthy and the Proposed Scheme. At Corbally bridge, approximately 3 km east of the town, and close to the proposed M11/N11 Mainline, the stream is cut deep into the landscape and significantly below the level of Corbally Bridge. The stream then flows in a northwest direction to its confluence with the River Slaney just downstream of White's Bridge and 2 km northeast of Enniscorthy.

The Drumgold Stream is a minor tributary of the River Slaney that rises approximately 1.5 km to the east of the M11/N11 Mainline and approximately 3 km to the south east of Enniscorthy Town. The stream flows in westerly direction for 2 km as far as Aughnagalley Bridge, before flowing in a south west direction to join the River Slaney approximately 2 km south of the town.

The Monroe Stream rises approximately 3 km east of the River Slaney, crossing the M11/N11 Mainline and flowing in a westerly direction to the Slaney, joining it 4.5 km south of Enniscorthy Town.

The Scurlocksbrush Stream is a minor tributary that rises not more than 1.5 km east of the Slaney and flows directly into the Slaney, approximately 1 km south of the Monroe Stream and 5.5 km south of Enniscorthy Town.

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Appendix 11.4:

Relevance of the Proposed Scheme Design to the Hydrology Assessment

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WATER QUALITY, HYDROLOGICAL AND HYDROGEOLOGICAL IMPACT ASSESSMENT –

OUTLINE OF RELEVANT CHARACTERISTICS OF PROPOSED SCHEME

The Proposed Scheme comprises the construction of three new sections of road, which will form part of the National Road network, namely:-

- M11/N11 Mainline;
- N80 Link Road; and
- N30 Mainline.

A range of watercourses will be traversed by the Proposed Scheme a list of which is provided in Chapter 3 of this EIS. The design of watercourse crossings has been in accordance with the *Guidelines for the Crossing of Watercourses During the Construction of National Road Schemes* (NRA, 2006), the UK *DMRB HA 107/04 Design of Culvert and Outfall Details* (Highways Agency, Nov. 2004) and in consultation with the National Parks and Wildlife Service and the Eastern Regional Fisheries Board.

The River Slaney will be crossed by a bridge with a main span of approximately 70m. This main span also crosses over the Dublin – Wexford railway, thus providing a clear span over both the river and the railway. The total length spanned is approximately 153m. This total span length includes two side spans, each of approximately 42m, one over Local Road L-2020-2 and the other which facilitates uninterrupted flow of flood waters immediately adjacent to the western bank of the river channel. On the western approach to this bridge is an earthworks embankment, which takes the N80 Link Road over an area of the River Slaney flood plain. Included within this embankment are a series of flood relief culverts which will accommodate the flood regime in respect to western overbank flow. The span arrangement avoids the River Slaney and its banks, thereby avoiding impact on a sensitive ecological area.

The detailed design of the road drainage systems for the national routes will be developed in accordance with the NRA DMRB HD 33/96 and be supplemented with best management practices as included within the United Kingdom Highways Agency Design Manual for Roads and Bridges (UK DMRB) HD 33/06. The road drainage will comprise either:- a sealed drainage system; an open drainage system; or a combination of the two. At outfall locations, these drainage systems will flow via petrol / oil bypass interceptors into balancing ponds before discharging into watercourses. Also, interceptor ditches or filter drains will be included where existing field ditches are intercepted and/or to control runoff from adjoining land, where necessary. Generally, such ditches and drains will follow the existing ground profile and outfall into existing watercourses.

In terms of surface water drainage, the locations of the surface water drainage networks, outfalls, balancing ponds and culverts for the Proposed Scheme will be determined taking into account a

number of criteria, including the vertical and horizontal alignments of the Proposed Scheme, the topography of surrounding lands, topography of lands at long distances from the Proposed Scheme, i.e. the overall catchment, and locations of existing watercourses crossed by, or adjacent to, the Proposed Scheme. The proposed outfall locations, and associated bypass interceptors and balancing ponds, are provided in Chapter 3 of this EIS.

Road carriageway runoff from Side Roads affected by the Proposed Scheme will generally be connected into the existing road drainage systems.

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Appendix 11.5:

Ground Water Level Readings

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Groundwater Levels M11 / N11 Mainline North

Hole No.	Level (m BGL)	Level (m BGL)	Level (m BGL)	Level (m BGL)	Level (m BGL)	Level (m BGL)	Level (m BGL)	Level (m BGL)	Level (m BGL)	Level (m BGL)	Level (m BGL)	
	25/11/2008	03/12/2008	10/12/2008	18/12/2008	22/12/2008	13/01/2009	20/01/2009	26/01/2009	06/02/2009	16/02/2009	09/03/2009	Townland
Exploratory	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	
RC0803			DRY	DRY	DRY	DRY	9.25	9.25	9.32	9.12	9.42	Frankfort
RC0806		DRY	DRY	DRY	DRY	DRY	0.91	0.85	0.81	0.75	8.82	Frankfort
RC0806		DRY	DRY	DRY	DRY	DRY	2.65	2.57	2.55	2.49	DRY	Frankfort
RC0826		12.33	12.24	12.33	12.27	11.83	6.35	6.47	6.40	6.42	11.22	Frankfort
RC0816				DRY	DRY	DRY	2.43	2.45	2.50	2.34	DRY	Frankfort
RC0816				1.20	1.18	1.16	1.38	1.40	1.42	1.20	1.25	Frankfort
BH0833	0.77	0.70	0.68	0.80	0.75	0.51	0.15	0.18	0.20	0.12	0.92	Ballinclay
RC0835A	2.98	4.61	4.50	4.61	4.52	4.24	4.25	3.87	3.25	3.35	3.86	Ballinclay
BH0839	Dry	DRY	DRY	DRY	DRY	DRY	1.78	1.55	1.60	1.45	2.94	Balloughter
RC0841	1.59	1.84	1.75	1.80	1.78	1.65	1.23	1.12	0.96	1.02	1.81	Balloughter
RC0847	0.92	0.80	0.75	0.80	0.78	0.71	0.58	0.78	0.49	0.65	0.52	Balloughter
RC0854	0.56	0.59	0.55	0.80	0.72	0.46	0.20	0.25	0.01	0.20	0.35	South of Balloughter
BH0872	2.03	2.40	2.25	2.70	2.55	2.61	2.21	2.18	2.14	2.05	2.71	Medopal/knockrobin
RC0874	3.60	3.61	3.75	3.80	3.71	3.30	3.45	3.35	3.34	3.25	5.77	Medopal/knockrobin
RC0886	2.1	2.08	2.25	2.00	1.97	1.96	1.54	1.48	1.44	1.52	1.62	North of Rockspring
RC0896	5.26	5.44	5.26	5.20	5.18	5.01	3.50	3.42	3.49	3.28	4.93	Rockspring
RC0903	3.32	3.28	3.14	2.93	2.91	2.79	1.59	1.62	1.43	1.25	3.01	Rockspring
BH0907	DRY	0.50	0.65	0.50	0.49	0.39	0.10	0.10	0.07	0.10	0.41	Rockspring
RC0914	4.65	4.33	4.35	4.36	4.35	4.06	4.65	4.54	4.50	4.35	4.18	South of Rockspring
RC0921	2.23	1.44	1.52	1.60	1.54	1.62	1.54	1.48	1.94	1.70	1.80	Mountgeorge
BH0938	3.46	1.97	2.00	2.10	2.05	2.06	2.10	1.97	1.96	2.05	2.27	Ballycarrigeen lower
RC0945	0.67	0.86	1.05	1.10	1.04	1.02	0.95	0.86	0.65	0.65	0.88	Carrigeen
BH0966	0.82	1.38	1.42	1.50	1.43	1.39	1.35	1.38	1.25	1.32	1.49	Myaugh (Gorey By)
RC0972	6.68	6.70	6.74	6.90	6.81	6.92	7.10	7.54	7.62	7.25	7.55	Myaugh (Gorey By)
BH0977	1.76	1.79	1.81	2.00	1.92	2.03	0.85	1.10	0.90	0.95	1.01	Myaugh (Gorey By)
BH0985	2.16	2.2	2.15	2.3	2.2	2.88	1.35	1.16	1.26	1.14	2.21	Tinnacross Br
BH1006	1.08	2.26	2.18	2.20	2.16	2.26	2.34	2.15	2.21	2.28	2.29	South Tinnacross
RC1019				0.94	0.91	0.98	1.28	1.13	1.12	1.15	0.89	Crane
BH1027	3.94	4.20	4.12	3.45	3.20	3.50	2.54	2.38	2.66	2.45	4.23	Crane
RC1035	2.79	3.07	2.86	2.96	2.89	3.00	2.28	2.54	2.65	2.42	2.92	Crane
BH1049	0.45	0.52	0.64	0.43	0.42	0.51	0.13	0.10	0.09	0.12	0.45	Toom

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Appendix 12.1

Ambient Air Quality Standards

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Ambient Air Quality Standards

National standards for ambient air pollutants in Ireland have generally ensued from Council Directives enacted in the EU (& previously the EC & EEC) (see Table A12.1). The initial interest in ambient air pollution legislation in the EU dates from the early 1980s and was in response to the most serious pollutant problems at that time. In response to the problem of acid rain, sulphur dioxide, and later nitrogen dioxide, were both the focus of EU legislation. Linked to the acid rain problem was urban smog associated with fuel burning for space heating purposes. Also apparent at this time were the problems caused by leaded petrol and EU legislation was introduced to deal with this problem in the early 1980s.

In recent years the EU has focused on defining a basic strategy across the EU in relation to ambient air quality. In 1996, a Framework Directive, Council Directive 96/62/EC, on ambient air quality assessment and management was enacted. The aims of the Directive are fourfold. Firstly, the Directive's aim is to establish objectives for ambient air quality designed to avoid harmful effects to health. Secondly, the Directive aims to assess ambient air quality on the basis of common methods and criteria throughout the EU. Additionally, it is aimed to make information on air quality available to the public via alert thresholds and fourthly, it aims to maintain air quality where it is good and improve it in other cases.

As part of these measures to improve air quality, the European Commission adopted proposals for daughter legislation under Directive 96/62/EC. The first of these directives to be enacted, Council Directive 1999/30/EC, was passed into Irish Law as S.I. No 271 of 2002 (Air Quality Standards Regulations 2002), and set limit values which came into operation on 17th June 2002. The Air Quality Standards Regulations 2002 detail margins of tolerance, which are trigger levels for certain types of action in the period leading to the attainment date. The margin of tolerance varies from 60% for lead, to 30% for 24-hour limit value for PM₁₀, 40% for the hourly and annual limit value for NO₂ and 26% for hourly SO₂ limit values. The margin of tolerance commenced from June 2002, and will start to reduce from 1 January 2003 and every 12 months thereafter by equal annual percentages to reach 0% by the attainment date. A second daughter directive, EU Council Directive 2000/69/EC, published limit values for both carbon monoxide and benzene in ambient air. This was also passed into Irish Law under the Air Quality Standards Regulations 2002.

The most recent EU Council Directive on ambient air quality was published on the 11/06/08. Council Directive 2008/50/EC combines the previous Air Quality Framework Directive and its subsequent daughter directives (See Table A12.1). Provisions were also made for the inclusion of new ambient limit values relating to PM_{2.5}. The margins of tolerance specific to each pollutant were also slightly adjusted from previous directives. In regards to existing ambient air quality standards, it is not proposed to modify the standards but to strengthen existing provisions to

ensure that non-compliances are removed. In addition, new ambient standards for PM_{2.5} are included in Directive 2008/50/EC. The approach for PM_{2.5} is to establish a target value of 25 µg/m³, as an annual average (to be attained everywhere by 2010) and a limit value of 25 µg/m³, as an annual average (to be attained everywhere by 2015), coupled with a target to reduce human exposure generally to PM_{2.5} between 2010 and 2020. This exposure reduction target will range from 0% (for PM_{2.5} concentrations of less than 8.5 µg/m³ to 20% of the average exposure indicator (AEI) for concentrations of between 18 - 22 µg/m³. Where the AEI is currently greater than 22 µg/m³ all appropriate measures should be employed to reduce this level to 18 µg/m³ by 2020. The AEI is based on measurements taken in urban background locations averaged over a three year period from 2008 - 2010 and again from 2018-2020. Additionally, an exposure concentration obligation of 20 µg/m³ has been set to be complied with by 2015 again based on the AEI.

Although the EU Air Quality Limit Values are the basis of legislation, other thresholds outlined by the EU Directives are used which are triggers for particular actions. The Alert Threshold is defined in Council Directive 96/62/EC as “a level beyond which there is a risk to human health from brief exposure and at which immediate steps shall be taken as laid down in Directive 96/62/EC”. These steps include undertaking to ensure that the necessary steps are taken to inform the public (e.g. by means of radio, television and the press).

The Margin of Tolerance is defined in Council Directive 96/62/EC as a concentration which is higher than the limit value when legislation comes into force. It decreases to meet the limit value by the attainment date. The Upper Assessment Threshold is defined in Council Directive 96/62/EC as a concentration above which high quality measurement is mandatory. Data from measurement may be supplemented by information from other sources, including air quality modelling. These various thresholds have been incorporated into the significance criteria for the Proposed Scheme and will be appropriate for assessing the significance of the combined impact of the Proposed Scheme plus the background environment.

An annual average limit for both NO_x (NO and NO₂) is applicable for the protection of vegetation in highly rural areas away from major sources of NO_x such as large conurbations, factories and high road vehicle activity such as a dual carriageway or motorway. Annex VI of EU Directive 1999/30/EC identifies that monitoring to demonstrate compliance with the NO_x limit for the protection of vegetation should be carried out distances greater than:

- 5 km from the nearest motorway or dual carriageway
- 5 km from the nearest major industrial installation
- 20 km from a major urban conurbation

As a guideline, a monitoring station should be indicative of approximately 1000 km² of surrounding area.

Under the terms of EU Framework Directive on Ambient Air Quality (96/62/EC), geographical areas within member states have been classified in terms of zones. The zones have been defined in order to meet the criteria for air quality monitoring, assessment and management as described in the Framework Directive and Daughter Directives. Zone A is defined as Dublin and its environs, Zone B is defined as Cork City, Zone C is defined as 16 urban areas with a population greater than 15,000 and Zone D is defined as the remainder of the country. The Zones were defined based on among other things, population and existing ambient air quality.

EU Council Directive 96/62/EC on ambient air quality and assessment has been adopted into Irish Legislation (S.I. No. 33 of 1999). The act has designated the Environmental Protection Agency (EPA) as the competent authority responsible for the implementation of the Directive and for assessing ambient air quality in the State. Other commonly referenced ambient air quality standards include the World Health Organisation. The WHO guidelines differ from air quality standards in that they are primarily set to protect public health from the effects of air pollution. Air quality standards, however, are air quality guidelines recommended by governments, for which additional factors, such as socio-economic factors, may be considered.

Air Dispersion Modelling

The inputs to the DMRB model consist of information on road layouts, receptor locations, annual average daily traffic movements, annual average traffic speeds and background concentrations (UK DEFRA 2007). Using this input data the model predicts ambient ground level concentrations at the worst-case sensitive receptor using generic meteorological data.

The DMRB has recently undergone an extensive validation exercise (UK DEFRA 2001) as part of the UK's Review and Assessment Process to designate areas as Air Quality Management Areas (AQMAs). The validation exercise was carried out at 12 monitoring sites within the UK DEFRA's national air quality monitoring network. The validation exercise was carried out for NO_x, NO₂ and PM₁₀, and included urban background and kerbside/roadside locations, "open" and "confined" settings and a variety of geographical locations (UK DEFRA 2001).

In relation to NO₂, the model generally over-predicts concentrations, with a greater degree of over-prediction at "open" site locations. The performance of the model with respect to NO₂ mirrors that of NO_x showing that the over-prediction is due to NO_x calculations rather than the NO_x:NO₂ conversion. Within most urban situations, the model overestimates annual mean NO₂ concentrations by between 0 to 40% at confined locations and by 20 to 60% at open locations. The performance is considered comparable with that of sophisticated dispersion models when applied to situations where specific local validation corrections have not been carried out.

The model also tends to over-predict PM_{10} . Within most urban situations, the model will over-estimate annual mean PM_{10} concentrations by between 20 to 40%. The performance is comparable to more sophisticated models, which, if not validated locally, can be expected to predict concentrations within the range of $\pm 50\%$.

Thus, the validation exercise has confirmed that the model is a useful screening tool for the Second Stage Review and Assessment, for which a conservative approach is applicable (UK DEFRA 2001).

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Appendix 12.2

EPA Monitoring Data and Background Concentrations

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EPA Monitoring Data and Background Concentrations

Air quality monitoring programs have been undertaken in recent years by the EPA and Local Authorities. The most recent annual report on air quality “Air Quality Monitoring Annual Report 2007” (EPA 2008a), details the range and scope of monitoring undertaken throughout Ireland.

As part of the implementation of the Air Quality Standards Regulations 2002 (S.I. No. 271 of 2002), four air quality zones have been defined in Ireland for air quality management and assessment purposes (EPA 2008a, 2009). Dublin is defined as Zone A and Cork as Zone B. Zone C is composed of 15 towns with a population of greater than 15,000. The remainder of the country, which represents rural Ireland but also includes all towns with a population of less than 15,000, is defined as Zone D. In terms of air monitoring, the region of the Proposed Scheme is categorised as Zone D (EPA 2008a, 2009).

Long-term NO₂ monitoring is carried out at the two rural Zone D locations, Glashaboy and Kilcitt (EPA 2008a, 2009). The NO₂ annual average in 2007 for both sites was 9 and 2 µg/m³ respectively. The results of NO₂ monitoring carried out at urban Zone D locations in Ferbane and Navan in 2007 indicated average NO₂ concentrations of 6 and 16 µg/m³ respectively (EPA 2008a), with no exceedences of the 1-hour limit value. Furthermore, average NO₂ concentrations measured at Limerick, Ennis and Waterford in 2007 (Zone C locations) ranged from 14 to 18 µg/m³ (EPA 2008a). Hence long-term average concentrations measured at these locations were significantly lower than the annual average limit value of 40 µg/m³. Based on the above information and baseline monitoring data for rural locations (see Section 12.3.3 of EIS Chapter 12), a conservative estimate of the background NO₂ concentration for the region of the Proposed Scheme in 2008 is 12 µg/m³. A conservative estimate of the background NO₂ concentration for the centres of Ferns, Camolin and Enniscorthy in 2008 is 18 µg/m³.

The results of CO monitoring carried out in Ferbane and Navan in 2007 (urban Zone D) showed no exceedences of the 8-hour limit value (EPA 2008a), with average levels of 0.2 and 0.5 mg/m³ respectively. In addition, data for the Zone D station of Cork Harbour in 2007 indicated long-term average of 0.2 mg/m³ (EPA 2008a). Based on the above information, a conservative estimate of the background CO concentration for the region of the Proposed Scheme and for the centres of Ferns, Camolin and Enniscorthy in 2008 is 0.6 mg/m³.

With regard to benzene, continuous monitoring was carried out at Waterford (Zone C) in 2007, with a long-term average of 0.8 µg/m³ (EPA 2008a). The results of monitoring carried out in the Zone C locations in Ennis and Bray in 2006 indicated long-term averages of 0.6 and 0.3 µg/m³ respectively (EPA 2008a). Based on the above information and baseline monitoring data for rural locations (see Section 12.3.3 of EIS Chapter 12), a conservative estimate of the background benzene concentration for the region of the Proposed Scheme in 2008 is 0.3 µg/m³. A

conservative estimate of the background benzene concentration for the centres of Ferns, Camolin and Enniscorthy in 2008 is $0.6 \mu\text{g}/\text{m}^3$.

Long-term PM_{10} monitoring is carried out at the rural Zone D location of Kilkitt (EPA 2008a). The average concentration measured at Kilkitt in 2007 was $10 \mu\text{g}/\text{m}^3$. Long-term PM_{10} measurements carried out at urban Zone D locations in Ferbane, Navan, Drogheda and Castlebar in 2007 gave average levels of $14 - 23 \mu\text{g}/\text{m}^3$ (EPA 2008a). Data from the Phoenix Park in Dublin also provides a good indication of urban background levels, with an annual average in 2007 of $12 \mu\text{g}/\text{m}^3$ (EPA 2008a). Based on the above information and baseline monitoring data for rural locations (see Section 12.3.3 of EIS Chapter 1), a conservative estimate of the background PM_{10} concentration for the region of the Proposed Scheme in 2008 of $14 \mu\text{g}/\text{m}^3$ has been used. A conservative estimate of the background PM_{10} concentration for the centres of Ferns, Camolin and Enniscorthy in 2008 is $20 \mu\text{g}/\text{m}^3$.

The results of $\text{PM}_{2.5}$ monitoring at Station Road in Cork City in 2007 (EPA 2008a) indicated an average $\text{PM}_{2.5}/\text{PM}_{10}$ ratio of 0.53. Furthermore, data from the baseline survey indicated a $\text{PM}_{2.5}/\text{PM}_{10}$ ratio of around 0.3. Based on this information, a conservative ratio of 0.6 was used to generate a rural background $\text{PM}_{2.5}$ concentration in 2008 of $9.0 \mu\text{g}/\text{m}^3$, and a background concentration for the centres of Ferns, Camolin and Enniscorthy in 2008 of $12 \mu\text{g}/\text{m}^3$.

Background concentrations for 2013 and 2028 were calculated from the 2008 background concentrations using the Netcen background calculator, which uses year on year reduction factors provided by UK DEFRA (UK DEFRA 2009a). A summary of the background concentrations used for the air dispersion model is detailed in Table A12.2.

Table A12.2 Summary of background concentrations used in the air dispersion model			
Rural Background Values ^{Note 1}	2008	2013 ^{Note 2}	2028 ^{Note 2}
Nitrogen Oxides (NO _x) (µg/m ³)	15.3	12.9	12.0
Nitrogen Dioxide (µg/m ³)	12.0	10.8	10.5
Benzene (µg/m ³)	0.60	0.55	0.58
Particulates (PM ₁₀) (µg/m ³)	14.0	13.5	13.1
Particulates (PM _{2.5}) (µg/m ³) ^{Note 3}	8.4	8.1	7.8
Carbon Monoxide (mg/m ³)	0.30	0.24	0.25
Urban Background Values ^{Note 4}	2008	2013 ^{Note 2}	2028 ^{Note 2}
Nitrogen Oxides (NO _x) (µg/m ³)	23.2	19.5	18.1
Nitrogen Dioxide (µg/m ³)	18.0	16.2	15.7
Benzene (µg/m ³)	0.60	0.55	0.58
Particulates (PM ₁₀) (µg/m ³)	20.0	19.1	18.7
Particulates (PM _{2.5}) (µg/m ³) ^{Note 3}	12.0	11.5	11.2
Carbon Monoxide (mg/m ³)	0.60	0.48	0.50

Note 1 Conservative background concentrations derived for the route of the Proposed Scheme.

Note 2 Reduction in future years using the Netcen background calculator (January 2006).

Note 3 A ratio of 0.6 has been used for the ratio of PM_{2.5} / PM₁₀.

Note 4 Conservative background concentrations derived for existing N11 roadside locations at Camolin, Ferns and Enniscorthy.

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Appendix 13.1

Noise Survey Results

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Survey Location Reference	Stop Time	Measured Noise Levels (dB re.2x10 ⁻⁵ Pa)			Derived dB L _{A10(18hour)}	dB L _{den}
		L _{Aeq}	L _{A10}	L _{A90}		
NS01	10:30	48	51	39	50	53
	11:44	49	52	41		
	12:55	47	50	41		
NS02	10:52	38	40	34	39	43
	12:05	39	40	35		
	13:19	39	41	35		
NS03	11:15	47	48	30	45	49
	12:28	42	46	30		
	13:51	42	43	31		
NS04	14:16	38	40	32	43	47
	15:23	40	43	34		
	16:26	46	49	31		
NS05	14:38	36	39	30	38	43
	15:44	35	36	30		
	16:45	40	43	30		
NS06	14:59	42	44	28	41	45
	16:05	43	45	28		
	17:05	35	37	27		
NS07	14:00	39	39	26	40	44
	15:16	40	43	26		
	16:30	48	42	34		
NS08	13:14	37	38	26	41	45
	14:29	52	42	28		
	15:44	52	46	32		
NS09	14:42	48	51	39	49	52
	15:42	46	46	38		
	16:43	50	52	40		
NS10	13:34	60	50	29	53	55
	14:50	64	55	28		
	16:04	63	56	31		
NS11	10:37	47	41	29	38	43
	11:45	57	41	27		
	12:51	47	34	25		
NS12	9:52	48	50	38	44	48
	11:00	41	44	29		
	12:07	43	40	27		
NS13	10:16	50	42	31	44	48
	11:25	43	48	31		
	12:31	52	46	31		
NS14	14:20	54	53	40	48	51
	15:21	48	43	35		
	16:22	51	51	42		
NS15	13:47	48	50	44	50	53
	15:03	53	51	40		
	16:05	50	54	39		

Survey Location Reference	Stop Time	Measured Noise Levels (dB re.2x10 ⁻⁵ Pa)			Derived dB L _{A10(18hour)}	dB L _{den}
		L _{Aeq}	L _{A10}	L _{A90}		
NS16	11:06	54	52	38	52	55
	12:14	52	53	44		
	13:24	54	53	40		
NS17	10:16	49	52	36	51	54
	11:29	52	50	40		
	12:40	47	50	40		
NS18	10:43	47	50	38	50	53
	11:53	53	54	41		
	13:03	49	52	36		
NS19	14:20	51	49	39	48	51
	15:30	48	49	40		
	16:39	47	49	43		
NS20	10:15	50	47	38	52	55
	11:15	58	56	42		
	12:16	55	55	42		
NS21	13:54	47	49	37	52	55
	15:06	53	56	43		
	16:16	50	53	45		
NS22	10:35	56	51	38	49	52
	11:34	45	48	40		
	12:36	48	51	42		
NS23	13:20	50	52	45	51	54
	14:44	49	52	45		
	15:55	50	53	44		
NS24	10:54	48	48	39	49	52
	11:55	48	47	37		
	12:57	52	54	41		
NS25	10:28	58	58	33	59	61
	11:45	62	61	34		
	13:04	65	61	43		
NS26	11:15	41	44	27	43	47
	12:36	41	41	26		
	13:50	46	46	33		
NS27	10:54	62	52	31	50	53
	12:10	59	48	36		
	13:29	60	52	30		
NS28	15:09	41	44	34	44	48
	16:19	37	39	31		
	17:28	49	51	31		
NS29	14:13	51	51	38	51	54
	15:33	52	54	38		
	16:40	48	51	35		
NS30	14:37	64	65	35	64	65
	15:56	67	68	40		
	17:06	66	63	37		

Survey Location Reference	Stop Time	Measured Noise Levels (dB re.2x10 ⁻⁵ Pa)			Derived dB L _{A10(18hour)}	dB L _{den}
		L _{Aeq}	L _{A10}	L _{A90}		
NS31	11:16	46	48	34	43	47
	12:21	48	44	35		
	13:26	44	41	31		
NS32	10:56	40	42	34	41	45
	12:03	40	42	33		
	13:07	40	42	34		
NS33	10:32	37	39	32	37	42
	11:41	37	39	32		
	12:44	34	36	31		
NS34	14:06	52	45	30	52	55
	15:18	56	52	35		
	16:16	64	61	45		
NS35	13:41	46	43	30	47	50
	15:00	54	55	32		
	15:58	50	47	34		
NS36	13:21	68	54	37	54	56
	14:36	66	53	40		
	15:39	62	58	40		
NS37	10:21	48	49	42	44	48
	11:20	40	42	36		
	12:18	43	44	40		
NS38	10:42	53	47	39	45	49
	11:41	50	43	35		
	12:38	53	47	37		
NS39	11:01	43	44	36	44	48
	11:59	44	45	38		
	12:57	49	45	37		
NS40	10:13	66	67	46	68	68
	11:15	67	68	45		
	12:15	68	71	46		
NS41	10:32	59	55	34	44	48
	11:34	37	39	29		
	12:35	38	40	32		
NS42	10:53	44	43	31	41	45
	11:54	51	46	29		
	12:59	44	37	27		
NS43	13:27	57	55	33	61	62
	14:23	62	64	34		
	15:33	64	68	39		
NS44	14:05	67	63	33	62	63
	15:00	64	63	36		
	16:11	64	64	34		
NS45	13:47	47	45	37	45	49
	14:42	48	49	35		
	15:51	44	45	33		

Survey Location Reference	Stop Time	Measured Noise Levels (dB re.2x10 ⁻⁵ Pa)			Derived dB L _{A10(18hour)}	dB L _{den}
		L _{Aeq}	L _{A10}	L _{A90}		
NS46	14:15	72	77	51	75	74
	15:13	71	76	53		
	16:06	72	76	54		
NS47	14:33	61	60	51	58	60
	15:32	58	60	51		
	16:22	55	58	49		
NS48	14:51	49	51	47	51	54
	15:50	52	52	48		
	16:41	52	53	48		
NS49	10:41	42	44	35	43	47
	11:43	42	44	38		
	12:43	42	44	40		
NS50	10:23	55	46	38	46	49
	11:26	51	48	39		
	12:25	56	47	39		
NS51	10:01	52	49	32	47	50
	11:05	52	47	31		
	12:04	54	47	32		
NS52	10:54	56	48	30	51	54
	11:54	62	55	32		
	12:51	60	54	35		
NS53	10:34	65	61	38	62	63
	11:37	65	63	36		
	12:33	66	66	37		
NS54	10:15	63	68	31	61	62
	11:18	66	72	31		
	12:15	60	46	30		
NS55	14:16	66	69	35	68	68
	15:15	66	68	43		
	16:15	67	69	33		
NS56	14:34	69	70	37	69	69
	15:32	71	72	45		
	15:31	71	69	39		
NS57	14:52	54	57	37	57	59
	15:50	59	61	38		
	15:49	53	56	36		
NS58	10:07	67	66	35	64	65
	11:08	67	66	34		
	12:11	67	64	34		
NS59	10:27	63	61	33	60	61
	11:28	62	59	34		
	12:28	65	62	34		
NS60	10:46	62	57	41	58	60
	11:49	63	62	35		
	12:51	63	59	35		

Survey Location Reference	Stop Time	Measured Noise Levels (dB re.2x10 ⁻⁵ Pa)			Derived dB L _{A10(18hour)}	dB L _{den}
		L _{Aeq}	L _{A10}	L _{A90}		
NS61	14:18	50	39	32	41	45
	15:21	41	43	32		
	16:25	44	44	35		
NS62	13:47	53	54	39	55	57
	14:59	55	54	41		
	16:02	57	60	42		
NS63	13:27	58	61	42	58	60
	14:41	56	58	41		
	15:43	59	59	40		

Table 1 Shortened Measurement Results and L_{A10(18hour)} Values

Time Period	Measured Noise Levels (dB re.2x10 ⁻⁵ Pa)		
	L _{Aeq}	L _{A10}	L _{A90}
00:00 – 01:00	35	22	33
01:00 – 02:00	33	19	26
02:00 – 03:00	20	18	23
03:00 – 04:00	21	18	23
04:00 – 05:00	33	22	32
05:00 – 06:00	44	28	48
06:00 – 07:00	43	27	43
07:00 – 08:00	45	30	47
08:00 – 09:00	46	29	50
09:00 – 10:00	45	28	49
10:00 – 11:00	46	30	49
11:00 – 12:00	46	30	47
12:00 – 13:00	43	30	46
13:00 – 14:00	45	31	46
14:00 – 15:00	53	32	49
15:00 – 16:00	48	32	48
16:00 – 17:00	49	34	51
17:00 – 18:00	47	34	48
18:00 – 19:00	43	32	47
19:00 – 20:00	44	32	47
20:00 – 21:00	48	36	49
21:00 – 22:00	42	33	45
22:00 – 23:00	43	28	41
23:00 – 00:00	38	26	38
Measured value of L _{A10(18hour)}		46	
Measured value of L _{den}		48	

Table 2 24-Hour Monitoring Results at Survey Location NS03 (24hr)

Time Period	Measured Noise Levels (dB re.2x10 ⁻⁵ Pa)		
	L _{Aeq}	L _{A10}	L _{A90}
00:00 – 01:00	21	21	22
01:00 – 02:00	22	21	23
02:00 – 03:00	22	21	22
03:00 – 04:00	22	21	23
04:00 – 05:00	22	21	23
05:00 – 06:00	23	21	25
06:00 – 07:00	26	22	28
07:00 – 08:00	27	23	29
08:00 – 09:00	28	25	29
09:00 – 10:00	29	25	31
10:00 – 11:00	29	26	31
11:00 – 12:00	30	28	32
12:00 – 13:00	31	27	33
13:00 – 14:00	28	22	29
14:00 – 15:00	28	22	29
15:00 – 16:00	38	27	32
16:00 – 17:00	28	26	29
17:00 – 18:00	28	26	29
18:00 – 19:00	31	25	29
19:00 – 20:00	26	23	28
20:00 – 21:00	24	22	25
21:00 – 22:00	23	21	24
22:00 – 23:00	21	21	22
23:00 – 00:00	21	21	21
Measured value of L _{A10(18hour)}		28	
Measured value of L _{den}		31	

Table 3 24-Hour Monitoring Results at Survey Location NS07 (24hr)

Time Period	Measured Noise Levels (dB re.2x10 ⁻⁵ Pa)		
	L _{Aeq}	L _{A10}	L _{A90}
00:00 – 01:00	42	33	46
01:00 – 02:00	40	34	44
02:00 – 03:00	50	35	54
03:00 – 04:00	50	43	53
04:00 – 05:00	49	42	52
05:00 – 06:00	43	37	47
06:00 – 07:00	43	35	47
07:00 – 08:00	46	38	50
08:00 – 09:00	45	37	48
09:00 – 10:00	47	41	50
10:00 – 11:00	46	40	48
11:00 – 12:00	45	38	48
12:00 – 13:00	45	37	48
13:00 – 14:00	47	40	50
14:00 – 15:00	47	38	50
15:00 – 16:00	46	38	49
16:00 – 17:00	44	38	48
17:00 – 18:00	48	38	50
18:00 – 19:00	45	37	47
19:00 – 20:00	43	37	46
20:00 – 21:00	43	36	44
21:00 – 22:00	40	33	42
22:00 – 23:00	39	32	41
23:00 – 00:00	42	33	44
Measured value of L _{A10(18hour)}		47	
Measured value of L _{den}		52	

Table 4 24-Hour Monitoring Results at Survey Location NS09 (24hr)

Time Period	Measured Noise Levels (dB re.2x10 ⁻⁵ Pa)		
	L _{Aeq}	L _{A10}	L _{A90}
00:00 – 01:00	51	40	55
01:00 – 02:00	48	37	52
02:00 – 03:00	50	34	54
03:00 – 04:00	51	39	54
04:00 – 05:00	47	34	52
05:00 – 06:00	48	39	52
06:00 – 07:00	40	31	43
07:00 – 08:00	44	37	46
08:00 – 09:00	49	39	51
09:00 – 10:00	48	39	51
10:00 – 11:00	48	39	51
11:00 – 12:00	49	42	52
12:00 – 13:00	52	44	54
13:00 – 14:00	51	44	53
14:00 – 15:00	51	44	54
15:00 – 16:00	50	43	53
16:00 – 17:00	51	39	56
17:00 – 18:00	43	38	46
18:00 – 19:00	42	35	44
19:00 – 20:00	38	34	40
20:00 – 21:00	37	33	39
21:00 – 22:00	36	31	39
22:00 – 23:00	36	31	39
23:00 – 00:00	48	31	52
Measured value of L _{A10(18hour)}		48	
Measured value of L _{den}		55	

Table 5 24-Hour Monitoring Results at Survey Location NS22 (24hr)

Time Period	Measured Noise Levels (dB re.2x10 ⁻⁵ Pa)		
	L _{Aeq}	L _{A10}	L _{A90}
00:00 – 01:00	33	27	34
01:00 – 02:00	34	27	37
02:00 – 03:00	30	26	30
03:00 – 04:00	33	26	35
04:00 – 05:00	52	42	56
05:00 – 06:00	50	39	53
06:00 – 07:00	49	38	53
07:00 – 08:00	49	38	53
08:00 – 09:00	49	41	52
09:00 – 10:00	47	41	49
10:00 – 11:00	45	38	48
11:00 – 12:00	48	42	51
12:00 – 13:00	47	38	50
13:00 – 14:00	48	39	50
14:00 – 15:00	53	41	54
15:00 – 16:00	52	39	55
16:00 – 17:00	49	37	52
17:00 – 18:00	44	37	45
18:00 – 19:00	45	37	47
19:00 – 20:00	45	37	49
20:00 – 21:00	49	39	51
21:00 – 22:00	46	37	50
22:00 – 23:00	40	29	43
23:00 – 00:00	32	28	33
Measured value of L _{A10(18hour)}		49	
Measured value of L _{den}		53	

Table 6 24-Hour Monitoring Results at Survey Location NS29 (24hr)

Time Period	Measured Noise Levels (dB re.2x10 ⁻⁵ Pa)		
	L _{Aeq}	L _{A10}	L _{A90}
00:00 – 01:00	45	48	37
01:00 – 02:00	44	48	31
02:00 – 03:00	42	47	26
03:00 – 04:00	43	47	26
04:00 – 05:00	44	48	32
05:00 – 06:00	47	50	39
06:00 – 07:00	49	52	45
07:00 – 08:00	56	58	51
08:00 – 09:00	58	60	56
09:00 – 10:00	56	58	53
10:00 – 11:00	53	55	47
11:00 – 12:00	48	48	42
12:00 – 13:00	48	48	43
13:00 – 14:00	47	49	43
14:00 – 15:00	47	49	45
15:00 – 16:00	50	52	47
16:00 – 17:00	50	51	47
17:00 – 18:00	49	48	42
18:00 – 19:00	47	49	44
19:00 – 20:00	49	51	44
20:00 – 21:00	46	48	40
21:00 – 22:00	49	52	44
22:00 – 23:00	48	52	42
23:00 – 00:00	48	51	41
Measured value of L _{A10(18hour)}		51	
Measured value of L _{den}		54	

Table 7 24-Hour Monitoring Results at Survey Location NS37 (24hr)

Time Period	Measured Noise Levels (dB re.2x10 ⁻⁵ Pa)		
	L _{Aeq}	L _{A10}	L _{A90}
00:00 – 01:00	38	30	41
01:00 – 02:00	37	28	41
02:00 – 03:00	38	33	41
03:00 – 04:00	40	36	43
04:00 – 05:00	52	36	53
05:00 – 06:00	54	42	58
06:00 – 07:00	50	44	51
07:00 – 08:00	50	45	51
08:00 – 09:00	50	45	51
09:00 – 10:00	52	43	52
10:00 – 11:00	50	44	51
11:00 – 12:00	45	35	44
12:00 – 13:00	49	36	45
13:00 – 14:00	51	35	47
14:00 – 15:00	46	39	46
15:00 – 16:00	51	38	49
16:00 – 17:00	44	36	45
17:00 – 18:00	43	37	45
18:00 – 19:00	47	42	47
19:00 – 20:00	44	39	46
20:00 – 21:00	45	39	47
21:00 – 22:00	43	38	45
22:00 – 23:00	42	36	43
23:00 – 00:00	42	37	45
Measured value of L _{A10(18hour)}		47	
Measured value of L _{den}		54	

Table 8 24-Hour Monitoring Results at Survey Location NS42 (24hr)

Time Period	Measured Noise Levels (dB re.2x10 ⁻⁵ Pa)		
	L _{Aeq}	L _{A10}	L _{A90}
00:00 – 01:00	42	45	33
01:00 – 02:00	42	45	32
02:00 – 03:00	41	44	28
03:00 – 04:00	33	36	25
04:00 – 05:00	42	46	28
05:00 – 06:00	51	54	44
06:00 – 07:00	52	55	48
07:00 – 08:00	52	54	49
08:00 – 09:00	51	54	45
09:00 – 10:00	46	47	40
10:00 – 11:00	45	46	38
11:00 – 12:00	43	46	38
12:00 – 13:00	44	46	38
13:00 – 14:00	54	59	46
14:00 – 15:00	49	51	46
15:00 – 16:00	50	52	46
16:00 – 17:00	48	49	45
17:00 – 18:00	48	50	45
18:00 – 19:00	46	48	43
19:00 – 20:00	45	47	42
20:00 – 21:00	45	48	40
21:00 – 22:00	42	44	37
22:00 – 23:00	41	43	37
23:00 – 00:00	41	43	36
Measured value of L _{A10(18hour)}		49	
Measured value of L _{den}		53	

Table 9 24-Hour Monitoring Results at Survey Location NS49 (24hr)

Time Period	Measured Noise Levels (dB re.2x10 ⁻⁵ Pa)		
	L _{Aeq}	L _{A10}	L _{A90}
00:00 – 01:00	28	31	22
01:00 – 02:00	27	27	21
02:00 – 03:00	23	25	20
03:00 – 04:00	25	27	21
04:00 – 05:00	37	41	22
05:00 – 06:00	46	49	38
06:00 – 07:00	48	51	44
07:00 – 08:00	58	49	44
08:00 – 09:00	49	51	41
09:00 – 10:00	59	56	36
10:00 – 11:00	63	64	33
11:00 – 12:00	61	62	33
12:00 – 13:00	56	49	33
13:00 – 14:00	54	58	38
14:00 – 15:00	59	62	41
15:00 – 16:00	52	56	38
16:00 – 17:00	52	44	36
17:00 – 18:00	49	43	33
18:00 – 19:00	43	42	31
19:00 – 20:00	43	43	29
20:00 – 21:00	46	50	34
21:00 – 22:00	39	39	29
22:00 – 23:00	38	38	26
23:00 – 00:00	36	32	23
Measured value of L _{A10(18hour)}		49	
Measured value of L _{den}		55	

Table 10 24-Hour Monitoring Results at Survey Location NS54 (24hr)

Time Period	Measured Noise Levels (dB re.2x10 ⁻⁵ Pa)		
	L _{Aeq}	L _{A10}	L _{A90}
00:00 – 01:00	30	29	20
01:00 – 02:00	22	27	20
02:00 – 03:00	20	24	20
03:00 – 04:00	21	23	20
04:00 – 05:00	20	24	20
05:00 – 06:00	32	31	21
06:00 – 07:00	40	39	27
07:00 – 08:00	42	44	34
08:00 – 09:00	43	46	36
09:00 – 10:00	41	44	31
10:00 – 11:00	39	42	29
11:00 – 12:00	37	39	30
12:00 – 13:00	38	40	30
13:00 – 14:00	37	37	27
14:00 – 15:00	35	38	28
15:00 – 16:00	39	40	29
16:00 – 17:00	37	39	33
17:00 – 18:00	43	41	32
18:00 – 19:00	41	43	32
19:00 – 20:00	47	44	32
20:00 – 21:00	35	37	28
21:00 – 22:00	32	35	27
22:00 – 23:00	33	34	26
23:00 – 00:00	30	31	20
Measured value of L _{A10(18hour)}		39	
Measured value of L _{den}		42	

Table 11 24-Hour Monitoring Results at Survey Location NS61 (24hr)

M11 Gorey to Enniscorthy Scheme

Environmental Impact Statement

Appendix 14.1

Tag Significance Criteria and Worksheets

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APPENDIX 14.1

TAG SIGNIFICANCE CRITERIA (Table 1)

and

TAG WORKSHEETS (Tables 2 to 9)

(from Department for Transport (UK) *The Landscape Sub-Objective (Transport Analysis Guidance)*

TAG Unit 3.3.7)

Note: All Chainages included in these worksheets are approximate.

Table 1: TAG Significance Criteria

Score	Comment
Large beneficial (positive) effect	Very few if any investment proposals are likely to merit this score.
Moderate beneficial (positive) effect	<p>The proposals provide an opportunity to enhance the landscape because:</p> <ul style="list-style-type: none"> • they fit very well with the scale, landform and pattern of the landscape • there is potential, through mitigation, to enable the restoration of characteristic features, partially lost or diminished as the result of changes resulting from intensive farming or inappropriate development • they will enable a sense of place and scale to be restored through well-designed planting and mitigation measures, that is, characteristic features are enhanced through the use of local materials and species used to fit the proposal into the landscape • they enable some sense of quality to be restored or enhanced through beneficial landscaping and sensitive design in a landscape which is not of any formally recognized quality
Slight beneficial (positive) effect	<p>The proposals:</p> <ul style="list-style-type: none"> • fit well with the scale, landform and pattern of the landscape • incorporate measures for mitigation to ensure they will blend in well with surrounding landscape. • will enable some sense of place and scale to be restored through well-designed planting and mitigation measures. • maintain or enhance existing landscape character in an area which is not a designated landscape, nor vulnerable to change.
Neutral effect	<p>The proposals are well designed to:</p> <ul style="list-style-type: none"> • complement the scale, landform and pattern of the landscape. • incorporate measures for mitigation to ensure that the scheme will blend in well with surrounding landscape features and landscape elements • avoid being visually intrusive nor have an adverse effect on the current level of tranquillity of the landscape through which the route passes. • maintain existing landscape character in an area which is not a designated landscape, that is, neither national or local high quality, nor is it vulnerable to change.
Slight adverse (negative) effect	<p>The proposals:</p> <ul style="list-style-type: none"> • do not quite fit the landform and scale of the landscape • although not very visually intrusive, will impact on certain views into and across the area. • cannot be completely mitigated for because of the nature of the proposal itself or the character of the landscape through which it passes.

	<ul style="list-style-type: none"> • affect an area of recognised landscape quality.
Moderate adverse (negative) effect	<p>The proposals are:</p> <ul style="list-style-type: none"> • out of scale with the landscape, or at odds with the local pattern and landform. • are visually intrusive and will adversely impact on the landscape • not possible to fully mitigate for, that is, mitigation will not prevent the scheme from scarring the landscape in the longer term as some features of interest will be partly destroyed or their setting reduced or removed. • will have an adverse impact on a landscape of recognised quality or on vulnerable and important characteristic features or elements.
Large adverse (negative) effect	<p>The proposals are very damaging to the landscape in that they:</p> <ul style="list-style-type: none"> • are at considerable variance with the landform, scale and pattern of the landscape. • are visually intrusive and would disrupt fine and valued views of the area. • are likely to degrade, diminish or even destroy the integrity of a range of characteristic features and elements and their setting. • will be substantially damaging to a high quality or highly vulnerable landscape, causing it to change and be considerably diminished in quality. • cannot be adequately mitigated for.
Very large adverse (negative) effect	<p>The proposals would result in exceptionally severe adverse impacts on the landscape because they:</p> <ul style="list-style-type: none"> • are at complete variance with the landform, scale and pattern of the landscape. • are highly visual and extremely intrusive, destroying fine and valued views both into and across the area. • would irrevocably damage or degrade, badly diminish or even destroy the integrity of characteristic features and elements and their setting. • would cause a very high quality or highly vulnerable landscape to be irrevocably changed and its quality very considerably diminished. • could not be mitigated for, that is, there are no measures that would protect or replace the loss of a nationally important landscape.

Table 2 TAG Worksheets: Policy Area 2A (M11 Mainline Chainage 0 – 8,500m)

Features	Description	Scale it matters	Rarity	Importance	Substitutability	Impact	Additional Mitigation
Pattern	Broadly sloping to undulating lowland. Landform rises steeply towards Carrigroe Hill. Fields are medium to large in scale and enclosed by hedgerows and lines of trees. Open long distance vistas back to Blackstairs Mountains from elevated areas and where hedgerows are low, otherwise local enclosure given by hedgerows and trees. Carrigroe Hill forms backdrop to the area in views from the M11/N11 Mainline corridor looking towards the east and south-east. Sweeping curved line of Dublin to Wexford railway. Irregular shaped fields.	Local	Locally Common	Medium	Field pattern may be reproduced. Undulating valley topography could be reproduced. Field ponds can be replaced. Difficult to recover long distance views spoiled by intrusion.	<p>8.5km of M11 Mainline carriageway will cross through greenfield land within this character area.</p> <p>M11 Mainline will cross approximately 10 roads or farm tracks, requiring construction of overbridges or underpasses, which by their nature usually have large negative impacts on landscape.</p> <p>Form and arrangement of carriageways would be at odds with semi-geometric field pattern either side.</p> <p>Proposed grade separated junction in Frankfort.</p> <p>Cutting and embankment slopes would disrupt existing landform.</p> <p>Locally large (over approximately 5m) potentially adverse cutting between approximately chainages M11:1,550m and M11:2,250m; M11:3.430m-4.000m, M116.570m and 7.050m</p> <p>Locally large (over approximately 5m) potentially adverse fill between approximately chainages M11:2,350m and M11:2,650m; M11:2,750m and M11:3,550m</p> <p>The M11 Mainline will be visible from a wide area of landscape to its north west and south east; and therefore intrude negatively into views from a large area of landscape.</p> <p>The M11 Mainline is predominantly in locally large cut as it sweeps around the base of Carrigroe Hill reducing the visibility of the road from elevated lands to its east around the Hill.</p> <p>Localised high ground to the east of the</p>	<p>Embankment and cutting slopes planted to reduce visibility and integrate Proposed Scheme into existing landscape pattern and character.</p> <p>Significant tree planting proposed at Frankfort Junction to reduce impact of lighting on wider landscape. Planting will also reduce ecological impacts (eg tall trees reduce potential roadkill of birds and bat crossings/foraging).</p> <p>Fill and Cuttings to be gently graded to reflect the local landform and allow land to be used for agriculture and woodland planting.</p> <p>Proposed planting of shrub/woodland and hedges to tops of cuttings and along fill embankments to help integrate new landform into existing and recreate field boundary vegetation patterns.</p>

Table 2 TAG Worksheets: Policy Area 2A (M11 Mainline Chainage 0 – 8,500m)

Features	Description	Scale it matters	Rarity	Importance	Substitutability	Impact	Additional Mitigation
						Frankfort Junction provides some screening from distant views towards the Proposed Scheme. No loss of dwellings and farm buildings.	
Tranquillity	Generally peaceful in areas close to Carrigroe Hill, areas close to the existing N11 are influenced by traffic noise.	Local	Locally Common	High	Once lost is difficult to recover.	M11 Mainline would result in the loss of sense of isolation and tranquillity in what are currently quiet rural areas close to Carrigroe Hill.	Noise barriers are proposed that will be further screened by proposed planting.
Cultural	Recorded monuments include enclosure sites, cairns and mottes. Landscape setting of Ballyeden House west of the M11 Mainline at approx chainage 4,950 Landscape setting of Ballymore (Protected Structure)– former school house east of the N11 mainline at approx chainage 7,500 Landscape setting of Rockspring House and complex and garden folly east of M11 Mainline at approx chainage 8,400	Regional/ National	Rare	High	Cultural features may not be replaced.	Slight adverse impact to landscape setting of recorded monuments at WX016-008 Enclosure site, WX020-068 Moated site and WX020-026 and WX020-025. The M11 Mainline will be visible from Ballyeden House and from the former school house at Ballymore, in particular during construction. The Proposed Scheme does not require removal of any trees or planting directly associated with the houses. The M11 Mainline will not be visible from Rockspring House however the historic demesne landscape will be disturbed in order to construct the M11 mainline and new local T junction road with turning area..	Hedge planting along newly aligned local road and woodland planting along mainline cutting proposed to retain woodland/rural setting of Ballyeden house. Woodland planting along M11 Mainline cutting to reduce impact on views from the Ballymore schoolhouse. Extreme care will be taken to protect existing mature trees along the IL-5096 Rockspring Road and along the demesne boundaries (in accordance with measures outlined in Chapter 9 Ecology in regard to tree protection) where trees do not require removal. New planting along the local roads will match existing to help re-establish the character of the area in the long term.
Landcover	Arable and pasture farmland. Hedgerows including tree lines, blocks and belts of deciduous woodland. One off housing and farm buildings dotted throughout area. Local rivers and streams.	Local	Locally Common	Medium	Undeveloped agricultural land and woodland difficult to reproduce. Hedgerows and roadside treatment possible to	Loss of woodland at chainages M11:1,200m to M11:1,300m (slight adverse) chainage M11:5,300m (slight adverse), chainage M11:8,300m (slight adverse), Loss of farmland and hedgerows to carriageways, cutting and fill embankments.	Replanting of trees and hedgerows and woodland along Proposed Scheme and where local road upgrades/realignments proposed.

Table 2 TAG Worksheets: Policy Area 2A (M11 Mainline Chainage 0 – 8,500m)

Features	Description	Scale it matters	Rarity	Importance	Substitutability	Impact	Additional Mitigation
					reproduce. Settlements easily reproduced.	Temporary loss of land to site compounds and site storage areas during construction.	Local road realignment to avoid significant trees and hedgerows (such as at Rockspring house)
Summary of character	Attractive rural and pastoral landscape. Broadly sloping to undulating lowland with long distance vistas back to Blackstairs Mountains and to Carrigroe Hill.	Regional	Locally common combination of cultural, land cover and scenic elements	Medium	As a whole this character would be difficult to substitute.	<p>Disruption to landform. Loss of agricultural land and increase in dominance of infrastructure locally leading to loss of rural tranquillity.</p> <p>Large intrusion into wider landscape views, especially from large area of lands to the west, east and south east.</p> <p>Alteration to landscape settings of cultural heritage sites.</p>	<p>Ensure planting as shown on landscape proposals is established with final species selected to best represent surrounding species and achieve required levels of screening.</p> <p>Include specific mitigation measures as outlined above.</p>

Table 3: TAG Worksheets: Policy Area 2B (M11 Mainline chainage 8,500 – 17,400m)

Features	Description	Scale it matters	Rarity	Importance	Substitutability	Impact	Additional Mitigation
Pattern	Local valley with meandering stream (Tinnacross Stream) along the valley floor. Enclosed by ridgelines of surrounding hills to the north west and south east. Topography of M11 Mainline corridor varies from 18.0m AOD to 44.0m AOD. Small to large semi-regular fields enclosed by low hedgerows. Lines of trees within hedgerows and some blocks of woodland. Views contained within the valley, giving the area an enclosed feeling. Village settlement at The Harrow and Moonagear, other settlement consists of isolated one-off housing and farm buildings dotted through the area. Irregular pattern of local roads crosses the area.	Local	Locally Common	Medium	Field pattern may be reproduced. Difficult to recover long distance views spoiled by intrusion.	<p>8.9km of M11 Mainline carriageway will cross through greenfield land within this character area.</p> <p>Route will cross approximately 5 roads or farm tracks, requiring construction of overbridges or underpasses, which by their nature usually have large negative impacts on landscape.</p> <p>Form and arrangement of M11 Mainline would be at odds with semi-geometric field pattern either side.</p> <p>Cutting and embankment slopes can disrupt existing landform.</p> <p>Locally large (over approximately 5m) potentially adverse fill between chainages M11:8,850m and M11:10,400m; M11:12,300m and M11:12,750m; M11:13,200m and M11:13,400m; M11:14,100 and M11:15,650; M11:16,000 and M11:16,150; M11:16,450 and M11:16,900.</p> <p>The M11 Mainline will be visible from the landscape to its north west and south east. From approximately Ch. 8,850 to Ch. 16,900 the M11 Mainline built upon embankments on a valley floor will intrude in views of the local valley landscape from valley sides to its south east and north west.</p> <p>Gently rising and undulating topography to the north west and south east screens long distance views to the M11 Mainline from the wider landscape.</p> <p>1 No. loss of an uninhabitable dwelling.</p>	<p>.</p> <p>Plant new native species hedgerows as part of Proposed Scheme within the land take area to restore severed field pattern and landscape character.</p> <p>Proposed planting of shrub/woodland and hedges to tops of cuttings and along fill embankments to help integrate new landform into existing and recreate field boundary vegetation patterns.</p>
Tranquillity	Rural villages ribbon residential	Local	Locally	High	Once lost is	M11 Mainline would result in the loss of	None possible without further

Table 3: TAG Worksheets: Policy Area 2B (M11 Mainline chainage 8,500 – 17,400m)

Features	Description	Scale it matters	Rarity	Importance	Substitutability	Impact	Additional Mitigation
	settlement along some local roads and, isolated dwellings and farm buildings visible. Local roads and lanes bisect the area. The area is rural and tranquil.		Common		difficult to recover.	sense of isolation and tranquillity across what are currently quiet rural areas.	disruption to pattern, landform and visual amenity.
Cultural	Recorded monuments include enclosure sites, cairns and mottes. Landscape setting of Tinnacross Bridge situated to the west of the M11 Mainline approx chainage 14,450.	Regional/ National	Rare	High	Cultural features may not be replaced; footpaths and tracks can be redirected.	Adverse impact to landscape setting of the Tinnacross Bridge. The M11 Mainline constructed on embankment along valley floor and will dominate local landscape in vicinity of the bridge.	Planting proposed along the new embankment to reduce the visual impact of the M11 Mainline and associated traffic.
Landcover	Predominately pasture with some arable. Semi-regular fields are medium to large in size and enclosed by hedgerows which contain isolated trees. Blocks of deciduous and mixed woodland. Large mature specimen trees and hedgerows often lining local roads in the area. Small areas of immature conifer plantations. One off housing and large farm buildings. Quarry activities at Ballydonigan.	Local	Locally Common	Medium	Undeveloped agricultural land and woodland difficult to reproduce. Hedgerows and roadside treatment possible to reproduce. Settlements easily reproduced.	Loss of woodland at Ch. 9,250 (slight adverse) Ch. 14,400 (slight adverse), Ch. 14,700 (slight adverse). Loss of farmland and hedgerows to carriageways, cutting and fill embankments. Culverting of Tinnacross Stream along valley bottom, and disruption to valley floor landscape. Temporary loss of land to site compounds and site storage areas during construction.	Replanting of trees and hedgerows and woodland along Proposed Scheme and where local road upgrades/realignments proposed. Planting of embankments and cuttings in species to match those removed and/or in surrounding landscape to help integrate new landform into existing landcover. Embankments and cutting to be gradually graded to allow lands to be returned to woodland and agricultural
Summary of character	Attractive rural pastoral landscape with some arable within a locally enclosed valley. Abundant mature trees and areas of woodland. Views generally contained within and along the valley.	Regional	Locally Common combination of cultural, land cover and scenic elements	Medium	As a whole this character would be difficult to substitute.	Disruption to landform. Loss of agricultural land and increase in dominance of infrastructure locally leading to loss of rural tranquillity. Disruption to meandering stream pattern of valley bottom and introduction of significant length of embankments into the bottom of the valley. Intrusion into views from sides of valleys into valley floor and from one side of valley to the other. Alteration to landscape setting of	Ensure planting as shown on landscape proposals is established with final species selected to best represent surrounding species and achieve required levels of screening

Table 3: TAG Worksheets: Policy Area 2B (M11 Mainline chainage 8,500 – 17,400m)

Features	Description	Scale it matters	Rarity	Importance	Substitutability	Impact	Additional Mitigation
						cultural heritage site at Tinnacross Bridge.	

Table 4: TAG Worksheets: Policy Area 2C (M11 Mainline chainage 17,400 – 21,300m and N80 Link Road Ballydawmore to River Slaney)

Features	Description	Scale it matters	Rarity	Importance	Substitutability	Impact	Additional Mitigation
Pattern	Sloping valley side to east of River Slaney. Local rivers and streams further divide the topography of the area into smaller undulating sub-valleys. Elevation of N80 Link Road climbs from 6.0m AOD close to river to 54.0m AOD at Ballydawmore. Medium to large rectangular and irregular shaped fields enclosed by hedgerows and tree lines. Large blocks and belts of woodland. Open vistas through large fields and where hedgerows are low, otherwise enclosed feeling from sloping topography and abundant trees and woodland.	Local	Locally Common	Medium	Field pattern may be reproduced. Undulating valley topography could be reproduced. Difficult to recover long distance views spoiled by intrusion.	<p>3.9km of M11 Mainline and 1.3km of N80 Link Road carriageway will cross through green field land within this character area.</p> <p>Two grade separated junctions proposed in Ballydawmore and Tomfunshoge. The scale of the junctions will give a locally large adverse impact on landscape. The addition of lighting in the region of these junctions will negatively impact on landscape.</p> <p>Approach embankments for crossing of River Slaney on eastern side of river would have locally negative impact on the valley landscape. However the densely wooded nature of the valley gives it capacity to absorb these structures.</p> <p>Route will cross approximately 6 roads, farm tracks and the railway line, requiring construction of overbridges or underpasses, which by their nature usually have substantial negative impacts on landscape.</p> <p>Cutting and embankments slopes would disrupt existing landform.</p> <p>Large (over approximately 5m) potentially adverse cut between chainage: M11:17,400 and 18,000 M11:19,050 and 19,500 M11:19,550 and 19,800 (M11:20,500 and 21,200 (N80: 3,200 and 3,500 Significant fill between chainage: M11:19,850 and 20,400 18,100 and 18,900N80: 2,850 and 2,900 3,600 and 3,800</p>	<p>Location of the junction in Ballydawmore within a locally contained valley reduces visual impact. The junction at Tomfunshoge is mitigated by its location on the suburban periphery of Enniscorthy .</p> <p>Significant tree planting proposed at the two large junctions to reduce impact of lighting on wider landscape. Planting will also reduce general visual impacts and ecological impacts (eg tall trees reduce potential roadkill of birds and bat crossings/foraging).</p> <p>Plant new native species hedgerows as part of Proposed Scheme within the land take area to restore severed field pattern and landscape character.</p> <p>Fill and cut to be gradually graded to marry with the existing local landform. Proposed planting of shrub/woodland and hedges to tops of cuttings and along fill embankments to help integrate new landform into existing and recreate field boundary and woodland vegetation patterns</p>

Table 4: TAG Worksheets: Policy Area 2C (M11 Mainline chainage 17,400 – 21,300m and N80 Link Road Ballydawmore to River Slaney)

Features	Description	Scale it matters	Rarity	Importance	Substitutability	Impact	Additional Mitigation
Tranquillity	Isolated dwellings and farm buildings, some ribbon development of dwellings near Ballynabarney Bridge and close to Enniscorthy suburbs. Isolated cluster settlement at Solsborough. Predominately minor roads and farm tracks. Most of the area is remote.	Local	Locally Common	High	Once lost is difficult to recover.	The Proposed Scheme would result in the loss of sense of isolation and tranquillity in what are currently quiet rural areas in the north and along the east side of the character area.	None possible without further disruption to pattern, landform and visual amenity.
Cultural	Estate entrance and lodge at Solsborough. Solsborough graveyard and church. Moated site at Corbally. Landscape setting of farm complex (in ruins) at Toom to east of M11 Mainline approx chainage 17,850	Regional/ National	Rare	High	Cultural features may not be replaced; footpaths and tracks can be redirected.	Landscape setting of Toom farm complex will be disrupted through tree removal along local road and field boundary removal to accommodate N80 Link Road. M11 Mainline in cutting so no significant visual impact.	Proposed planting along M11 Mainline and new local road alignments to integrate road alignments into existing landscape patterns and reduce visibility of works.
Landcover	Occasional field ponds. Large blocks or belts of woodland adjacent to local rivers and streams. Some areas of scrub. Pasture and arable land, primarily used for pasture. Isolated dwellings and farm buildings, some ribbon development of dwellings near Ballynabarney Bridge and close to Enniscorthy suburbs. Isolated cluster settlement at Solsborough.	Local	Locally Common	Medium	Undeveloped agricultural land and woodland difficult to reproduce. Hedgerows and roadside treatment possible to reproduce. Settlements easily reproduced.	Loss of productive agricultural land to carriageways, cuttings and embankments. Slight loss of field hedgerows, and isolated trees where route crosses fields. Loss of farmstead: None Loss of dwellings: None. Partially built house in Tomnafunshoge to be demolished Temporary loss of land to site compounds and site storage areas during construction.	Replanting of trees and hedgerows and woodland along Proposed Scheme and where local road upgrades/realignments proposed. Planting of embankments and cuttings in species to match those removed and/or in surrounding landscape to help integrate new landform into existing landcover. Land to be returned to agricultural usage where possible to reinstate local landscape character.
Summary of character	Beautiful pastoral and arable wooded river valley landscape. Numerous one off dwellings dotted throughout the area. Views out are dominated by the lush surrounding wooded valley of the River Slaney and to Vinegar Hill.	Regional	Locally Common combination of cultural, land cover and scenic elements	Medium	As a whole this character would be difficult to substitute.	Disruption to landform. Loss of agricultural land and increase in dominance of infrastructure locally leading to loss of rural tranquillity. Undulating topography and large blocks of woodland and dense hedgerows gives the character areas	Proposed embankments of eastern approach to River Slaney to be planted as proposed on landscape plans. Dense planting of woodland species to match existing landscape character. Local road upgrades and/or

Table 4: TAG Worksheets: Policy Area 2C (M11 Mainline chainage 17,400 – 21,300m and N80 Link Road Ballydawmore to River Slaney)

Features	Description	Scale it matters	Rarity	Importance	Substitutability	Impact	Additional Mitigation
						<p>higher capacity to absorb road development and grade separated junctions.</p> <p>Alteration to landscape setting of cultural heritage site at Toom.</p>	<p>realignments to include roadside planting to match existing.</p> <p>Extensive planting at Tomnafunshoge and Ballydawmore Junctions to further integrate hard surfaces into landscape and help screen lighting and signs from surrounding areas.</p>

Table 5 TAG Worksheets: Policy Area 2D (M11 Mainline chainage 21,300 – 26,600m)

Features	Description	Scale it matters	Rarity	Importance	Substitutability	Impact	Additional Mitigation
Pattern	Above the Slaney Valley this is a large scale open landscape, with large fields enclosed by hedgerows and lines of trees. There are large blocks and belts of woodland. Topography is flat to mostly broadly sloping lowland. Elevation of land within M11 Mainline route corridor is at 54.0m AOD at Tomnafunshoge and remains generally flat up to Cooladine, south of Cooladine the topography dips to 43.0m AOD at a small river valley. After this narrow dip the route corridor rises again to 54.0m AOD and then rises all the way to 91.0m at Knockrathkyle from where the land slopes gently across wide open arable fields to 39.0m AOD at Glenties.	Local	Local	Locally Common	Medium	<p>5.3km of M11 Mainline carriageway will cross through green field land within this character area.</p> <p>Grade separated junction proposed at Tomfunshoge Townlands. The scale of the junction will give a locally large adverse impact on landscape. The addition of lighting in the region of the junction will negatively impact on landscape. The junction at Tomfunshoge is mitigated by its location on the suburban periphery of Enniscorthy and its siting in a cutting.</p> <p>Route will cross approximately 4 local roads or farm tracks, requiring construction of overbridges or underpasses, which by their nature usually have substantial negative impacts on landscape.</p> <p>Form and arrangement of carriageways would be at odds with semi-geometric field pattern either side.</p> <p>Cutting and embankments slopes would disrupt existing landform. Large adverse cut between chainage: 24,400 and 25,000</p> <p>Significant fill between chainage: 22,700 and 22,800 23,200 and 24,200 25,200 and 26,250 26,400 and 26,500</p> <p>No loss of dwellings and farm buildings.</p>	<p>Plant new native species hedgerows along Proposed Scheme within the land take area to restore severed field pattern and landscape character.</p> <p>Proposed planting of shrub/woodland and hedges to tops of cuttings and along fill embankments to help integrate new landform into existing and recreate field boundary and woodland vegetation patterns.</p> <p>Between Chainage 23,250 and 24,200 the M11 Mainline passes alongside existing trees. New planting within land take area to be planted in to match existing enhancing these existing pockets of trees and maintaining landscape pattern.</p> <p>Significant tree planting proposed at the two large junctions to reduce impact of lighting on wider landscape. Planting will also reduce general visual impacts and ecological impacts (eg tall trees reduce potential roadkill of birds and bat crossings/foraging).</p>
Tranquillity	This landscape is located away from the existing N11 corridor and Enniscorthy suburbs. Only some local roads cross the area. Overall the landscape is perceived as peaceful and pleasant to beautiful.		Local	Locally Common	High	<p>The Proposed Scheme would result in the loss of sense of isolation and tranquillity in what are currently quiet rural areas along the east side of the character area.</p>	<p>None possible without further disruption to pattern, landform and visual amenity.</p>

Table 5 TAG Worksheets: Policy Area 2D (M11 Mainline chainage 21,300 – 26,600m)

Features	Description	Scale it matters	Rarity	Importance	Substitutability	Impact	Additional Mitigation
Cultural	<p>Vinegar Hill Battle, escape route at Darby's Gap.</p> <p>The landscape setting of Ballycourcy House situated to the west of the M11 Mainline, approx chainage 22,850.</p>		Regional/ National	Rare	High	<p>No trees or planting within the Demesne associated with Ballycourcy House will be removed or disturbed. The M11 Mainline will be visible from the house.</p> <p>Impact on loss of field boundaries within setting of Vinegar Hill Battle escape route at Darby's Gap, realigned local road and views of M11 mainline</p>	<p>Proposed planting along the M11 Mainline will screen limited views to the road. Landscape setting will be retained.</p> <p>Proposed planting to screen views of side roads and M11 mainline and reinstate local field boundaries.</p>
Landcover	<p>Arable and pastoral farmland. Some vast arable fields. Large blocks and belts of good quality woodland. Hedgerows and lines of trees between fields. One off housing and isolated farmsteads. Most dwellings concentrated at Mye Cross Roads and Cretoge. Some ribbon development of dwellings at Cooladine.</p>		Local	Locally Common	Medium	<p>Loss of productive agricultural land to carriageways, cuttings and embankments.</p> <p>Loss of field hedgerows, and isolated trees where route crosses fields.</p> <p>Slight loss of woodland at chainage: 23,500.</p> <p>Loss of farmstead: None</p> <p>Loss of dwelling: None</p> <p>Temporary loss of land to site compounds and site storage areas during construction.</p>	<p>Replanting of trees and hedgerows and woodland as outlined on landscaping proposals</p> <p>Reinstatement of field boundaries with similar planting to existing.</p>
Summary of character	<p>The combination of large open arable fields and elevation gives the landscape a vast open feeling accentuated by long distant views to higher ground to the south and east of County Wexford. This openness is more apparent in areas south of the flatter topography at Cooladine. There are also views out to Vinegar Hill. The landscape is pleasant and has strong sense of character and cultural associations with Battle at Vinegar Hill.</p>		Regional	Locally common combination of cultural, land cover and scenic elements	Medium	<p>Loss of agricultural land and increase in dominance of infrastructure locally leading to loss of rural tranquillity.</p>	<p>Extensive planting at Tomnafunshoge Junction to further integrate hard surfaces into landscape and help screen lighting and signs from surrounding areas.</p>

Table 6 TAG Worksheets: Policy Area 2E (M11 Mainline chainage 26,600m – Scurlockbush Roundabout)

Features	Description	Scale it matters	Rarity	Importance	Substitutability	Impact	Additional Mitigation
Pattern	Gentle sloping landform undulating at local stream valleys. Landform rises more steeply towards Scurlocksbush Hill. Fields are small to medium in scale and enclosed by hedgerows and lines of trees. Some large blocks and belts of woodland often associated with river and stream corridors. Undulating topography and field boundaries give landscape an enclosed appearance; however there are views out to distant high ground. High point of Scurlocksbush Hill at 82.0m AOD in the east of the area.	Local	Locally Common	Medium	Field pattern may be reproduced. Undulating valley topography could be reproduced. Difficult to recover long distance views spoiled by intrusion.	<p>1.5 km of M11 Mainline carriageway will cross through green field land within this character area.</p> <p>Two proposed roundabouts, the Roperstown Roundabout and the Scurlocksbush Roundabout, in the south part of character area will have locally moderate adverse impact on landscape due to lighting.</p> <p>Route will cross road or farm tracks, requiring construction of overbridge or underpass, which by their nature usually have substantial negative impacts on landscape.</p> <p>Cutting and embankments slopes would disrupt existing landform. Moderate adverse cut between chainage: 26,800 and 26,950 27,500 and 27,700</p> <p>Significant fill between chainage: 26,600 and 26,800 27,100 and 27,250</p>	<p>Plant new native species hedgerows along Proposed Scheme within the land take area to restore severed field pattern and landscape character.</p> <p>Proposed planting of shrub/woodland and hedges to tops of cuttings and along fill embankments to help integrate new landform into existing and recreate field boundary and woodland vegetation patterns. Slopes to be gradually graded out to marry with existing landform.</p> <p>Woodland planting at Roperstown Area to consolidate existing character in this area.</p> <p>Significant tree planting proposed at the two junctions to reduce impact of lighting on wider landscape. Planting will also reduce general visual impacts and ecological impacts (eg tall trees reduce potential roadkill of birds and bat crossings/foraging).</p>
Tranquillity	Part of area is adjacent to existing N11, however is elevated above the road. Some isolated dwellings and farms buildings. Roads are minor and rural. Enclosure from combination of undulating topography and vegetation makes the area appear peaceful.	Local	Locally Common	High	Once lost is difficult to recover.	The Proposed Scheme would result in further loss of tranquillity in what are currently quiet rural areas the northern part of the character area.	None possible without further disruption to pattern, landform and visual amenity.
Cultural	Bullaun Stone.	Regional/ National	Rare	High	Cultural features may not be	The Proposed Scheme will not impact on the Ballaun Stone.	

Table 6 TAG Worksheets: Policy Area 2E (M11 Mainline chainage 26,600m – Scurlockbush Roundabout)

Features	Description	Scale it matters	Rarity	Importance	Substitutability	Impact	Additional Mitigation
					replaced; footpaths and tracks can be redirected.		
Landcover	Pastoral and arable land. Hedgerows often dense and lines of trees. Belts and blocks of woodland. Streams and wet woodland. Conifer plantation and areas of scrub.	Local	Locally Common	Medium	Undeveloped agricultural land and woodland difficult to reproduce. Settlements easily reproduced.	<p>Loss of productive agricultural land to carriageways, cuttings and embankments.</p> <p>Loss of field hedgerows, and isolated trees where route crosses fields.</p> <p>Slight loss of woodland at chainage: 27,100 and 27,200.</p> <p>Loss of farmstead: None</p> <p>Loss of dwelling: None</p> <p>Temporary loss of land to site compounds and site storage areas during construction.</p>	Replanting of trees and hedgerows and woodland.
Summary of character	Sloping pasture and arable land with abundant trees and woodland. Stream valleys carve the area into more undulating landform in places. Intimate scale and sense of enclosure from landform and vegetation; views out to surround higher ground.	Local	Locally Common	Medium	Field pattern may be reproduced. Undulating valley topography could be reproduced.	The Proposed Scheme would result in further loss of tranquillity, and loss of agricultural land and woodland along local river valley at Riverview.	Proposed embankments and cut slopes to be planted as proposed on landscape plans. Dense planting of woodland species to match existing landscape character. Local road upgrades and/or realignments to include roadside planting to match existing.

Table 7 TAG Worksheets: Policy Area 2F (N30 Mainline Chainage 0 – 3,000m and 7,800, to Templescoby Roundabout)

Features	Description	Scale it matters	Rarity	Importance	Substitutability	Impact	Additional Mitigation
Pattern	Sloping valley side, land falls towards River Slaney further to the east, topography of N30 Mainline corridor varies from 18.0m AOD to 44.0m AOD. Small to large semi-regular fields enclosed by low hedgerows. Lines of trees within hedgerows and some blocks of woodland. Long distance views out over surrounding landscape. On lower contours hedgerows give the area an enclosed appearance. Land rises steeply to north west of the Proposed Scheme to a localised ridge within the Coolnahorna and Ballyorrl Townlands. Hore's Rock is an isolated rock outcrop within the area.	Local	Locally Common	Medium	Field pattern may be reproduced. Undulating valley topography could be reproduced. Difficult to recover long distance views spoiled by intrusion.	3.2 km of N30 Mainline carriageway will cross through green field land within this character area. Templescoby Roundabout after Ch. 8,000 will have locally moderate adverse impact on landscape character due to grading and lighting in views. Route will cross approximately 3 roads or farm tracks, requiring construction of overbridges or underpasses, which by their nature usually have substantial negative impacts on landscape. Cutting and embankments slopes would disrupt existing landform. Large to moderate adverse cut between chainage: 650 and 1,400 7,800 and 7,900 Moderate to significant fill between chainage: 0 and 600 1700 and 2900	Plant new native species hedgerows along Proposed Scheme within the land take area to restore severed field pattern and landscape character. Proposed planting of shrub/woodland and hedges to tops of cuttings and along fill embankments to help integrate new landform into existing and recreate field boundary and woodland vegetation patterns. Significant areas of planting proposed to east and west of road alignment between ch 1,400 and 2,600 to blend to existing vegetation patterns. Views out to local landscape feature (Hore's Rock) retained from Proposed Scheme chainage 2,200 – 2,800. Significant tree planting proposed at the two junctions to reduce impact of lighting on wider landscape. Planting will also reduce general visual impacts and ecological impacts (eg tall trees reduce potential roadkill of birds and bat crossings/foraging).
Tranquillity	Located to the west and outside of the existing N11 corridor. Some views of warehouse buildings along existing N11 corridor. The area is crossed by local rural roads. Settlement in the area is one-off	Local	Locally Common	High	Once lost is difficult to recover.	The Proposed scheme would result in the loss of a limited sense of tranquillity where it passes through currently rural areas in the north part of the character area.	None possible without further disruption to pattern, landform and visual amenity.

Table 7 TAG Worksheets: Policy Area 2F (N30 Mainline Chainage 0 – 3,000m and 7,800, to Templescoby Roundabout)

Features	Description	Scale it matters	Rarity	Importance	Substitutability	Impact	Additional Mitigation
	housing and farmsheds with areas of ribbon development of housing along the local roads. Area is generally peaceful.						
Cultural	Burial ground at Killagigan South. Moated site near Clavass. (refer to cultural heritage chapter for details)	Regional/ National	Rare	High	Cultural features may not be replaced.	No landscape and visual impact.	
Landcover	Predominately pasture with some arable. Semi-regular fields are generally large in size and enclosed by hedgerows which contain isolated trees. Blocks of deciduous and mixed woodland. Numerous streams.	Local	Locally Common	Medium	Undeveloped agricultural land and woodland difficult to reproduce. Settlements easily reproduced.	Loss of productive agricultural land to carriageways, cuttings and embankments. Loss of field hedgerows, and isolated trees where route crosses fields. Slight loss of woodland at chainage 1,400. Loss of farmstead: None Loss of dwelling: None Temporary loss of land to site compounds and site storage areas during construction.	Proposed landscaping to match existing species in local landscape, in particular along local road boundaries and where re-establishing field boundary connections along the N30 Mainline corridor.
Summary of character	Pleasant sloping pasture and arable lands adjacent to the existing N11 corridor. Views out to surrounding wider landscape. Views limited by tree lines and woodland.	Local	Locally Common	Medium	Field pattern may be reproduced. Undulating valley topography could be reproduced.	The Proposed Scheme would result in further loss of tranquillity, and loss of agricultural land.	Proposed embankments and cut slopes to be planted as proposed on landscape plans. Dense planting of woodland species to match existing landscape character. Local road upgrades and/or realignments to include roadside planting to match existing. Provide for open views to local landscape feature (Hore's Rock) from new alignment.

Table 8 TAG Worksheets: Slaney Valley Character Area (N80 Link Road from existing N11 at west to River Slaney at east)

Features	Description	Scale it matters	Rarity	Importance	Substitutability	Impact	Additional Mitigation
Pattern	River valley landscape associated with the River Slaney with gently sloping landform down to River dropping locally sharply at Ballynahallin. Medium to large scale semi-regular fields. Dense hedgerow field boundaries include tree lines. Large blocks of deciduous woodland and scrub. Woodland and hedgerows give valley floor and river corridor an intimate scale and enclosed appearance. The areas further up the valley sides towards the existing N11 have less woodland giving an open appearance. Large flat, boggy fields to immediate west of River.	Local	Locally Common	Medium	Field pattern may be reproduced. Sloping and wooded valley topography could be reproduced.	<p>2.9km of N80 Link Road carriageway will cross through green field land within northern part of this character area.</p> <p>Two roundabouts in the North West part of character area, with existing N11 will have adverse impact on landscape character to west.</p> <p>Cutting and embankments slopes would disrupt existing landform. Large adverse cut between chainage: 0 and 1,400 (1,800 and 2,400)</p> <p>Significant fill between chainage: 1500 and 1800 2500 and 2800</p>	<p>Plant new native species hedgerows along Proposed Scheme within the land take area to restore severed field pattern and landscape character.</p> <p>Proposed planting of shrub/woodland and hedges to tops of cuttings and along fill embankments, with gradual grading out of slopes to help integrate new landform into existing and recreate field boundary and woodland vegetation patterns.</p> <p>Western lead in embankments to River Slaney bridge designed to allow movement of water through embankment in times of flood. Immediate riverside vegetation and profile retained through use of clear span bridge design.</p>
Tranquillity	Existing N11 and local roads towards Enniscorthy are busy with traffic. Away from the existing N11 corridor and the suburban outskirts of Enniscorthy built development consists of farm houses and sheds, local roads and farm tracks and the area is tranquil.	Local	Locally Common	High	Once lost tranquillity is difficult to recover.	Existing valley landscape is tranquil, combination of valley sides and River Slaney. N80 Link Road route would disrupt remnant areas of tranquillity in close proximity to river.	None possible without further disruption to pattern, landform and visual amenity.
Cultural	Dublin to Wexford railway passes through area in a sweeping curve similar to the line of the River Slaney, and in places is sited upon linear embankments. Numerous historic stone bridges over streams and railway line. Isolated specimen parkland trees. Traditional hedge bank field boundaries.	Regional National	Rare	High	Cultural features may not be replaced; footpaths and tracks can be redirected.	Cultural features not impacted on directly by Proposed Scheme.	

Table 8 TAG Worksheets: Slaney Valley Character Area (N80 Link Road from existing N11 at west to River Slaney at east)

Features	Description	Scale it matters	Rarity	Importance	Substitutability	Impact	Additional Mitigation
Landcover	Mix of pasture and arable farmland. Fields are medium to large in size and enclosed by hedgerows which contain isolated trees. Evidence that some hedgerows have been removed to enlarge size of fields. Large blocks and belts of deciduous woodland, in particular on steeper slopes. Some areas of scrub adjacent to Dublin to Wexford railway. Riparian vegetation adjacent to river.	Regional	Locally Common	High	Undeveloped agricultural land and woodland difficult to reproduce. Field and roadside hedges can be reproduced. Settlements easily reproduced.	Loss of productive agricultural land to carriageways, cuttings and embankments. Loss of field hedgerows, and isolated trees where route crosses fields. Loss of farmstead: None Loss of dwelling: None Temporary loss of land to site compounds and site storage areas during construction.	Replanting of trees and hedgerows and woodland as outlined on landscaping proposals. Retention of River Slaney existing profile and vegetation at crossing. Significant planting to high bridge approach embankments to match existing pockets of woodland planting and retain ecological values at river corridor in accordance with Ecologists recommendations.
Summary of character	Scenic River Slaney corridor, with abundance of woodland and medium to large pasture and arable fields enclosed by hedgerows. Gentle sloping to steep valley sides. Evidence of lack of strategic planning along existing N11 corridor towards Enniscorthy where industrial buildings degrade the landscape. Away from the suburbs of Enniscorthy the area has an attractive and unspoilt appearance and is tranquil. From higher ground within the area there are views out across to the eastern side of the Slaney valley and the wider agricultural landscape of Wexford.	Regional	Rare combination of cultural, ecological and scenic elements.	High	As a whole this character would be difficult to substitute.	Local disruption to landform, change to and from view of local area of river valley, loss of vegetation, loss of agricultural land and increase in dominance of infrastructure locally leading to loss of rural quality.	Replanting of trees and hedgerows and woodland as outlined on landscaping proposals. Consultation with Ecologists in detailed planting layout and species choice to ensure proposed planting is not subversive of the candidate SAC Slane River Valley.

Table 9 Policy Area 1 - Uplands Character Area (N30 Mainline chainage 3,000 – 7,800m)

Features	Description	Scale it matters	Rarity	Importance	Substitutability	Impact	Additional Mitigation
Pattern	Strongly undulating and rolling lowland at transition between Wexford lowlands and upland areas further to the west towards the Blackstairs Mountains. Locally very steep to south of River Urrin. River Urrin located within heavily vegetated enclosed valley. Semi-regular fields small to large in size divided by hedgerows often with lines of trees. Meandering lines of streams and local rivers. Many blocks and lines of woodland. Elevation varies from 18.0m AOD to 61.0m AOD. River and stream valleys have enclosed appearance resulting from steep valley topography and vegetation. From higher contours and where fields are large there are extensive views out over the surrounding countryside. More complex smaller scale appearance to landscape than other areas of Policy Area 6 landscapes.	Regional	Locally common	High	Field pattern may be reproduced. Local topographical character may be replicated. Difficult to recover long distance views spoiled by intrusion.	<p>4.8km of N30 Mainline carriageway will cross through green field land within this character area.</p> <p>Milehouse Roundabout junction with existing road in central part of character area (approx chainage 4,750 around Milehouse townland) will have locally moderate adverse impact on landscape character due. The addition of lighting in the region of the junction will negatively impact on landscape.</p> <p>Route will cross approximately 7 roads or farm tracks, requiring construction of overbridges or underpasses, which by their nature usually have substantial negative impacts on landscape.</p> <p>Form and arrangement of carriageways would be at odds with semi-geometric field pattern either side.</p> <p>Cutting and embankments slopes would disrupt existing landform. Large adverse cut between chainage: 3,450 and 4,900 5,300 and 5,700 5,900 and 6,1006,600 and 7,100 7,300 and</p> <p>Significant fill between chainage: 2,950 and 3,400 5,000 and 5,2006,200 and 6,550</p>	<p>Plant new native species hedgerows along Proposed Scheme within the land take area to restore severed field pattern and landscape character.</p> <p>Proposed planting of shrub/woodland and hedges to tops of cuttings and along fill embankments, with gradual grading out of slopes to help integrate new landform into existing and recreate field boundary and woodland vegetation patterns</p> <p>Significant areas of woodland planting proposed in the area of the River Urrin crossing to integrate large fill embankment into existing landscape of dense and extensive tree planting.</p>
Tranquillity	The area is located to the west of Enniscorthy and outside areas of ribbon development that radiate out from the towns suburbs. The area is crossed by many mostly local, rural roads. Settlement in the area is	Local	Locally Common	High	Once lost is difficult to recover.	The N30 Mainline would disrupt existing tranquillity, primarily in the central part of character area. Impact will not be as high in other parts as these areas are already influence by local roads and housing.	None possible without further disruption to pattern, landform and visual amenity.

Table 9 Policy Area 1 - Uplands Character Area (N30 Mainline chainage 3,000 – 7,800m)

Features	Description	Scale it matters	Rarity	Importance	Substitutability	Impact	Additional Mitigation
	mostly one-off housing and farmsteads with many areas of ribbon development of detached housing.						
Cultural	Series of historic buildings and structures at Forgeland. Historic bridge crossings.	National	Rare	High	Cultural features may not be replaced.	No direct impact on any protected structures.	
Landcover	Mix of pasture and arable farmland. Semi-regular fields are small to large in size and enclosed by hedgerows which contain isolated trees. Large blocks and belts of deciduous woodland especially along river and stream corridors. Riparian vegetation adjacent to river.	Local	Locally Common	High	Undeveloped agricultural land and woodland difficult to reproduce. Field and roadside hedges can be reproduced. Settlements may be reproduced.	Loss of productive agricultural land to carriageways, cuttings and embankments. Loss of field hedgerows, and isolated trees where route crosses fields. Slight loss of woodland at chainage: 5,100 and 6,500-6,600. Loss of farmstead: None Loss of a house and workshops at chainage 7,100. Temporary loss of land to site compounds and site storage areas during construction.	Extensive replanting of woodland in areas where woodland removed. Proposed local road realignments/upgrades, including over and underpasses are to include reinstatement or new planting at roadsides to match existing roadside character. Areas of pasture and arable land outside the land take area will remain as pasture.
Summary of character	Transitional area located between lowland and upland areas. Small to large pasture and arable fields enclosed by hedgerows. The elevation of the area above sea level varies from approximately 18.0m AOD to 62.0m AOD. The topography is undulating, further to the west of the study area the ground rises steeply towards the Backstairs Mountains. There are large blocks of woodland associated with rivers and streams. There are long distance	Regional	High importance landscape, combination of historic features and dramatic upland scenery and large areas of woodland.	High	As a whole this character would be difficult to substitute.	Local disruption to landform, loss of vegetation, loss of agricultural land and increase in dominance of infrastructure locally leading to loss of rural quality and tranquillity.	Replanting of trees and hedgerows and woodland as outlined on landscaping proposals.

Table 9 Policy Area 1 - Uplands Character Area (N30 Mainline chainage 3,000 – 7,800m)

Features	Description	Scale it matters	Rarity	Importance	Substitutability	Impact	Additional Mitigation
	views from higher contours and open lands over the surrounding landscape. In many places there are views back to the suburbs of Enniscorthy and Vinegar Hill however many areas are well enclosed by roadside and field boundary hedges and heavy tree planting along the River Urrin.						

M11 Gorey to Enniscorthy Scheme

Environmental Impact Statement

Appendix 14.2

Visual Impact Schedule

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APPENDIX 14.2

VISUAL IMPACT SCHEDULE

The following visual impact schedules include information on impacts for winter of the Opening Year 2013 (when planting will not have established and existing deciduous vegetation will have not leaves – i.e a ‘worst case’ scenario) and summer of the Design Year 2028 (with all landscaping measures implemented and established and existing vegetation with summer foliage). Entries under effect are given in ordinary type for the Opening Year, italics for the Design Year. The closest distance indicate the distance from the closet window or outlook in the property to that part of the Proposed Scheme resulting in significant adverse visual impact, including carriageways and traffic, signs and lighting. Impacts at Opening Year have been mapped and are included within the EIS as Figure 14.2 in Volume 4 of this EIS.

Key:

Su = Substantial

M = Moderate

Sl = Slight

* = Protected Structure

Ref.	Location	Closest Estimated Distance	Effect (with numbers affected)							Visual Impact	
			Adverse			None Overall	Beneficial			Winter, Opening Year (pre-establishment)	Design Year (post-establishment)
			Su	M	Sl		Sl	M	Su		
N11_1	Single dwelling at Tomlane, SW of existing N11	510 m			1	1				Some barely perceptible long distant views to lighting at Scurlocksbush Roundabout. However views are heavily filtered intervening woodland, and full cut off lighting will direct light spill onto highway only.	Mitigation screen planting at roundabout will as it matures screen lighting in long distant views.
N11_2	Group of four dwellings at Tomlane, SW of existing N11	396 m			4	4				Some barely perceptible long distant views to lighting at Scurlocksbush Roundabout. However views are heavily filtered intervening woodland and full cut off lighting will direct light spill onto highway only.	Mitigation screen planting at roundabout will as it matures screen lighting in long distant views.
N11_3	One dwelling at Scurlocksbush, NE of existing N11	47 m		1	1					Views to Scurlocksbush Roundabout including lighting. Views partially filtered by intervening vegetation.	Mitigation screen planting at roundabout and along existing N11 will as it matures screen lighting in long distant views.
N11_4	Single dwelling at Scurlocksbush, NE of existing N11	155 m		1	1					Views to Scurlocksbush Roundabout including lighting. Views partially filtered by intervening vegetation.	Mitigation screen planting at roundabout and along existing N11 will as it matures screen lighting in long distant views.
N11_5	Single dwelling at Coolaknickbeg	399 m				1,1				M11/N11 Mainline not visible, screened by combination of distance, intervening topography and vegetation.	No change from Opening Year.
N11_6	Group of six dwellings at Scurlocksbush, NE of existing N11	254 m			6	6				Long distant views from some dwellings over lit roundabout junctions at Scurlocksbush and Roperstown. Views partially filtered by intervening vegetation.	Mitigation screen planting at roundabouts and along existing N11 will as it matures screen lighting and roundabouts in long distant views.
N11_7	Group of six dwellings at Scurlocksbush, NE of existing N11	478 m				6,6				M11/N11 Mainline not visible	No change from Opening Year.

Ref.	Location	Closest Estimated Distance	Effect (with numbers affected)							Visual Impact	
			Adverse			None Overall	Beneficial			Winter, Opening Year (pre-establishment)	Design Year (post-establishment)
			Su	M	SI		SI	M	Su		
N11_8	Group of three dwellings at Scurlocksbush, NE of existing N11	548 m			3	3				Dwellings located on elevated sites. Long distant views from some dwellings over lit roundabout junctions at Scurlocksbush and Roperstown. Views partially filtered by intervening vegetation which will also restrict views from localised loss of hedgerow.	Mitigation screen planting at roundabouts, along existing N11 Road and realigned access road will as it matures screen lighting and roundabouts in long distant views.
N11_9	Group of two dwellings at Scurlocksbush, NE of existing N11	401 m				2,2				M11/N11 Mainline not visible	No change from Opening Year.
N11_10	Single dwelling at Scurlocksbush, NE of existing N11	102 m		1		1				Views of traffic on carriageway immediately to the west. Long distant views of roundabout junctions at Scurlocksbush and Roperstown.	Mitigation screen planting at roundabouts and along M11/N11 Mainline will as it matures screen proposals in views.
N11_11	Single dwelling at Scurlocksbush, NE of existing N11	144 m		1		1				Views of traffic on carriageway immediately to the south west. Long distant views of roundabout junctions at Scurlocksbush and Roperstown.	Mitigation screen planting at roundabouts and along M11/N11 Mainline will as it matures screen proposals in views.
N11_12	Group of two dwellings at Garrynisk, NE of existing N11	75 m		2	2					Views of M11/N11 Mainline to the east and north-east and to roundabout junction at Scurlocksbush are partially screened by 3.5m high noise barrier. Existing trees close to properties provide only partial screening.	Dense mitigation planting will predominately screen views to the M11/N11 Mainline; however some views available over planting and noise barriers from first floor windows.
N11_13	Dwelling with farm buildings at Garrynisk, NE of existing N11	183 m		1		1				Intervening topography, vegetation and farm buildings screen the majority of the M11/N11 Mainline. Partial views of the M11/N11 Mainline to the south available.	Proposed mitigation planting as it matures will screen views to M11/N11 Mainline.
N11_14	Single dwelling at Garrynisk, NE of existing N11	350 m				1,1				M11/N11 Mainline not visible	No change from Opening Year.
N11_15	Single dwelling at Garrynisk, NE of existing N11	527 m				1,1				M11/N11 Mainline not visible	No change from Opening Year.

Ref.	Location	Closest Estimated Distance	Effect (with numbers affected)							Visual Impact	
			Adverse			None Overall	Beneficial			Winter, Opening Year (pre-establishment)	Design Year (post-establishment)
			Su	M	SI		SI	M	Su		
N11_16	Group of three dwellings at Garrynisk, NE of existing N11	436 m				3,3				M11/N11 Mainline not visible	No change from Opening Year.
N11_17	Single dwelling at Garrynisk, NE of existing N11	409 m				1,1				M11/N11 Mainline not visible	No change from Opening Year.
N11_18	Dwelling with farmstead at Garrynisk, NE of existing N11	307 m				1,1				M11/N11 Mainline not visible	No change from Opening Year.
N11_19	Group of two dwellings at Glentiege, N of existing N1	402 m				2,2				M11/N11 Mainline not visible	No change from Opening Year.
N11_20	Single dwelling at Glentiege, N of existing N1	416 m				1,1				M11/N11 Mainline not visible, screened by intervening topography and vegetation.	No change from Opening Year.
N11_21	Group of two dwellings at Glentiege, N of existing N1	215 m				2,2				M11/N11 Mainline not visible, screened by intervening topography and vegetation.	No change from Opening Year.
N11_22	Group of two dwellings at Roperstown, E of existing N1	529 m				2,2				M11/N11 Mainline not visible	No change from Opening Year.
N11_23	Single dwelling at Riverview	522 m				1,1				M11/N11 Mainline not visible	No change from Opening Year.
N11_24	Single dwelling at Roperstown	584 m				1,1				M11/N11 Mainline not visible	No change from Opening Year.
N11_25	Group of two dwellings at Roperstown	577 m				1,1				M11/N11 Mainline not visible	No change from Opening Year.
N11_26	Group of two dwellings at Riverview	530 m				1,1				M11/N11 Mainline not visible	No change from Opening Year.

Ref.	Location	Closest Estimated Distance	Effect (with numbers affected)							Visual Impact	
			Adverse			None Overall	Beneficial			Winter, Opening Year (pre-establishment)	Design Year (post-establishment)
			Su	M	SI		SI	M	Su		
N11_27	Dwelling with farmstead at Riverview	210 m		1	1					Distant views filtered by vegetation to embankments at stream crossing to south-west and proposed roundabout at Roperstown.	Mitigation screen planting will absorb embankments into surrounding landscape.
N11_28	Dwelling with farmstead at Riverview	114 m		1		1				Partial views filtered by vegetation and intervening farm buildings to road embankments and 3.5m high noise barriers at river crossing at Riverview.	Mitigation screen planting will absorb embankments into surrounding landscape. Noise barriers will be screened by proposed planting.
N11_29	Single dwelling at Riverview	256 m				1, 1				M11 Mainline not visible screened by intervening vegetation and topography.	No change from Opening Year.
N11_30	One dwellings at Monroe	509 m		1		1				M11 Mainline screened at ground floor level by intervening vegetation and farm buildings. From first floor windows there will be views out to approach embankment slopes at river crossing to west at Riverview and to the M11 Mainline upon embankments to the north.	Mitigation screen planting will absorb embankments into surrounding landscape
N11_31	Dwelling with farmstead at Monroe	570 m				1, 1				M11 Mainline not visible, screened by intervening vegetation.	No change from Opening Year.
N11_32	Single dwelling at Craanroe	386 m				1, 1				M11 Mainline not visible, screened by dense intervening vegetation.	No change from Opening Year.
N11_33	Single dwelling at Monroe	478 m				1, 1				M11 Mainline not visible, screened by dense intervening vegetation.	No change from Opening Year.
N11_33A	Single dwelling at Monroe	684m			1	1				Long distant views to M11 Mainline upon embankments to the west, views filtered by intervening vegetation.	Mitigation planting along M11 Mainline will screen road in distant views.
N11_33B	Single dwelling at Monroe	618m			1	1				Long distant views to M11 Mainline upon embankments to the west, views filtered by intervening vegetation.	Mitigation planting along M11 Mainline will screen road in distant views.
N11_33C	Four detached dwellings at Monroe	725m			4	4				Long distant views to M11 Mainline upon embankments to the west, views filtered by intervening vegetation.	Mitigation planting along M11 Mainline will screen road in distant views.
N11_33D	Two detached dwellings at Monroe	722m			2	2				Long distant views to M11 Mainline upon embankments to the west, views filtered by intervening vegetation.	Mitigation planting along M11 Mainline will screen road in distant views.
N11_34	Group of two dwellings at Monroe	388 m			2	2				Long distant views to M11 Mainline upon embankments to the west, views filtered by intervening vegetation.	Mitigation planting along M11 Mainline will screen road in distant views.

Ref.	Location	Closest Estimated Distance	Effect (with numbers affected)							Visual Impact	
			Adverse			None Overall	Beneficial			Winter, Opening Year (pre-establishment)	Design Year (post-establishment)
			Su	M	SI		SI	M	Su		
N11_35	Lawson's private nursing home at Knockrathkyle	538 m		1	1					This dwelling is located upon an elevated ridge, and will have long distant views of the M11 Mainline upon embankments crossing the landscape to the south-west from Knockrathkyle to Riverview.	Mitigation planting along M11 Mainline will screen the majority of road in distant views. However some glimpsed views over the road will still be available.
N11_35A	Three detached dwellings at Monroe	800 m		1	1					Dwellings are located upon an elevated ridge, and will have long distant views of the M11 Mainline upon embankments crossing the landscape to the south-west from Knockrathkyle to Riverview.	Mitigation planting along M11 Mainline will screen the majority of road in distant views. However some glimpsed views over the road will still be available.
N11_36	Ballycourcy House, Dwelling with farmstead at Monroe	160 m		1	1					Dwelling mostly screened by intervening dense hedgerows and farm buildings. There will however be some views of M11 Mainline and realigned side roads filtered by hedgerows to the west and north.	Proposed mitigation woodland planting will completely screen the M11 Mainline.
N11_37	Group of three dwellings at Knockrathkyle	246 m		2	2					View of side road at Knockrathkyle to the west and some long distant views of M11 Mainline upon fill embankments to the south from first floor windows only. Views to the south heavily filtered by intervening vegetation	As mitigation planting matures views of side road will reduce and views to the south will be limited.
N11_38	Single dwelling at Knockrathkyle	385 m				1,1				M11 Mainline not visible, screened by dense intervening vegetation.	No change from Opening Year.
N11_39	Group of four dwellings at Knockrathkyle	504 m				4,4				M11 Mainline not visible, screened by dense intervening vegetation.	No change from Opening Year.
N11_40	Dwelling with farmstead at Ballycourcy More	427 m			1	1				Some distant views of M11 Mainline upon embankments from approx. Chainage 24000 to 24200, elsewhere road is screened by intervening vegetation or because it is in cutting.	Proposed mitigation planting and grading? To embankments will integrate road into surrounding landscape.
N11_41	Dwelling at Knockrathkyle	131 m		1	1					Views from first floor windows of M11 Mainline to the south from chainage 25000 to chainage 25500, views filtered by some intervening hedgerows. There may also be some angular views to the north east from first floor windows into large cutting at Knockrathkyle.	As mitigation planting matures views of M11 Mainline in cutting will be screened and views to the south will be limited.

Ref.	Location	Closest Estimated Distance	Effect (with numbers affected)							Visual Impact	
			Adverse			None Overall	Beneficial			Winter, Opening Year (pre-establishment)	Design Year (post-establishment)
			Su	M	SI		SI	M	Su		
N11_42	Single dwelling at Ballybanoce	306 m		1	1					This dwelling is located on higher ground to the west of the M11 Mainline there will be views of the M11 Mainline upon fill in the open landscape from chainage 25100 to 25300, and the remainder of the M11 Mainline is screened by intervening vegetation and farm buildings.	As mitigation planting matures views of M11 Mainline will be screened and views to the east will be limited.
N11_43	Dwelling with farm buildings at Ballybanoce	274 m		1		1				There will be views of the M11 Mainline in the open landscape from chainage 25100 to 25200, and of realigned side roads the remainder of the road is screened by intervening vegetation and farm buildings	As mitigation planting matures views of M11 Mainline will be screened.
N11_44	Single dwelling at Brownswood	554 m			1	1				Long distant views of the M11 Mainline in the open landscape from chainage 25100 to 25300, the remainder of the M11 Mainline is screened by intervening vegetation and farm buildings	As mitigation planting matures views of M11 Mainline will be screened.
N11_45	Single dwelling at Brownswood	643 m				1,1				M11 Mainline not visible, screened by dense intervening vegetation and intervening buildings.	No change from Opening Year.
N11_46	Group of two dwellings at Brownswood	371 m				2,2				M11 Mainline not visible, screened by dense intervening vegetation and intervening topography.	No change from Opening Year.
N11_47	Group of two dwellings at Ballycourcy More	486 m				1,1				M11 Mainline not visible, screened by dense intervening vegetation and intervening topography.	No change from Opening Year.
N11_48	Single dwelling at Ballycourcy More	492 m			1	1				Some slight long distant views at most from first floor windows only of M11 Mainline upon embankments to the east. Views heavily filtered by dense intervening vegetation.	Mitigation planting as it matures will screen carriageway in views.
N11_49	Dwelling with farmstead at Aughnacalley , Ballycourcy House	206 m			1	1				Some slight long distant views at most from first floor windows and above only to M11 Mainline upon embankments to the immediate north-east. Views heavily filtered by dense intervening woodland.	Mitigation planting as it matures will screen carriageway in views.
N11_50	Dwelling with farm buildings at Cooladine	529 m				1,1				M11 Mainline not visible, screened by farm buildings and intervening vegetation.	No change from Opening Year.
N11_51	Dwelling with farm buildings at Cooladine	230 m				1,1				M11 Mainline not visible, screened by dense intervening vegetation and intervening buildings.	No change from Opening Year.

Ref.	Location	Closest Estimated Distance	Effect (with numbers affected)							Visual Impact	
			Adverse			None Overall	Beneficial			Winter, Opening Year (pre-establishment)	Design Year (post-establishment)
			Su	M	SI		SI	M	Su		
N11_52	Group of two dwellings at Drumgold	230 m			2	2				Some slight view of M11 Mainline at chainage 22700 to 22750 where it is upon fill embankment. Views filtered by intervening hedgerow. No views of M11 Mainline elsewhere as is screened in cutting or by existing vegetation.	Mitigation planting as it matures will screen carriageway in views.
N11_53	Group of three dwellings at Drumgold	205 m				3,3				No views of M11 Mainline as is screened in cutting or by existing vegetation or hedgebank.	Mitigation planting as it matures will screen carriageway in views.
N11_53A	Group of two dwellings at Drumgold	205 m			2	2				Some slight view of M11 Mainline at chainage 22700 to 22750 where it is upon fill embankment. Views filtered by intervening hedgerow. Some long distance views of M11 Mainline to the south from first floor windows as it travel upon fill embankments up to circa. chainage 24000. No views of M11 Mainline to west or north, screened in cutting and by intervening hedgerows.	No change from Opening Year.
N11_54	Group of four dwellings at Drumgold	91 m				4,4				Dwelling enclosed by dense garden hedges, M11 Mainline not visible as is in cutting.	No change from Opening Year.
N11_55	Group of two dwellings at Drumgold	181 m			1	1				Slight views to the top 0.5m of HGVs as they pass along M11 Mainline in cutting to the immediate east of this dwelling at chainage 22300 to 22400.. Views of access road running west of M11 mainline	Mitigation planting as it matures will screen carriageway in views.
N11_55A	Vinegar Hill	1769m			1	1				Long distant views of the M11 Mainline travelling through the surrounding landscape.	Maturing mitigation planting along the M11 Mainline corridor will reduce the appearance of the road in distant views.
N11_56	Group of two dwellings at Tomnafunsh oge	328 m		2		2				Long distant views to roundabout at Tomfunshoge junction including lighting. M11 Mainline not visible as is in cutting at this location. Slight distant views of M11 Mainline at chainage 21600 to 21700.	Mitigation planting as it matures will screen carriageways in views.
N11_57	Group of two dwellings at Tomnafunsh oge	218 m		2		2				Views to roundabout at Tomfunshoge junction including lighting. M11 Mainline not visible as is in cutting at this location. Slight distant views of M11 Mainline at chainage 21600 to 21700.	Mitigation planting as it matures will screen carriageways in views.
N11_58	Group of two dwellings at Tomnafunsh oge	378 m				2,2				M11 Mainline not visible, screened by dense intervening vegetation and intervening topography.	No change from Opening Year.

Ref.	Location	Closest Estimated Distance	Effect (with numbers affected)							Visual Impact	
			Adverse			None Overall	Beneficial			Winter, Opening Year (pre-establishment)	Design Year (post-establishment)
			Su	M	SI		SI	M	Su		
N11_59	Group of three dwellings at Tomnafunshoge	320 m				3,3				M11 Mainline not visible, screened by dense intervening vegetation and intervening topography.	No change from Opening Year.
N11_60	Group of two dwellings at Tomnafunshoge	55 m	2	2						Dwelling in close proximity to roundabout and lighting at Tomnafunshoge. Views over M11 Mainline in cutting and of roundabouts side road roundabouts. Lighting predominant in views at night-time.	Mitigation planting as it matures will screen M11 Mainline in views, filter views of roundabout and reduce impact of lighting..
N11_60A	One dwelling at Tomnafunshoge	147 m			1,1					M11 Mainline not visible, screened by dense intervening vegetation and intervening topography and buildings. Lighting of junctions evident in night-time views.	No change from Opening Year.
N11_61	Dwelling at Corbally	355 m		1	1					Long distant views of M11 Mainline crossing lands to the south from chainage 19800 to 20600.	Dense mitigation planting along the M11 Mainline will reduce the appearance of it in long distant views to the north.
N11_62	Dwelling with farm buildings at Tomnafunshoge	154 m		1	1					This dwelling is located upon a local ridge. There will be long distant views over the M11 Mainline from chainage 20500 to 19600 as it ascends a local valley side in Corbally.	Dense mitigation planting along the M11 Mainline will reduce the appearance of the road in long distant views to the north.
N11_63	Dwelling with farm buildings at Tomnafunshoge	453 m		1	1					Long distant views partially filtered by intervening hedgerow towards roundabout and lighting in region of Tomnafunshoge Junction. M11 Mainline will be hidden in cutting.	Mitigation planting as it matures will screen carriageways in views. Some views of distant lighting still evident in view
N11_64	Single dwelling at Tomnafunshoge	367 m		1	1					Long distant views partially filtered by intervening hedgerow towards roundabout and lighting in the region of Tomnafunshogue Junction. M11 Mainline will be hidden in cutting.	Mitigation planting as it matures will screen carriageways in views. Some views of distant lighting still evident in view
N11_65	Group of two dwellings at Tomnafunshoge	428 m		1	1					Long distant views partially filtered by intervening hedgerow towards roundabout and lighting in the region of Tonafunshogue Junction. Some slight long distant views to M11 Mainline to north from circa. chainage 19900 to 19600 as it ascends a local valley side in Corbally.	Mitigation planting as it matures will screen carriageways in views. Some views of distant lighting still evident in view.

Ref.	Location	Closest Estimated Distance	Effect (with numbers affected)							Visual Impact	
			Adverse			None Overall	Beneficial			Winter, Opening Year (pre-establishment)	Design Year (post-establishment)
			Su	M	SI		SI	M	Su		
N11_66	Group of two dwellings at Tomnafunsh oge	342 m		2	2					Long distant views partially filtered by intervening hedgerow to two roundabouts and lighting at Tomnafunshogue junction. M11 Mainline will be hidden in cutting. Some slight long distant views to mainline to north east from circa. chainage 19900 to 19600 as it ascends a local valley side in Corbally.	Mitigation planting as it matures will screen carriageways in views. Some views of distant lighting still evident in view.
N11_67	Group of six dwellings at Tomnafunsh oge	350 m			6	6				Some slight long distant views to M11 Mainline to north east from circa. chainage 19900 to 19600 as it ascends a local valley side in Corbally.	Mitigation planting as it matures will screen carriageways in views.
N11_68	Group of three dwellings at Tomnafunsh oge	361 m			3	3				Some slight long distant views filtered by intervening vegetation to M11 Mainline to north east from circa. chainage 19900 to 19600 as it ascends a local valley side in Corbally.	Mitigation planting as it matures will screen carriageways in views.
N11_69	Group of two dwellings at Tomnafunsh oge	288 m		2		2				Some long distant views to M11 Mainline to the north east from circa chainage 19900 to 19600 as it ascends a local valley side in Corbally Townland	Mitigation planting as it matures will screen carriageways in views.
N11_70	Single dwelling	70 m		1		1				View from first floor windows into M11 Mainline in cutting to the south.	Mitigation planting as it matures will screen cutting and carriageways in views.
N11_71	Single dwelling at Ballynabarny	345 m				1,1				M11 Mainline not visible, screened by dense intervening vegetation.	No change from Opening Year.
N11_72	Dwelling with farm buildings at Corbally	367 m				1,1				M11 Mainline not visible, screened by dense intervening vegetation.	No change from Opening Year.
N11_73	Dwelling with farm buildings at Corbally	385 m				1,1				M11 Mainline not visible, screened by dense intervening vegetation.	No change from Opening Year.
N11_74	Single dwelling at Corbally	127 m			1	1				Views heavily filtered by dense garden boundary vegetation of M11 Mainline upon embankment to the south at chainage 19800.	Mitigation planting as it matures will screen embankment and carriageways in view.
N11_75	Single dwelling at Corbally	173 m				1,1				Proposals not visible, screened by dense intervening vegetation and topography.	No change from Opening Year.

Ref.	Location	Closest Estimated Distance	Effect (with numbers affected)							Visual Impact	
			Adverse			None Overall	Beneficial			Winter, Opening Year (pre-establishment)	Design Year (post-establishment)
			Su	M	SI		SI	M	Su		
N11_76	Group of three detached dwellings at Corbally	86 m		3	3					Long distant views from first floor windows only to road from chainage 19700-20200 as it crosses local valley. No view of M11 Mainline to the north or east as it is hidden in cutting. Views of access road to the east.	Mitigation planting as it matures will screen embankment and carriageways in view. However there may still be some long distance view available of M11 Mainline to the south. Access road screened as planting matures.
N11_77	Single dwelling at Corbally	177 m				1,1				M11 Mainline not visible, screened by dense intervening vegetation and farm building to immediate south of property.	No change from Opening Year.
N11_78	Commercial buildings at Ballynabarny	649 m				1,1				M11 Mainline not visible, screened by intervening vegetation and large buildings within property curtilage.	No change from Opening Year.
N11_79	Group of two dwellings at Ballynabarny	737 m				2,2				M11 Mainline not visible, screened by dense intervening vegetation and farm buildings within property.	No change from Opening Year.
N11_80	Dwelling with farmstead at Ballydawmore	133 m				1,1				Dense garden hedge boundaries screen dwelling. M11 Mainline is in cutting as it passes this dwelling and will not be visible.	No change from Opening Year.
N11_81	Group of two dwellings at Ballydawmore	191 m			2	2				There will be some long distant views from first floor windows of M11 Mainline upon embankments from chainage 18900 to the Ballydawmore Junction.	Mitigation planting as it matures will screen embankment and carriageways in view. However there may still be some long distance views available of lighting in region of the Ballydawmore Junction.
N11_82	Dwelling with farm buildings at Ballydawmore	228 m			1	1				There will be some long distant views from first floor windows of N11 Mailine upon embankments from chainage 18900 to the Ballydawmore Junction.	Mitigation planting as it matures will screen embankment and carriageways in view. However there may still be some long distance views available of lighting in the region of the Ballydawmore Junction.
N11_83	Group of two dwellings and farm buildings at Garryphelim	839m			2	2				There will be some long distant views from first floor windows to the Ballydawmore Junction.	Proposed mitigation planting as it matures will screen views to M11 Mainline.
N11_84	Group of two dwellings and farm buildings at Garryphelim	800m			2	2				There will be some long distant views from first floor windows to the Ballydawmore Junction.	Proposed mitigation planting as it matures will screen views to M11 Mainline.
N11_85	Single dwelling at Solsborough, N of Blackwater Bridge	504 m				1,1				M11 Mainline and N80 Link Road not visible, screened by dense intervening vegetation.	No change from Opening Year.

Ref.	Location	Closest Estimated Distance	Effect (with numbers affected)							Visual Impact	
			Adverse			None Overall	Beneficial			Winter, Opening Year (pre-establishment)	Design Year (post-establishment)
			Su	M	SI		SI	M	Su		
N11_86	Dwelling with farm buildings at Ballynabarny, S of Blackwater Bridge	221 m			1	1				Slight long distant views filtered by intervening vegetation to approach embankments of N80 Link Road on western bank of River Slaney. Slight filtered views of N80 Link Road upon embankments to the south of the dwelling. No views of road to the east.	Mitigation planting as it matures will screen embankments and carriageways in view.
N11_87	Single dwelling at Ballynabarny	82 m	1		1					Views of N80 Link Road to the west filtered by hedgerow. Views of N80 Link Road to the east from chainage 3500 up and including the Ballydawmore Junction. Long distant views to the Ballydawmore Junction from first floor windows.	Mitigation planting as it matures will screen embankment and carriageways in view. However there may still be some long distance views available of lighting in the region of the Ballydawmore Junction.
N11_88	Single dwellings with farm outbuildings at Ballynabarny	244 m				1,1				M11 Mainline and N80 Link Road not visible, screened by dense intervening vegetation.	No change from Opening Year.
N11_89	Group of three dwellings at Ballynabarny	467 m				3,3				M11 Mainline and N80 Link Road not visible, screened by dense intervening vegetation.	No change from Opening Year.
N11_90	Dwelling with farm buildings at Ballynabarny	433 m				1,1				M11 Mainline and N80 Link Road not visible, screened by dense intervening vegetation.	No change from Opening Year.
N11_91	Single dwelling at Ballynabarny	359 m				1,1				M11 Mainline and N80 Link Road not visible, screened by dense intervening vegetation.	No change from Opening Year.
N11_92	Group of seven dwellings at Clonhasten	610 m			7	7				Slight long distant views from first floor windows to N80 Link Road from chainage 2600 to 3300 and the Ballydawmore Junction.	Mitigation planting as it matures will integrate road into surrounding landscape
N11_92A	Group of eight dwellings at Clonhasten	894 m			8	8				Slight long distant views from first floor windows to N80 Link Road from chainage 2600 to 3300 and the Ballydawmore Junction.	Mitigation planting as it matures will integrate road into surrounding landscape
N11_92B	Single dwelling at Clonhasten	820 m			1	1				Slight long distant views from first floor windows to N80 Link Road from chainage 2600 to 3300 and the Ballydawmore Junction.	Mitigation planting as it matures will integrate road into surrounding landscape
N11_93	Single dwelling at Clonhasten	359 m				1,1				Proposed Scheme not visible, screened by dense intervening vegetation.	No change from Opening Year.

Ref.	Location	Closest Estimated Distance	Effect (with numbers affected)							Visual Impact	
			Adverse			None Overall	Beneficial			Winter, Opening Year (pre-establishment)	Design Year (post-establishment)
			Su	M	SI		SI	M	Su		
N11_94	Dwelling with farmstead at Clonhasten, Whitefieldhouse	298 m			1					Distant views of approach embankment to River Slaney Crossing from chainage 2500 to 2800. View heavily filtered by intervening vegetation.	Mitigation planting as it matures will integrate road into surrounding landscape and screen views.
N11_95	Dwelling with farm buildings at Kilcannon	150 m		1	1					Distant views of approach embankments to River Slaney Crossing from circa chainage 2500 to 3000. View heavily filtered by intervening vegetation.	Mitigation planting as it matures will integrate road into surrounding landscape however some slight views of river crossing may still be available.
N11_96	Dwelling with farm buildings at Kilcannon	414 m			1	1				Long distant views of N80 Link Road on embankment at chainage 1700. Elsewhere road screened in cuttings.	Mitigation planting as it matures will integrate road into surrounding landscape and screen views.
N11_97	Dwelling with farmstead at Ballynahalin	506 m			1	1				Long distant views of N80 Link Road on embankment and access roads chainage 1700.	Mitigation planting as it matures will integrate road into surrounding landscape and screen views.
N11_98	Single dwelling at Ballynahalin	462 m								N80 Link Road not visible, screened by road placed in cutting and intervening vegetation.	No change from Opening Year.
N11_99	Single dwelling and farm buildings at Ballynahalin	489 m				1,1				N80 Link Road not visible, screened by road placed in cutting and intervening vegetation.	No change from Opening Year.
N11_100	Group of sixteen dwellings at Ballynahalin	197 m				16,16				N80 Link Road not visible, screened by road placed in cutting and intervening vegetation.	No change from Opening Year.
N11_101	Single dwelling at Ballynahalin	900m				1,1				N80 Link Road not visible, screened by road placed in cutting.	No change from Opening Year.
N11_102	Group of two dwellings at Ballynahalin	90 m			2	2				Slight views from first floor windows only into road in cutting immediately to the east.	Maturing mitigation planting on cuttings will screen views.
N11_103	Group of three dwellings at Ballynahalin	208 m				1,1				N80 Link Road not visible, screened by dense intervening vegetation.	No change from Opening Year.
N11_104	Dwelling with farm buildings at Killageb	481 m				1,1				N80 Link Road not visible, screened by dense intervening vegetation.	No change from Opening Year.
N11_105	Single dwelling at Ballynahalin	329 m			1	1				Distant views to N11/N80 Ballydawmore junction	Maturing mitigation planting will screen views of junction.

Ref.	Location	Closest Estimated Distance	Effect (with numbers affected)							Visual Impact	
			Adverse			None Overall	Beneficial			Winter, Opening Year (pre-establishment)	Design Year (post-establishment)
			Su	M	SI		SI	M	Su		
N11_106	Single dwelling at Solsborough	436 m				1, 1				M11 Mainline not visible, screened by dense intervening vegetation.	No change from Opening Year.
N11_107	Group of four dwellings at Solsborough	505 m				4, 4				M11 Mainline not visible, screened by dense intervening vegetation.	No change from Opening Year.
N11_108	Group of two dwellings at Solsborough	581 m				2, 2				M11 Mainline not visible, screened by dense intervening vegetation.	No change from Opening Year.
N11_109	Church	481 m			1, 1					Slight distant views of the Ballydawmore Junction from church steeple.	No change from Opening Year.
N11_110	Group of three dwellings at Solsborough	502 m				3, 3				M11 Mainline not visible, screened by dense intervening vegetation.	No change from Opening Year.
N11_111	Single dwelling at Crane	293 m				1, 1				No view to M11 Mainline.	No change from Opening Year.
N11_112	Dwelling with farmstead at Crane	306 m				1, 1				M11 Mainline not visible	No change from Opening Year.
N11_113	Group of two dwellings at Crane (central part)	200 m				2, 2				M11 Mainline not visible	No change from Opening Year.
N11_113A	Group of two dwellings at Crane (central part)	114 m	2			2				Views over fields and through trees to M11 Mainline and noise barriers. M11 Mainline partially in cutting. Local road upgrade will be visible.	New local road vegetation and field boundary vegetation screen. Proposed planting will screen barriers.
N11_113B	Single dwelling at Carne	124 m	1			1				Views over fields and through trees to M11 Mainline and noise barriers. M11 Mainline partially in cutting. Local road upgrade will be visible.	Trees in backyards and along field boundary partially screen. Proposed planting will screen barriers.
N11_114	Group of two dwellings at Crane (central part)	178 m	1			1, 2				Overlook through trees. House to west. Tiny house to east, no view through trees.	Proposed planting will screen noise barriers.
N11_115	Single dwelling at Crane	371 m			1, 1					Glimpse views to M11 Mainline to west across fields.	Proposed planting will limit views to traffic and help blend line of road to into existing tree lined field boundary vegetation patterns.
N11_116	Group of two dwellings at Crane	627 m				2, 2				M11 Mainline not visible.	No change from Opening Year.
N11_117	Single dwelling at Crane	418 m		1	1					Extensive views of M11 Mainline although trees in intervening fields will reduce views.	Landscaping treatment along M11 Mainline will help integrate embankment and noise barrier into existing character.

Ref.	Location	Closest Estimated Distance	Effect (with numbers affected)							Visual Impact	
			Adverse			None Overall	Beneficial			Winter, Opening Year (pre-establishment)	Design Year (post-establishment)
			Su	M	SI		SI	M	Su		
N11_118	Group of six dwellings at Crane	339 m				6, 6				M11 Mainline not visible.	No change from Opening Year
N11_119	Group of three dwellings at Oulartard	387 m		1	1	2, 2				New house behind established houses has views out to M11 Mainline to west.	Planted embankment will remain visible although noise barrier and traffic screened.
N11_120	Group of two dwellings at Oulartard	380 m			1	1, 2				Gap in leylandii hedge provides narrow view from one house to N30 Mainline.	Planting to M11 Mainline and around storm water retention pond will screen road and noise barrier.
N11_121	Group of two dwellings at Oulartard	375 m		2	2					Open views from rear of both properties o M11 Mainline to north west.	Planting to M11 Mainline and around storm water retention pond will screen road and soften impact of embankment.
N11_121A	Dwelling at Oulartard	450 m		1	1					Distant but open view down fields to M11 Mainline and attenuation pond.	Planting to M11 Mainline and around storm water retention pond will screen road and soften impact of embankment.
N11_122	Group of two dwellings with farmstead at Oulartard	754 m				2, 2				M11 Mainline not visible.	No change from Opening Year.
N11_123	Dwelling with farmstead at Oulartard	309 m				1, 1				M11 Mainline not visible.	No change from Opening Year.
N11_123A	Dwelling at Oulartard	505 m				1, 1				M11 Mainline not visible.	No change from Opening Year
N11_124	Group of five dwellings at Crane (North part)	474 m			1	4, 5				One house has views to south east from dormer windows. No views from any others.	Proposed planting will screen distant dormer window visibility.
N11_125	Group of two dwellings at Crane (North part)	470 m				2, 2				M11 Mainline not visible.	No change from Opening Year.
N11_126	Dwelling with farmstead at Tomsallagh Summerville' House	315 m	1	1						Narrow field of view due to trees around house but oriented straight at M11 Mainline embankments to east.	Planting to M11 Mainline and around storm water retention pond will screen road and noise barrier and soften impact of embankment.
N11_127	Dwelling with farmstead at Tomsallagh	547 m			1,1					Distant views to M11 Mainline embankment to south through intervening field boundary tree lines.	Proposed planting along embankment will blend line of road into view.
N11_128	Dwelling with farmstead at Tomsallagh	215 m								No views beyond garden vegetation and sheds.	No Change from Opening Year

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			Adverse			None Overall	Beneficial			Winter, Opening Year (pre-establishment)	Design Year (post-establishment)
			Su	M	SI		SI	M	Su		
N11_129	Dwelling with farmstead at Tinnacross	275 m				1, 1				M11 Mainline not visible	No change from Opening Year.
N11_129A	Dwelling at Ballydonigan	812m			1	1				Distant glimpse view to north.	Proposed planting along embankment will blend line of road into wider view and screen traffic.
N11_130	Single dwelling at Ballydonigan	800m		1	1					Distant views across fields and through intervening hedgerows.	Proposed planting along embankment will blend line of road into wider view and screen traffic.
N11_131	Dwelling with farmstead at Myaugh	347m				1, 1				M11 Mainline not visible	No change from Opening Year.
N11_132	Single dwelling at Myaugh	235 m		1	1					Narrow field of view due to trees around house and topography gently rising and falling	Proposed planting along embankment will blend line of road into wider view and screen traffic.
N11_133	Group of two dwellings at Myaugh	243 m	1, 1	1, 1						House on creek low down and views close to and directly across to M11 Mainline on embankment. Higher house surrounded more by established vegetation but with limited views.	Planting to M11 Mainline embankment will screen traffic however high embankment still prominent on valley floor.
N11_134	Dwelling with farmstead at Effernoge	651 m								M11 Mainline not visible	No change from Opening Year.
N11_135	Dwelling with farmstead at Carrigeen	203 m		1, 1						Narrow field of view but very close to M11 Mainline (in cut) and local road overpass/upgrade and new Mainline access. All road works in cut however house elevated so likely views down into cut.	Extensive planting to Mainline and access cuttings and to overpass will reduce visibility of work and reduce existing views beyond Mainline.
N11_136	Group of two dwellings at Carrigeen	428 m				2, 2				M11 Mainline not visible	No change from Opening Year.
N11_137	Dwelling with farmstead at Carrigeen	271 m			1	1				Glimpse from first floor window over outbuildings that surround. View limited as road site lower and building screen foreground.	Proposed planting will screen M11 Mainline.
N11_138	Single dwelling at The Harrow	572 m				1, 1				M11 Mainline not visible	No change from Opening Year.
N11_139	Single dwelling at The Harrow	261m			1, 1					Glimpse view to west from western elevation of house through garden vegetation.	Extensive planting to Mainline and access cuttings and to overpass will reduce visibility.

Ref.	Location	Closest Estimated Distance	Effect (with numbers affected)							Visual Impact	
			Adverse			None Overall	Beneficial			Winter, Opening Year (pre-establishment)	Design Year (post-establishment)
			Su	M	SI		SI	M	Su		
N11_140	Group of three dwellings and the pub and shop at The Harrow	421 m			1, 1	4, 4				Glimpse view from western most dwelling to M11 Mainline to west. No views from remainder of properties due to orientation to local road, buildings and established vegetation.	Extensive planting to Mainline and access cuttings and to overpass will reduce visibility from one glimpse view.
N11_141	Group of four dwellings at The Harrow	447 m			3, 3	1, 1				Three dwellings with glimpse views heavily filtered by vegetation around houses and along local road.	Extensive planting to Mainline and access cuttings and to overpass will reduce visibility from glimpse view.
N11_142	Group of six five dwellings at The Harrow	513 m				5, 5				M11 Mainline not visible	No change from Opening Year
N11_143	One dwelling at The harrow	500m			1	1				Distant view from rear dwelling situated behind local road frontage row of 4 houses (with no view).	Extensive planting to Mainline will screen road in cutting from distant elevated view.
N11_144	Group of six dwellings at The Harrow	695 m				6, 6				M11 Mainline not visible	No change from Opening Year
N11_145	Single dwelling at Ballycarrigee n Lower	446 m		1	1					Elevated views to north west to M11 Mainline in cutting.	Extensive planting to Mainline will screen road in cutting from distant elevated view.
N11_146	Dwelling with farmstead at Ballycarrigee n Lower	353 m				1, 1				M11 Mainline not visible	No change from Opening Year
N11_147	Farmstead	153 m								Farm buildings	
N11_148	Dwelling with farmstead at Ballycarrigee n Lower	180 m				1, 1				M11 Mainline not visible from house.	No change from Opening Year.
N11_149	Group of two dwellings at Mountgeorge	684 m				2, 2				M11 Mainline not visible	No change from Opening Year.
N11_150	Group of two dwellings at Mountgeorge	719 m				2, 2				M11 Mainline not visible	No change from Opening Year.
N11_151	Single dwelling at Mountgeorge	721 m				1, 1				M11 Mainline not visible.	No change from Opening Year.
N11_152	Single dwelling at Mountgeorge	440 m			1	1				One window faces west to M11 Mainline.	Proposed planting along M11 Mainline embankment will screen views to traffic and soften impact of embankment.

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			Adverse			None Overall	Beneficial			Winter, Opening Year (pre-establishment)	Design Year (post-establishment)
			Su	M	SI		SI	M	Su		
N11_153	Farmstead at Mountgeorge	297 m				1, 1				M11 Mainline not visible.	No change from Opening Year.
N11_154	Dwelling with farmstead at Mountgeorge	234 m				1, 1				M11 Mainline not visible.	No change from Opening Year.
N11_155	Group of three dwellings at Mountgeorge	623 m				3,3				M11 Mainline not visible.	No change from Opening Year.
N11_156	Dwelling with farmstead at Mountgeorge	251 m				1, 1				M11 Mainline not visible.	No change from Opening Year.
N11_157	Dwelling with farmstead at Corbetstown	385 m				1, 1				M11 Mainline not visible.	No change from Opening Year.
N11_157A	Dwelling and farmstead at Cronyhorn	181 m				1, 1				M11 Mainline not visible.	No change from Opening Year.
N11_158	Dwelling with farmstead at Corbetstown	424 m				1, 1				M11 Mainline not visible.	No change from Opening Year.
N11_158A	Dwelling at Corbetstown	262 m				1, 1				M11 Mainline not visible.	No change from Opening Year.
N11_159	Group of two dwellings at Corbetstown	234 m		1		1, 2				Three windows with views to M11 Mainline from eastern house, other house views screened by garden boundary vegetation.	Extensive woodland and hedge planting will screen M11 Mainline at grade and on minor embankment.
N11_160	Single dwelling at Corbetstown	127 m		1	1					Local road upgrade option provides for reduced impact on mature trees on existing local road. Some large trees will be removed.	Retention of mature trees where possible and new planting along new local road and on N11 cutting will screen M11 Mainline and new infrastructure on local road.
N11_160A	Single dwelling at Rockspring	81 m		1	1					M11 Mainline in significant cut passing house to west and north. Local road upgrade option provides for reduced impact on mature trees on existing local road. Some large trees will be removed.	Retention of mature trees where possible and new planting along new local road and on N11 cutting will screen M11 Mainline and new infrastructure on local road.
N11_161	Dwelling with farmstead at Bolacreen	592 m				1, 1				M11 Mainline not visible.	No change from Opening Year.
N11_162	Group of two dwellings at Bolacreen	535 m				2, 2				M11 Mainline not visible.	No change from Opening Year.

Ref.	Location	Closest Estimated Distance	Effect (with numbers affected)							Visual Impact	
			Adverse			None Overall	Beneficial			Winter, Opening Year (pre-establishment)	Design Year (post-establishment)
			Su	M	SI		SI	M	Su		
N11_163*	Rockspring House Dwelling with farmstead at Bolacreen	251 m				1, 1				M11 Mainline not visible. Views screened by dense mature vegetation and M11 mainline is in cut	No change from Opening Year.
N11_164	Single dwelling at Rockspring	268 m				1, 1				M11 Mainline not visible.	No change from Opening Year.
N11_165	Group of three dwellings at Rockspring	200 m		3	3					Heavily filtered views down into valley floor and M11 Mainline (in cutting) and local road access works to west through garden and local road corridor vegetation.	Maturing planting along cuttings will screen traffic and soften extent of cuttings.
N11_165A *	Ballymore Schoolhouse at Rockspring	156 m		1		1				Very limited view through gap in boundary hedge at driveway entrance. M11 Mainline in cut.	Maturing planting along cuttings will screen traffic and extent of cuttings.
N11_166	Group of three dwellings at Rockspring	147 m		1		2, 3				M11 Mainline not visible as in cutting and screened by combination of other dwellings and evergreen trees and shrubs. Works to local road to front of eastern most dwelling will be visible.	Planting along local road will match existing.
N11_167	Single dwelling at Rockspring	266 m				1, 1				House under construction. Appears no windows oriented east and hedges screen.	No change from Opening Year.
N11_168	Single dwelling at Kilcaysan	551 m				1, 1				M11 Mainline not visible	No change from Opening Year.
N11_168A	Single dwelling at Kilcaysan	557 m			1	1				M11 Mainline in cut however elevated location of house could enable glimpse views through intervening vegetation.	Proposed planting will screen as it matures along M11 Mainline corridor.
N11_169	Group of eight dwellings at Kilcaysan	679 m		1	1	6, 8				Distant views from 2 of the eight houses to M11 Mainline over boundary vegetation to the south. Eastern most house has more open views east to M11 Mainline.	Maturing planting along cutting and at the top of the cutting will screen.
N11_169A	Single dwelling at Kilcasey Upper	794 m			1	1				Distant glimpse views to M11 Mainline through intervening trees.	Existing trees in leaf and proposed planting will screen.
N11_170	Group of two dwellings at Kilcaysan	782 m			1	1, 2				M11 Mainline not visible from single storey dwelling. Distance views from two storey dwelling to the east and south east.	M11 Mainline in cutting in distant views. Proposed planting along M11 Mainline will screen.

Ref.	Location	Closest Estimated Distance	Effect (with numbers affected)							Visual Impact	
			Adverse			None Overall	Beneficial			Winter, Opening Year (pre-establishment)	Design Year (post-establishment)
			Su	M	SI		SI	M	Su		
N11_170A	Single dwelling Kilcaysan	755 m		1	2	3				Views to junction in local road to south east, extensive views east from eastern most house. Other two houses less expansive views.	M11 Mainline in cutting in distant views. Proposed planting along M11 Mainline will screen.
N11_171	Dwelling with farmstead at Kilcaysan	678 m				1, 1				M11 Mainline not visible.	No change from Opening Year.
N11_172	Group of two dwellings at Ballymore	387 m			1	1, 2				M11 Mainline not visible, screened by combination of dense boundary vegetation and intervening hedge. Glimpse view to north-west from western house. M11 Mainline in cut	M11 Mainline in cutting in distant views. Proposed planting along M11 Mainline will screen.
N11_173	Group of two dwellings at Ballymore	432 m			2	2				Slight glimpse views through garden vegetation and field boundary vegetation.	M11 Mainline in cutting in distant views. Proposed planting along M11 Mainline will screen.
N11_174	Dwelling with farmstead at Ballymore	651 m			1, 1					M11 Mainline screened at ground floor by intervening dwelling. Glimpse view north from first floor windows	Distant view to an overpass at Ch 6200 and M11 Mainline. Planting will integrate new landform and road into landscape patterns.
N11_174A	Group of three houses at Ballymore	682 m			2	1, 3				No views from middle house, glimpse views through intervening trees from other two to overpass at approx Ch 6200.	Planting will integrate new landform and road into landscape patterns with existing trees in leaf adding to screening.
N11_175	Group of five dwellings at Knockrobin Lower	588 m				5, 5				M11 Mainline not visible.	No change from Opening Year.
N11_175A	Group of two dwellings at Knockrobin Lower	442 m				2, 2				M11 Mainline not visible, screened by hedges and garden vegetation	No change from Opening Year.
N11_176	Dwelling with farmstead at Knockrobin Lower	226 m			1	1				Views to the north to M11 Mainline at grade, heavily filtered by existing trees around house and in intervening fields.	Existing trees in leaf and proposed planting along M11 Mainline will screen.
N11_176A	Single dwelling at Knockrobin Lower	402 m			1	1				M11 Mainline not visible from ground floor. Glimpse view to west from one second floor window heavily filtered by trees in intervening fields.	Existing trees in leaf and proposed planting along M11 Mainline will screen.
N11_177	Dwelling with farmstead at Knockrobin Lower	381 m				1, 1				M11 Mainline not visible.	No change from Opening Year.

Ref.	Location	Closest Estimated Distance	Effect (with numbers affected)							Visual Impact	
			Adverse			None Overall	Beneficial			Winter, Opening Year (pre-establishment)	Design Year (post-establishment)
			Su	M	SI		SI	M	Su		
N11_178	Dwelling with farmstead at Ballyeden	478 m				1, 1				M11 Mainline not visible.	No change from Opening Year.
N11_179	Group of three dwellings at Ballyeden	225 m		1		2, 3				Eastern house – views east through boundary trees to M11 Mainline in cutting and to new local road alignment. Western two houses – no views out beyond garden planting, trees and rising topography.	Proposed hedge planting along newly aligned local road and trees in leaf on boundary will screen new local road.
N11_180	Dwelling with farmstead at Ballyeden	658 m				1, 1				M11 Mainline not visible.	No change from Opening Year.
N11_181	Dwelling and agri supplies business at Ballyeden	383 m				1, 1				M11 Mainline not visible.	No change from Opening Year.
N11_182	Dwelling with farmstead at Ballyeden	334 m				1, 1				M11 Mainline not visible.	No change from Opening Year.
N11_182A	Group of four detached houses at Ballyeden	199 m		1		3, 4				Intervening houses, trees and gardens screen views south west. First floor views from western house in group to M11 Mainline where cutting not greater than 4m in depth.	Proposed planting along Mainline cutting and existing field boundary trees in leaf will screen.
N11_182B	Two houses at Ballyeden	139 m	1	1		2				Views west across field to M11 Mainline in cutting. Elevated location will allow views down into cutting and where road at grade between approx Ch 5100-5250.	Proposed planting along Mainline cutting and existing field boundary trees in leaf will screen.
N11_183	Group of two dwellings at Worlough	630 m				2, 2				M11 Mainline not visible.	No change from Opening Year.
N11_184	Single dwelling at Ballyoughter	630 m				1, 1				M11 Mainline not visible.	No change from Opening Year.
N11_185	Group of 6 properties at Ballyoughter, 4 detached dwellings, 1 scholl and 1 church.	626 m				6, 6				M11 Mainline not visible.	No change from Opening Year.
N11_186	Group of two dwellings at Ballyoughter	216 m				2, 2				M11 Mainline not visible.	No change from Opening Year.

Ref.	Location	Closest Estimated Distance	Effect (with numbers affected)							Visual Impact	
			Adverse			None Overall	Beneficial			Winter, Opening Year (pre-establishment)	Design Year (post-establishment)
			Su	M	SI		SI	M	Su		
N11_187	Dwelling with farmstead at Ballyoughter	265 m				1, 1				M11 Mainline not visible.	No change from Opening Year.
N11_188	Group of two dwellings at Toberanierin	546 m			1	1				No views from eastern house. Western house views north west to embankment crossing railway and local road.	Proposed planting to embankment will help integrate earthworks into landscape and screen traffic.
N11_189	Group of three dwellings at Toberanierin	748m			1	1				Views west to M11 Mainline upon embankments from first floor.	Proposed planting to embankment will help integrate earthworks into landscape and screen traffic.
N11_189A	Group of five houses at Toberanierin	970m			2	3, 5				Glimpse views through garden vegetation and field boundary trees to M11 Mainline in embankment to west.	Proposed planting to embankment and existing vegetation in leaf will screen.
N11_190	Dwelling with farmstead at Toberanierin	921 m				1, 1				M11 Mainline not visible.	No change from Opening Year.
N11_191	Group of six dwellings at Ballyclogh	433 m	1	1, 2	4	4				Eastern most house – glimpse views south through garden and sheds to high embankment. Western most house – extensive views to south and south east from elevated location to M11 Mainline at approx Ch 3400-4200. Central group of four – views heavily filtered by garden vegetation.	Extensive planting along M11 Mainline will help integrate earthworks into valley floor landscape and screen traffic. Existing trees along field boundaries will reduce views when in leaf.
N11_192	Group of four dwellings at Ballyclogh	486 m			1	3, 4				One house has views to M11 Mainline from first floor dormer window to south east.	Proposed planting will screen traffic and integrate embankment into landscape in glimpse views.
N11_193	Group of two dwellings at Ballyclogh	248 m		1, 1	1	1				Established house glimpse views down driveway through trees to M11 Mainline on embankment to south. New dwelling more open and elevated views across local road to high M11 Mainline on high embankment to south.	Existing trees on private property and proposed planting will screen views from established house. Views to planted embankment will remain from new house.
N11_194	Dwelling with farmstead at Ballinclay	391 m				1, 1				M11 Mainline not visible.	No change from Opening Year.
N11_195	Single dwelling at Frankfort (existing N11)	543 m				1, 1				M11 Mainline not visible.	No change from Opening Year.

Ref.	Location	Closest Estimated Distance	Effect (with numbers affected)							Visual Impact	
			Adverse			None Overall	Beneficial			Winter, Opening Year (pre-establishment)	Design Year (post-establishment)
			Su	M	SI		SI	M	Su		
N11_196	Dwelling with farmstead at Frankfort (existing N11)	508 m				1, 1				M11 Mainline not visible.	No change from Opening Year.
N11_196A	Frankfort	317 m				1, 1				M11 Mainline not visible.	No change from Opening Year.
N11_197	Single dwelling at Frankfort (existing N11)	295 m				1, 1				New parts of M11 Mainline not visible.	No change from Opening Year.
N11_198	Group of four dwellings at Franfort (existing N11)	563 m				4, 4				M11 Mainline not visible, Sheds and rising topography screen view to south-west junction. N11 already built to south.	No change from Opening Year.
N11_199	Group of four dwellings at Clogh	527 m				4, 4				M11 Mainline not visible.	No change from Opening Year.

Table 1 Visual Impact Schedule: Dwellings, Commercial & Public Buildings: M11 Mainline, N80 Link Road

Ref.	Location	Closest Estimated Distance	Effect (with numbers affected)							Visual Impact	
			Adverse			None Overall	Beneficial			Winter, Opening Year (pre-establishment)	Design Year (post-establishment)
			Su	M	SI		SI	M	Su		
N30_1	Group of four dwellings at Tobrerona	670 m				4, 4				N30 not visible. Vegetation, topography, other houses screen.	No change from Opening Year.
N30_2	Single dwelling at Clohass	540 m				1, 1				N30 not visible, screened by rising topography	No change from Opening Year.
N30_3	Group of four dwellings at Clonhass	580 m				4, 4				N30 not visible, screened by rising topography	No change from Opening Year.
N30_4	Group of three dwellings at Clonhass	445 m				3, 3				N30 not visible, screened by combination of trees, hedges, other dwellings and topography	No change from Opening Year.
N30_5	Group of two dwellings at Clonhass	388 m				2, 2				N30 not visible due to dwellings orientation and screening vegetation	No change from Opening Year.
N30_6	Group of two dwellings at Clonhass	280 m			1, 1	1, 1				South house no view, north house distant views from second floor windows at the back of the house.	Proposed planting at new N30 Mainline junction will screen views to the road however lighting likely to remain visible,
N30_7	Group of two dwellings at Clonhass	411 m				2, 2				N30 not visible, screened by intervening dwellings	No change from Opening Year.
N30_8	Group of five dwellings at Clonhass	335 m				5, 5				N30 not visible, screened by dense double row of trees on opposite side of the road	No change from Opening Year.
N30_9	Group of two dwellings at Clonhass	230 m				2, 2				N30 not visible, screened by topography cutting on opposite side of local road also screens	No change from Opening Year.
N30_10	Single dwelling at Clonhass.	150 m				1, 1				N30 not visible, screened by trees and new cutting	No change from Opening Year.
N30_11	Single dwelling at Dunsinane	185m			1	1				Distant views to new overpass over local road to west.	Proposed planting will integrate realignment of local road into existing road character and help screen overpass.
N30_12	Dwelling with farmstead at Dunsinane, Dunsinane House	256 m				1, 1				N30 not visible, screened by combination of trees, intervening buildings and N30 in cut to west	No change from Opening Year.
N30_13	Dwelling with farmstead at Dunsinane	123 m			1	1				Dense vegetation around house screens views to east, limited views north to new local road realignment.	Planting along newly aligned local road will integrate overpass into existing road character.

Ref.	Location	Closest Estimated Distance	Effect (with numbers affected)							Visual Impact	
			Adverse			None Overall	Beneficial			Winter, Opening Year (pre-establishment)	Design Year (post-establishment)
			Su	M	SI		SI	M	Su		
N30_14	Group of two dwellings at Dunsinanne	300 m			2	2				No south- east views to N30 due to intervening vegetation and farmstead. To the east and north-east N30 in cut. Upgrade proposed to local road along front boundaries will be visible.	Planting along newly aligned local road will integrate upgrade into existing road character.
N30_15	Group of three dwellings at Dunsinanne	400m			3	3				Already views to existing N30 mainline to south, likely lighting at junction will be visible.	Planting as N30 junction and around the attenuation pond will limit visibility of lighting.
N30_16	Group of two dwellings at Templescoby	507m			1	1,2				Elevated location view from one window but distant. No view from rear house.	N30 Mainline in cutting and planting proposed to help screen and integrate into landscape.
N30_17	Single dwelling at Templescoby	412 m				1, 1				N30 not visible, screened by dense vegetation	No change from Opening Year.
N30_17A	Single dwelling at Dunsinane	368 m		1	1					N30 visible to south and east as part of extensive views as house in open, elevated location.	N30 mainline in cutting and proposed planting will integrate into existing landscape pattern.
N30_17B	Single dwelling at Dunsinane	288 m			1	1				Views to realigned local roads to north, N30 Mainline in cut to the north east so no view.	Proposed planting along new local roads to blend with existing road character.
N30_18	Single dwelling at Dunsinane	426 m		1	1					Glimpsed views to N30 Mainline to east and south east. Views to local road realignment.	Proposed planting along N30 mainline and on local road to blend with existing will reduce visibility.
N30_19	Single dwelling at Dunsinane	110 m	1	1						Elevated and open location overlooking N30 Mainline to east. Views to local road upgrade to north west at road frontage boundary.	Proposed planting along N30 mainline and an evergreen hedging to property boundary will reduce views to none.
N30_20	Group of three dwellings at Templescoby	534 m				3, 3				N30 Mainline not visible as in cutting.	Proposed planting will help screen existing buildings as it matures.
N30_21	Group of two dwellings at Tepmlscoby	210 m				2, 2				N30 Mainline not visible.	No change from Opening Year.
N30_22	Farm shed.					1,1				N30 Mainline not visible.	Proposed planting along N30 mainline and on local road to blend with existing will reduce visibility.
N30_23	Single dwelling at Templescoby	146 m			1	1				Very slight views to north east but no widows facing this way and road in cut. Views to local road upgrade to immediate south east.	Proposed planting along the local road to blend with existing will integrate into existing roadside character.
N30_24	Group of two dwellings at Templescoby	262 m				2, 2				No views south or east. Vegetation and topography, other houses	No change from Opening Year.

Ref.	Location	Closest Estimated Distance	Effect (with numbers affected)							Visual Impact	
			Adverse			None Overall	Beneficial			Winter, Opening Year (pre-establishment)	Design Year (post-establishment)
			Su	M	SI		SI	M	Su		
N30_25	Group of two dwellings at Templescoby	387 m				2, 2				N30 Mainline not visible.	No change from Opening Year.
N30_26	One dwelling and farm sheds at Templescoby	464 m				1, 1				N30 Mainline not visible.	No change from Opening Year.
N30_27	Dwelling with farmstead at Ballybrannis, Unrrifort House	329 m			1	1				Distant views from first floor windows to east to N30 Mainline.	N30 Mainline in cut. Proposed planting will screen views to carriageways and integrate into landscape pattern.
N30_28	Dwelling at Ballybrannis	130 m			1, 1					Slight view to south through local road hedges.	Extensive planting to proposed river crossing embankment will soften view to N30 Mainline traffic. Embankment will remain visible.
N30_29	Dwelling at ballybrannis	135 m				1, 1				N30 Mainline not visible.	No change from Opening Year.
N30_30	Single dwelling at Ballybrannis	31 m		1, 1						N30 Mainline visible though trees to south on embankment crossing Uerin river.	Extensive planting to proposed river crossing embankment will soften view to N30 Mainline traffic. Embankment will remain visible.
N30_31	Single dwelling at Ballybrannis	233 m				1, 1				N30 Mainline not visible.	No change from Opening Year.
N30_32	Dwelling with farmstead at Ballybrannis	303 m				1, 1				N30 Mainline not visible.	No change from Opening Year.
N30_33	Dwelling with farmstead at Ballybrannis	507 m				1, 1				N30 Mainline not visible.	No change from Opening Year.
N30_34	Dwelling with farmstead at Ballybrannis, Broomlands	580 m		1	1					Distant views to broad sweep of N30 Mainline from approx ch5400-6100. Existing trees in field hedgerows will partially screen and parts of road in cut.	Hedgerow and extensive woodland planting along Proposed Scheme will reduce visibility and blend line of road to existing field patterns.
N30_35	Dwelling with farmstead at Milehouse, south of R702	186 m		1	1					Narrow arc of view N30 Mainline to south west. Existing cartilage vegetation and rolling topography limit views.	Planting proposed along high area of embankment (ch4900-5200) and road in cut through high ground (ch 5300-5400)
N30_36	Group of four dwellings at Milehouse, north of R702	24/201 m			1	1				Very distant glimpse views from second of four houses. Garden vegetation screens.	Proposed planting will screen road in cutting.
N30_37	Single detached dwelling at Milehouse, south of R702	35 m			1	1				Only view is to north, dense hedges all around the house. Views to north to local road upgrade including new cutting.	Re-establish roadside planting and further planting to north boundary will screen views.

Ref.	Location	Closest Estimated Distance	Effect (with numbers affected)							Visual Impact	
			Adverse			None Overall	Beneficial			Winter, Opening Year (pre-establishment)	Design Year (post-establishment)
			Su	M	SI		SI	M	Su		
N30_38	Group of two dwellings at Askunshin, east from Monart Bridge	108 m		2	2					Heavy amenity planting surrounding houses screens views. Views to local road upgrade. Lighting at junction likely to be visible.	Local road corridor planting and further planting to N30 Mainline and attenuation pond access will screen. Lighting at junction likely to remain visible.
N30_39	Single dwelling at Askunshin, east from Monart Bridge, north of R702	47 m			1	1				Fully surrounded by trees and gardens. Views to local road upgrade to front Views towards lighting at junction and noise barrier in cutting to front.	New planting at local road will return to existing condition. Views reduced as proposed planting matures and screens views.
N30_40	Dwelling with farmstead at Askunshin, east from Monart Bridge, north of R702	215 m				1, 1				N30 Mainline not visible.	No change from Opening Year.
N30_41	Single dwelling at Monart East , along R702, west of Monart Bridge	375 m				1, 1				N30 Mainline not visible.	No change from Opening Year.
N30_42	Group of five dwellings at Monart East, along R702, west of Monart Bridge	108 m				5, 5				N30 Mainline not visible.	No change from Opening Year.
N30_42A	Single dwelling at Monart East	294 m			1	1				Glimpse view to south.	Planting along proposed Scheme will screen.
N30_43	Single dwelling at Monart East, south of R702, west of Monart Bridge	452 m			1	1				Filtered views through trees and dense hedges.	Planting at N30 mainline and at local road crossing will screen views.
N30_43A	Single dwelling at Monart East	247 m	1	1						Open views from first floor windows to N30 Mainline and local road upgrade.	Planting to N30 Mainline and at local road crossing will reduce views.
N30_44	Group of three dwellings at Monart East, south of R702, west of Monart Bridge	515 m				3, 3				N30 Mainline not visible.	No change from Opening Year.

Ref.	Location	Closest Estimated Distance	Effect (with numbers affected)							Visual Impact	
			Adverse			None Overall	Beneficial			Winter, Opening Year (pre-establishment)	Design Year (post-establishment)
			Su	M	SI		SI	M	Su		
N30_45	Group of two dwellings at Monart East, south of R702, west of Monart Bridge	528 m		1	1					Views SE from yellow house to high embankment (ch4900-5200).	Planting to embankment to blend with existing vegetation will soften views to embankment and traffic.
N30_46	Group of three dwellings at Monart East, along R702, west of Monart Bridge	602 m				3, 3				N30 Mainline not visible.	No change from Opening Year.
N30_47	Group of two dwellings at Askunshin	110 m			2	2				Glimpse views from as houses down slope in relation to proposed scheme alignment.	Planting and N30 Mainline in cutting will screen.
N30_48	Single dwelling at Askunshin	64 m				1, 1				N30 Mainline not visible.	No change from Opening Year.
N30_48A	Single dwelling at Askunshin	128 m				1, 1				N30 Mainline not visible.	No change from Opening Year
N30_49	Dwelling with farmstead at Askunshin	87 m				1, 1				N30 Mainline not visible.	No change from Opening Year.
N30_50	Group of three dwellings at Askunshin	162 m				3, 3				N30 Mainline not visible.	No change from Opening Year.
N30_51	Dwelling with farmstead at Askunshin	132 m				1, 1				N30 Mainline not visible.	No change from Opening Year.
N30_52	Farmstead at Askunshin	303 m				1, 1				N30 Mainline not visible.	No change from Opening Year.
N30_53	Group of two dwellings at Killalligan South	370 m				2, 2				N30 Mainline not visible.	No change from Opening Year.
N30_54	Group of three dwellings at Killalligan North	256 m				3, 3				N30 Mainline not visible.	No change from Opening Year.
N30_55	Single dwelling at Milehouse	138 m			1	1				Garden and roadside vegetation screens views NE. No view - road in cut. Filtered views north through hedge on boundary	Planting at upgraded local road will repair visible changes to local road boundary.
N30_56	Single dwelling at Killalligan North	212 m				1, 1				N30 Mainline not visible	No change from Opening Year.
N30_57	Group of two dwellings at Killalligan North	260 m				2, 2				N30 Mainline not visible	No change from Opening Year.

Ref.	Location	Closest Estimated Distance	Effect (with numbers affected)							Visual Impact	
			Adverse			None Overall	Beneficial			Winter, Opening Year (pre-establishment)	Design Year (post-establishment)
			Su	M	SI		SI	M	Su		
N30_57A	Single dwelling at Killalligan North	240 m		1	1					Open views out to north west over fields to N30 Mainline. Field of view narrowed by trees to east. Road mostly at grade in view.	Proposed planting will screen view to road and traffic and blend new line into field pattern character.
N30_58	Single dwelling at Killalligan North	209 m			1, 1					Slight glimpse from rear elevation to N30 Mainline on embankment. Partial screening by existing stream vegetation.	Proposed planting will screen view to traffic. Planted embankment will remain slightly visible.
N30_59	Dwelling with farmstead at Ballyorrl	138 m		1	1					Narrow field of view from house directly across local road to N30 Mainline embankment. House oriented towards local road and new road beyond	Proposed planting will screen view to traffic. Planted embankment will remain visible through local road vegetation.
N30_60	Dwelling with farmstead at Killalligan North	116 m				1, 1				N30 Mainline not visible.	No change from Opening Year.
N30_61	Single dwelling at Ballyorrl	135 m			1, 1					No views east as road side vegetation screens. No views from ground floor- high evergreen hedges on boundary. Extensive views over large area of road to south and west although from one minor window only.	Proposed planting will screen view to traffic. Planted embankment will remain slightly visible.
N30_62	Group of three dwellings at Ballyorrl	254 m				3, 3				N30 Mainline not visible.	No change from Opening Year.
N30_62A	Single dwelling at Ballyorrl	278 m		1	1					Views from first floor dormer windows to N30 Mainline on embankment to south east.	Proposed planting will screen traffic. Planted embankment will remain visible.
N30_63	Single dwelling at Ballyorrl	168 m	1	1						House oriented directly towards N30 Mainline. Views to Hore's Rock likely to be screened by proposed N30 Mainline embankment and associated planting.	Proposed planting will screen traffic. Planted embankment will remain visible and views will be disrupted.
N30_64	Group of two dwellings at Ballyorrl	285 m			1	1, 2				Front houses no view , trees screen on road and neighbours. Back elevated house has glimpse views through extensive deciduous tree planting.	Existing trees in leaf will likely screen views from rear house. Proposed planting along N30 Mainline will screen traffic.

Ref.	Location	Closest Estimated Distance	Effect (with numbers affected)							Visual Impact	
			Adverse			None Overall	Beneficial			Winter, Opening Year (pre-establishment)	Design Year (post-establishment)
			Su	M	SI		SI	M	Su		
N30_65	Single dwelling at Ballyorrlil	452 m		1	1					Extensive although distant views from elevated site. N30 mainline on embankment in foreground of wide view	Proposed planting will help blend line of road to existing field boundary patterns. Road and potentially traffic will remain visible in wide view.
N30_66	Group of three buildings at Moyne Lower	458 m			1	2, 3				Slight view from nursing home down to new overpass	Proposed planting at local road overpass and along N30 Mainline will screen minor distant views.
N30_66A	Group of two dwellings at Moyne Middle	528 m			2	2				Distant views. Topography and intervening hedges limit views to valley floor where N30 Mainline proposed.	Proposed planting to embankment will blend line of N30 mainline to existing landscape character in distant views.
N30_67	Group of four dwellings at Moyne Middle	324 m				4, 4				N30 Mainline not visible.	No change from Opening Year.
N30_68	Dwelling with farmstead at Ballyorrlil	171 m			1	1				Glimpse view through one window at first floor.	In summer leaves on existing trees will screen
N30_69	Dwelling with farmstead at Coolnahorna	145 m				1, 1				N30 Mainline not visible.	No change from Opening Year.
N30_70	Dwelling with farmstead at Ballyorrlil	634 m				1, 1				N30 Mainline not visible.	No change from Opening Year.
N30_71	Group of three dwellings at Ballyorrlil	559 m				3, 3				N30 Mainline not visible.	No change from Opening Year.
N30_72	Group of three dwellings at Ballyorrlil	614 m				3, 3				N30 Mainline not visible.	No change from Opening Year.
N30_73	Single dwelling at Coolnahorna	635 m				1, 1				N30 Mainline not visible.	No change from Opening Year.
N30_74	Single dwelling at Coolnahorna	519 m				1, 1				N30 Mainline not visible.	No change from Opening Year.
N30_75	Group of four dwellings at Coolnahorna	605 m				4, 4				N30 Mainline not visible.	No change from Opening Year.
N30_76	Single dwelling at Coolnahorna	593 m				1, 1				N30 Mainline not visible.	No change from Opening Year.
N30_77	Group of two dwellings at Coolnahorna	522 m			1	1, 2				Distant view to south west from eastern house.	Proposed planting at local road overpass and along N30 Mainline will help integrate line of road into existing field boundary patterns.
N30-78	Group of two dwellings at Coolnahorna	283 m				2, 2				N30 Mainline not visible.	No change from Opening Year.

Ref.	Location	Closest Estimated Distance	Effect (with numbers affected)							Visual Impact	
			Adverse			None Overall	Beneficial			Winter, Opening Year (pre-establishment)	Design Year (post-establishment)
			Su	M	SI		SI	M	Su		
N30_79	Dwelling with farmstead at Claves	347 m			1	1				Glimpse views to west to N30 mainline in cutting, elevation of house may mean road visible through intervening vegetation.	Proposed planting along cutting will screen views.
N30_80	Single dwelling at Coolnahorna	309 m			1, 1					Glimpse views through trees surrounding house.	Proposed planting along N30 Mainline will screen. Planted embankment will remain visible.
N30_81	Single dwelling at Coolnahorna	562 m			1	1				Glimpse views through garden vegetation and field trees	Extensive planting at N11 junction and along N30 mainline will screen views to traffic and reduce lighting impact. Planted embankment will remain visible
N30_82	Group of five dwellings at Coolonahorna	513 m			5	5				All houses overlook valley already views of N11. Views to N30 Mainline and N11 junction distant and filtered by garden vegetation and intervening field boundary vegetation.	Extensive planting at N11 junction and along N30 mainline will screen views to traffic and reduce lighting impact.
N30_83	Group of two dwellings at Coolnahorna	436 m		2	2					Filtered views to N30 mainline and N11 junction through trees surrounding houses and field boundary trees in intervening fields.	Extensive planting at N11 junction and along N30 mainline will screen views to traffic and reduce lighting impact. Planted embankment will remain visible.
N30_84	Group of two dwellings at Coolnahorna	548 m				2, 2				N30 Mainline not visible.	No change from Opening Year.
N30_85	Group of three dwellings at Coolnahorna	438 m			1	2, 3				Southern house glimpse views through vegetation other two well enclosed by amenity vegetation and field trees	Extensive planting at N11 junction and along N30 mainline will screen views to traffic and reduce lighting impact. Planted embankment will remain visible.
N30_86	Group of four dwellings at Coolnahorna	411 m			1	3, 4				Glimpses past shed and intervening vegetation from southern most house, other 3 no views amenity planting screens	Extensive planting at N11 junction and along N30 mainline will screen views to traffic and reduce lighting impact. Planted embankment will remain visible.
N30_87	Group of two dwellings at Coolnahorna	270 m				2, 2				N30 Mainline not visible.	No change from Opening Year.
N30_88	Group of two dwellings at Ballynahalin	97 m				2, 2				N30 Mainline and N80 Link Road not visible.	No change from Opening Year.
N30_89	Commercial building at Clavass	42 m			1, 1					New N11 junction visible in context of existing N11. No change to character of view as already dominated by road.	No change from Opening Year.

Ref.	Location	Closest Estimated Distance	Effect (with numbers affected)							Visual Impact	
			Adverse			None Overall	Beneficial			Winter, Opening Year (pre-establishment)	Design Year (post-establishment)
			Su	M	SI		SI	M	Su		
N30_90	Single dwelling at Scarawalsh	385 m				1, 1				N30 Mainline and N80 Link Road not visible.	No change from Opening Year.
N30_91	Single dwelling at Scarawalsh	402 m				1, 1				N30 Mainline and N80 Link Road not visible.	No change from Opening Year.
N30_92	Group of three dwellings at Scarawalsh	567 m				3, 3				N30 Mainline and N80 Link Road not visible.	No change from Opening Year.

Table 2 Visual Impact Schedule: Dwellings, Commercial & Public Buildings: N30 Mainline

M11 Gorey to Enniscorthy Scheme

Environmental Impact Statement

Appendix 15.1

Archaeological Heritage Sites

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APPENDIX 15.1: ARCHAEOLOGICAL HERITAGE SITES LOCATED WITHIN THE RECEIVING ENVIRONMENTS

Please note that all mitigation measures will be carried out by archaeologists under the terms of the National Monuments (Amendments) Act 1930-2004. Full provision will be made for the resolution of any archaeological deposits or features that may be discovered during investigations.

Unless stated otherwise, all measurements are from the edge of the proposed route to RMP constraint area of monument.

N11 Mainline

Site No.:	AH 1
RMP No.:	WX016-043
Inventory No:	420
Townland:	Balloughter
Parish:	Toome
Barony:	Gorey
County:	Wexford
National Grid:	310386, 152519
OS Map No.:	16
Chainage:	4,010
Field No.:	N/A
Dist. to Route:	277m
Classification:	Enclosure
Legal Status:	Recorded Monument
Description:	Cropmark of a circular enclosure (diam. c.30m) visible in aerial photographs (MM (16) 31-3).
Adjacent Sites:	AAP 4, AAP 5, SAP 1
Sources:	RMP file & Archaeological Inventory of Wexford 1996:49
Photo/Figure Ref.:	Figure 15.1
Impact Type:	Indirect
Potential Impact:	Imperceptible Negative
Mitigation:	N/A

Site No.:	AH 2
RMP No.:	WX020-068
Inventory No:	1066
Townland:	Myaugh
Parish:	Clone
Barony:	Scarawalsh
County:	Wexford
National Grid:	303530, 145660
OS Map No.:	20
Chainage:	13,780
Field No.:	N/A
Dist. to Route:	246m
Classification:	Moated site
Legal Status:	Recorded Monument
Description:	On level ground on the N side of a stream, ground is relatively high overlooking the valley of stream. This site has been heavily ploughed but is clearly visible as crop mark on aerial photo MM (33) 26-29). The corner of the site is cut by a laneway. The line of the fosse is clearly visible as a hollow on the N and W sides. The interior of the platform is raised. Dimensions c. 40m NW-SE x 35m NE-SW, E of the roadway the SE corner of the site is slightly lower than the adjacent field.
Adjacent Sites:	AAP 20
Sources:	RMP file & Archaeological Inventory of Wexford 1996:107
Photo/Figure Ref.:	Figure 15.1
Impact Type:	Indirect
Potential Impact:	Imperceptible Negative
Mitigation:	N/A

Site No.:	AH 3
RMP No.:	WX020-063
Inventory No:	212
Townland:	Oulartard
Parish:	Clone
Barony:	Scarawalsh
County:	Wexford
National Grid:	301660, 143920
OS Map No.:	20
Chainage:	16,370
Field No.:	113
Dist. to Route:	64m
Classification:	<i>Fulacht fiadh</i>
Legal Status:	Recorded Monument
Description:	Circular area of burnt and cracked stones, diameter 13m on a slight prominence, visible during ploughing.
Adjacent Sites:	AAP 22, SAP 8
Sources:	RMP file & Archaeological Inventory of Wexford 1996:23
Photo/Figure Ref.:	Figure 15.1
Impact Type:	Indirect
Potential Impact:	Imperceptible negative
Mitigation:	N/a

Site No.:	AH 12
RMP No.:	WX020-035
Inventory No:	1095
Townland:	Tomnafunshoge
Parish:	Templeshannon
Barony:	Scarawalsh
County:	Wexford
National Grid:	300450, 139560
OS Map No.:	20
Chainage:	21,475
Field No.:	147
Dist. to Route:	183m
Classification:	Moated site
Legal Status:	Recorded Monument
Description:	Rectangular area with raised edges (dimensions 27m x 26m), flat bottomed fosse (width 3.5m, depth below interior 1.5-2m) and external counterscarp bank. Removed since 1940s and as a result no longer visible at ground level.
Adjacent Sites:	AAP 31, BH 31
Sources:	RMP file & Archaeological Inventory of Wexford 1996:109
Photo/Figure Ref.:	Figure 15.1
Impact Type:	Indirect
Potential Impact:	Imperceptible Negative
Mitigation:	N/a

Site No.:	AH 13
RMP No.:	WX026-007
Inventory No:	972
Townland:	Ballycourcymore
Parish:	Ballyhuskard
Barony:	Ballaghkeen
County:	Wexford
National Grid:	299910, 137870
OS Map No.:	26
Chainage:	23,400
Field No.:	N/a
Dist. to Route:	268m
Classification:	Moated site
Legal Status:	Recorded Monument
Description:	Rectangular area (31m E-W; 19m N-S) with original rectangular projection at W end of N side (20m E-W; 7m N-S) defined by a flat bottomed fosse (width 6-9m, depth 1.5-2m). Inner bank on W and N side. Planted with a mixed woodland.
Adjacent Sites:	AAP 33
Sources:	RMP file & Archaeological Inventory of Wexford 1996:96
Photo/Figure Ref.:	Figure 15.1
Potential Impact:	Imperceptible Negative
Mitigation:	N/a

Site No.:	AH 14
RMP No.:	WX026-057
Inventory No:	Rectilinear enclosure
Townland:	Ballycourcymore
Parish:	Ballyhuskard
Barony:	Ballaghkeen
County:	Wexford
National Grid:	300210, 137110
OS Map No.:	26
Chainage:	24,250
Field No.:	164
Dist. to Route:	76m to centre of constraint area
Classification:	Rectilinear enclosure
Legal Status:	Recorded Monument
Description:	Cropmark of rectangular enclosure (c. 30m by c. 30m), visible on aerial photographs (MM(12)30-31) but no visible trace at ground level.
Adjacent Sites:	AAP 33, SAP 19
Sources:	RMP file & Archaeological Inventory of Wexford 1996:76
Photo/Figure Ref.:	Figure 15.1 Plate 15.1
Potential Impact:	Slight Negative
Mitigation:	Written and photographic record of landscape context.

N80 Link Road

Site No.:	AH 4
RMP No.:	WX020-066
Inventory No:	29
Townland:	Clavass
Parish:	St Mary's Enniscorthy
Barony:	Scarawalsh
County:	Wexford
National Grid:	298250, 143780
OS Map No.:	20
Chainage:	600
Field No.:	N/A
Dist. to Route:	177m
Classification:	Ring ditch
Legal Status:	Recorded Monument
Description:	Cropmark of small circular enclosure (diam. c.12m) with a central pit visible on aerial photographs (MM (13) 35-6).
Adjacent Sites:	AH 15
Sources:	RMP file & Archaeological Inventory of Wexford 1996:5
Photo/Figure Ref.:	Figure 15.1
Impact Type:	Indirect
Potential Impact:	Imperceptible negative
Mitigation:	N/a

Site No.:	AH 5
RMP No.:	WX020-011
Inventory No:	27
Townland:	Ballynahallin
Parish:	St Mary's Enniscorthy
Barony:	Scarawalsh
County:	Wexford
National Grid:	298930, 143390
OS Map No.:	20
Chainage:	1,210
Field No.:	194
Dist. to Route:	33m
Classification:	Ring ditch
Legal Status:	Recorded Monument
Description:	Crop mark of a circular enclosure (diam. c. 20m) visible on aerial photograph – not visible at ground level (CUCAP, ASW 73).
Adjacent Sites:	N/a
Sources:	RMP file & Archaeological Inventory of Wexford 1996:5
Photo/Figure Ref.:	Figure 15.1 Plate 15.2
Impact Type:	Indirect
Potential Impact:	Slight Negative
Mitigation:	Written and photographic record of landscape context.

Site No.:	AH 6
RMP No.:	WX020-010
Inventory No:	599
Townland:	Kilcannon
Parish:	St Mary's Enniscorthy
Barony:	Scarawalsh
County:	Wexford
National Grid:	298820, 142640
OS Map No.:	20
Chainage:	1,860
Field No.:	N/A
Dist. to Route:	180m
Classification:	Enclosure site
Legal Status:	Recorded Monument
Description:	Marked as a circular enclosure on the 1841 OS map and visible as a circular crop mark with a diameter of c. 45m. Entrance gap noted on E side on aerial photograph (CUCAP, BDJ 54). Not visible at ground level.
Adjacent Sites:	BH 25
Sources:	RMP file & Archaeological Inventory of Wexford 1996:64
Photo/Figure Ref.:	Figure 15.1
Impact Type:	Indirect
Potential Impact:	Imperceptible Negative
Mitigation:	N/a

Site No.:	AH 7
RMP No.:	WX020-020 (de-listed)
Inventory No:	N/A
Townland:	Kilcannon
Parish:	St Mary's Enniscorthy
Barony:	Scarawalsh
County:	Wexford
National Grid:	299492, 142374
OS Map No.:	20
Chainage:	2,500
Field No.:	N/A
Dist. to Route:	90m
Classification:	Holy Well
Legal Status:	De-listed Recorded Monument
Description:	Located in dense woodland on scarp bordering water meadows to the E. No visible trace of site now exists.
Adjacent Sites:	SAP 13, AH 8
Sources:	Field Inspection
Photo/Figure Ref.:	Figure 15.1
Impact Type:	Indirect
Potential Impact:	Slight Negative
Mitigation:	Written and photographic record of landscape context.

Site No.:	AH 8
RMP No.:	WX020-021
Inventory No:	1165
Townland:	Kilcannon
Parish:	St Mary's Enniscorthy
Barony:	Scarawalsh
County:	Wexford
National Grid:	299530, 142380
OS Map No.:	20
Chainage:	2,500
Field No.:	N/A
Dist. to Route:	131m
Classification:	Church
Legal Status:	Recorded Monument
Description:	Site of church, possibly with early origins. Rubble strewn area with the foundations of some walls visible (dims. 17m E-W; 14m N-S). Arc of enclosure survives as scarp NNE-ESE (c. 78m). No evidence of burial but what was thought to be a holy well (AH 7, de-listed) is located c. 30m SW of the church site.
Adjacent Sites:	AH 7, SAP 16
Sources:	RMP file & Archaeological Inventory of Wexford 1996:117
Photo/Figure Ref.:	Figure 15.1
Impact Type:	Indirect
Potential Impact:	Imperceptible Negative
Mitigation:	N/a

Site No.:	AH 9
RMP No.:	WX020-019
Inventory No:	1671
Townland:	Kilcannon
Parish:	St Mary's Enniscorthy
Barony:	Scarawalsh
County:	Wexford
National Grid:	299130, 142200
OS Map No.:	20
Chainage:	2,360
Field No.:	N/A
Dist. to Route:	36m
Classification:	Pit alignment
Legal Status:	Recorded Monument
Description:	Aerial photograph analysis depicted a possible alignment of pits with a length of c. 100m, placed c. 5m apart. Not visible at ground level.
Adjacent Sites:	SAP 13
Sources:	RMP file & Archaeological Inventory of Wexford 1996:197
Photo/Figure Ref.:	Figure 15.1 Plate 15.3
Impact Type:	Indirect
Potential Impact:	Slight Negative
Mitigation:	Written and photographic record of landscape context.

Site No.:	AH 10
RMP No.:	WX020-025
Inventory No:	466
Townland:	Ballynabarney
Parish:	Templeshannon
Barony:	Scarawalsh
County:	Wexford
National Grid:	296570, 156290
OS Map No.:	20
Chainage:	3,160
Field No.:	N/A
Dist. to Route:	51m
Classification:	Enclosure site
Legal Status:	Recorded Monument
Description:	Faint crop mark of narrow ditched enclosure, with a diameter of c. 45m, which was visible on aerial photo (CUCAP, AYJ 89). Not visible at ground level.
Adjacent Sites:	BH 4
Sources:	RMP file & Archaeological Inventory of Wexford 1996:53
Photo/Figure Ref.:	Figure 15.1 Plate 15.4
Impact Type:	Indirect
Potential Impact:	Slight Negative
Mitigation:	Written and photographic record of landscape context.

Site No.:	AH 11
RMP No.:	WX020-026
Inventory No:	1111
Townland:	Ballynabarney
Parish:	Templeshannon
Barony:	Scarawalsh
County:	Wexford
National Grid:	300720, 141760
OS Map No.:	20
Chainage:	3,965
Field No.:	N/A
Dist. to Route:	192m
Classification:	Rectangular enclosure site
Legal Status:	Recorded Monument
Description:	The site is located on the crest of a ridge with views N to Slieveboy and westwards to the Blackstairs. The site is located in grassland but there is no visible surface trace of any surface remains. It is marked on the first edition OS map of 1841.
Adjacent Sites:	AAP 26, AAP 27
Sources:	RMP file & Archaeological Inventory of Wexford 1996:110
Photo/Figure Ref.:	Figure 15.1
Impact Type:	Indirect
Potential Impact:	Imperceptible Negative
Mitigation:	N/A

N30 Mainline

Site No.:	AH 15
RMP No.:	WX020-008
Inventory No:	1000
Townland:	Clavass
Parish:	St Mary's Enniscorthy
Barony:	Scarawalsh
County:	Wexford
National Grid:	298140,143900
OS Map No.:	20
Chainage:	400
Field No.:	N/A
Dist. to Route:	178m
Classification:	Moated site
Legal Status:	Recorded Monument
Description:	Recorded as castle site but assessed in SMR files as actually being a moated manor site, a monument type associated with Anglo-Norman settlement and common in County Wexford. Rectangular area (49m N-S; 40m E-W) with earthen bank (width 4m, depth below interior 2-3m) on all sides except E. Planted up with mixed woodland.
Adjacent Sites:	AH 16, AH 4
Sources:	RMP file & Archaeological Inventory of Wexford 1996:99
Photo/Figure Ref.:	Figure 15.1
Impact Type:	Indirect
Potential Impact:	Imperceptible Negative
Mitigation:	N/a

Site No.:	AH 16
RMP No.:	WX020-065
Inventory No:	509
Townland:	Clavass
Parish:	St Mary's Enniscorthy
Barony:	Scarawalsh
County:	Wexford
National Grid:	297960, 143930
OS Map No.:	20
Chainage:	540
Field No.:	220
Dist. to Route:	50m
Classification:	Enclosure
Legal Status:	Recorded Monument
Description:	Crop mark of a circular enclosure (diameter c. 25m) visible on aerial photographs (MM(2)8-11).
Adjacent Sites:	AAP 41, AH 15
Sources:	RMP file & Archaeological Inventory of Wexford 1996:56
Photo/Figure Ref.:	Figure 15.1 Plate 15.5
Impact Type:	Indirect
Potential Impact:	Slight Negative
Mitigation:	Written and photographic record of landscape context.

Site No.:	AH 17
RMP No.:	WX020-007 – de-listed
Inventory No:	N/A
Townland:	Coolnahorna
Parish:	Monart
Barony:	Scarawalsh
County:	Wexford
National Grid:	297559, 143975
OS Map No.:	20
Chainage:	815
Field No.:	N/A
Dist. to Route:	57m
Classification:	Redundant record
Legal Status:	De-listed Recorded Monument
Description:	No visible trace of any potential archaeological material was noted at this site. It is not clear why the area would have originally been included within the SMR/RMP.
Adjacent Sites:	AH 18
Sources:	Field inspection
Photo/Figure Ref.:	Figure 15.1
Impact Type:	Indirect
Potential Impact:	Slight Negative
Mitigation:	Written and photographic record of landscape context.

Site No.:	AH 18
RMP No.:	WX020-069
Inventory No:	N/A
Townland:	Coolnahorna
Parish:	Monart
Barony:	Scarawalsh
County:	Wexford
National Grid:	297412, 143953
OS Map No.:	20
Chainage:	940
Field No.:	N/A
Dist. to Route:	139m
Classification:	Ring ditch
Legal Status:	Recorded Monument
Description:	Listed within the SMR sites on www.archaeology.ie . No obvious trace of a ring ditch was noted in the area during field inspection.
Adjacent Sites:	AH 17
Sources:	www.archaeology.ie
Photo/Figure Ref.:	Figure 15.1
Impact Type:	Indirect
Potential Impact:	Imperceptible Negative
Mitigation:	N/a

Site No.:	AH 19
RMP No.:	WX019-023 – de-listed
Inventory No:	N/A
Townland:	Ballybrannis
Parish:	Monart
Barony:	Scarawalsh
County:	Wexford
National Grid:	293199, 140807
OS Map No.:	19
Chainage:	6,125
Field No.:	N/A
Dist. to Route:	223m
Classification:	Redundant record
Legal Status:	De-listed Recorded Monument
Description:	It is likely that this site was originally included within the SMR/RMP due to the fact that it consists of a circular area, containing a small country house. The house is named as Urrinfort (BH 47) and it is likely that it was thought a fort formerly occupied this area.
Adjacent Sites:	BH 47
Sources:	RMP mapping and OS historical mapping
Photo/Figure Ref.:	Figure 15.1
Impact Type:	Indirect
Potential Impact:	Imperceptible Negative
Mitigation:	N/a

M11 Gorey to Enniscorthy Scheme

Environmental Impact Statement

Appendix 15.2

Areas of Archaeological Potential

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APPENDIX 15.2: AREAS OF ARCHAEOLOGICAL POTENTIAL IDENTIFIED WITHIN THE RECEIVING ENVIRONMENT OF THE PROPOSED ROUTES

Please note that all archaeological investigations are to be carried out by archaeologists under the terms of the National Monuments (Amendments) Act 1930-2004. Full provision will be made for the resolution of any archaeological deposits or features that may be discovered during investigations.

N11 Mainline

Site No.:	AAP 1
Townland:	Frankfort/ Ballinclay
Parish:	Liskinfere
Barony:	Gorey
County:	Wexford
National Grid:	310598, 154350
OS Map No.:	11
Chainage:	2,300
Field No.:	11/12
Dist. to Route:	0m
Classification:	Townland boundary
Legal Status:	None
Description:	This feature consists of a townland boundary, which also forms the field boundary between Fields 11 and 12. It consists of an earth bank, which varies in height from 1-1.3m. It has a substantial width of c. 4m and in many places was found to be covered by mature trees such as Hawthorn along with some hedgerow. The boundary is marked on all three OS map editions. The first OS map edition of 1841 shows that it formed the boundary to Ballinclay Demesne, with the land to the W of the boundary shaded to indicate demesne lands.
Adjacent Sites:	AAP 2
Photo/Figure Ref.:	Figure 15.1 Plate 15.6
Impact Type:	Direct
Potential Impact:	Significant negative
Mitigation:	Archaeological investigations in the form of testing. Written and photographic record of townland boundary.

Site No.:	AAP 2
Townland:	Ballinclay/ Ballygullen
Parish:	Liskinfere
Barony:	Gorey
County:	Wexford
National Grid:	310517, 154115
OS Map No.:	11
Chainage:	2,550
Field No.:	12/13
Dist. to Route:	0m
Classification:	Townland boundary
Legal Status:	None
Description:	This feature consists of a townland boundary, which also forms the field boundary between Fields 12 and 13. It consists of an earth bank, which varies in height from 1-1.5m. It has a substantial width of c. 4m was very overgrown with mature, multi-species vegetation and trees. The boundary is marked on all three OS map editions. The first OS map edition of 1841 shows that it formed the southern boundary to Ballinclay Demesne, with the land to the N of the boundary shaded to indicate demesne lands.
Adjacent Sites:	AAP 1, AAP 3
Photo/Figure Ref.:	Figure 15.1 Plate 15.7
Impact Type:	Direct
Potential Impact:	Significant negative
Mitigation:	Archaeological investigations in the form of testing. Written and photographic record of townland boundary.

Site No.:	AAP 3
Townland:	Ballygullen
Parish:	Liskinfere
Barony:	Gorey
County:	Wexford
National Grid:	310433, 153945
OS Map No.:	11
Chainage:	2,730
Field No.:	13
Dist. to Route:	0m
Classification:	Large Drumlin
Legal Status:	None
Description:	Field 13, which was under an arable crop at the time of inspection, contained a large and relatively regular drumlin. The summit of the drumlin was largely level, with the sides sloping away gently in all directions. The summit measured c. 75m by 75m. Excellent views of the landscape to the S were obtained from the summit, although views to the N were more restricted. However, this topographical feature could represent an ideal location for archaeological activity given its raised position and as such should be considered as possessing archaeological potential.
Adjacent Sites:	AAP 2
Photo/Figure Ref.:	Figure 15.1 Plate 15.8
Impact Type:	Direct
Potential Impact:	Significant negative
Mitigation:	Archaeological investigations in the form of testing.

Site No.:	AAP 4
Townland:	Ballygullen/ Balloughter
Parish:	Liskinfere
Barony:	Gorey
County:	Wexford
National Grid:	310289, 153371
OS Map No.:	11
Chainage:	3,325
Field No.:	17/18
Dist. to Route:	0m
Classification:	River Bracken and townland boundary
Legal Status:	None
Description:	This area is characterised by the River Bracken, which runs in an ENE-WSW direction through level pasture fields. This river also forms the townland boundary between Ballygullen and Balloughter. The river itself was very overgrown at the time of inspection and it was difficult to gauge the depth and width of the water course. However, it did appear to possess a significant depth. A bank was noted on the northern bank of the river, which is much denuded in places. This consists of an earthen bank, the northern face of which is revetted with stone. The less denuded sections of the bank stand at a height of c. 1m, with a width of c. 2m. No corresponding bank was noted on the southern bank of the river. The area between the bank and the river was planted with multiple species of mature trees and shrubs. The river is marked on all three OS map editions.
Adjacent Sites:	BH 5
Photo/Figure Ref.:	Figure 15.1 Plate 15.9
Potential Impact:	Significant negative
Mitigation:	Archaeological investigations in the form of testing. Written and photographic record of townland boundary. Underwater survey.

Site No.:	AAP 5
Townland:	Balloughter/ Tulllabeg
Parish:	Toome
Barony:	Gorey
County:	Wexford
National Grid:	310006, 152610
OS Map No.:	16
Chainage:	4,150
Field No.:	22/23
Dist. to Route:	0m
Classification:	Townland boundary
Legal Status:	None
Description:	This feature consists of a townland boundary, which also forms the field boundary between Fields 22 and 23. It consists of an earth bank, which varies in height from 1-1.5m. The boundary itself was not accessible due to overgrowth but possessed a substantial width of c. 6-7m. It was very overgrown with mature, multi-species vegetation and trees. The boundary is marked on all three OS map editions. Further to the N of where the proposed route crosses the boundary, it was found to consist of even larger earth works, with a large interior bank c. 2.5m in height and deep flanking ditches on either side.
Adjacent Sites:	AAP 6, AH 1
Photo/Figure Ref.:	Figure 15.1 Plate 15.10
Impact Type:	Direct
Potential Impact:	Significant negative
Mitigation:	Archaeological investigations in the form of testing. Written and photographic record of townland boundary.

Site No.:	AAP 6
Townland:	Tullabeg/ Ballyeden
Parish:	Toome
Barony:	Gorey
County:	Wexford
National Grid:	309861, 152415
OS Map No.:	16
Chainage:	4,370
Field No.:	24/25
Dist. to Route:	0m
Classification:	Townland boundary
Legal Status:	None
Description:	This feature consists of a townland boundary, which also forms the field boundary between Fields 24 and 25. It consists of shallow ditch, which is flanked on both sides by very mature, multi-species vegetation and trees. The boundary is marked on all three OS map editions.
Adjacent Sites:	AAP 5, SAP 1
Photo/Figure Ref.:	Figure 15.1
Impact Type:	Direct
Potential Impact:	Significant negative
Mitigation:	Archaeological investigations in the form of testing. Written and photographic record of townland boundary.

Site No.:	AAP 7
Townland:	Ballyeden/ Medophall
Parish:	Toome
Barony:	Gorey
County:	Wexford
National Grid:	309341, 151753
OS Map No.:	16
Chainage:	5,220
Field No.:	28/29
Dist. to Route:	0m
Classification:	Townland boundary
Legal Status:	None
Description:	This feature consists of a townland boundary, which also forms a small trackway that runs between fields 28 and 29. The trackway is wide enough to allow for the passage of one vehicle, and possesses a rough stoney surface. It is flanked by banks c.1m in height, which are revetted with stone in places. Mature trees and shrubs grow on top of the banks. The townland boundary is marked on the first edition OS map of 1841, but is not marked as a laneway until the second edition map of 1903. On this map it leads to some buildings located to the W of the proposed route. There is no evidence of these buildings surviving today. The track now only provides access to some fields.
Adjacent Sites:	BH 3
Photo/Figure Ref.:	Figure 15.1
Impact Type:	Direct
Potential Impact:	Significant negative
Mitigation:	Archaeological investigations in the form of testing. Written and photographic record of townland boundary.

Site No.:	AAP 8
Townland:	Medophall/ Knockrobin Lower
Parish:	Toome
Barony:	Scarawalsh
County:	Wexford
National Grid:	308966, 151278
OS Map No.:	16
Chainage:	5,840
Field No.:	31/32
Dist. to Route:	0m
Classification:	Townland boundary
Legal Status:	None
Description:	This feature consists of a townland boundary, which also forms a field boundary between fields 31 and 32. The boundary consists of a deep ditch, c. 1.5m in depth and c.2m wide. There no accompanying bank or hedge line, although the occasional mature Oak tree was noted along the northern side of the ditch. A post and wire fence was also present along the northern side of the ditch. It would appear that any accompanying hedge line or bank may have been removed by agricultural practices as the surrounding landscape is subject to arable production. The townland boundary is marked on all three OS map editions.
Adjacent Sites:	N/a
Photo/Figure Ref.:	Figure 15.1
Impact Type:	Direct
Potential Impact:	Significant negative
Mitigation:	Archaeological investigations in the form of testing. Written and photographic record of townland boundary.

Site No.:	AAP 9
Townland:	Knockrobin Lower/ Knockrobin Upper
Parish:	Toome
Barony:	Scarawalsh
County:	Wexford
National Grid:	308455, 150625
OS Map No.:	16
Chainage:	6,650
Field No.:	39
Dist. to Route:	0m
Classification:	Townland boundary (site of)
Legal Status:	None
Description:	The area of potential contains the site of a townland boundary that separated Knockrobin Lower and Knockrobin Upper. The townland boundary has been removed, possibly relatively recently as it is apparent on the modern OS mapping. Two large piles of stones were noted at the edge of the fields that it formerly occupied. This may have been retrieved from the boundary. The field that contains this area consists of a level arable field, which slopes very gently in the northern quarter to the N.
Adjacent Sites:	BH 3, AAP 10
Photo/Figure Ref.:	Figure 15.1
Impact Type:	Direct
Potential Impact:	Significant negative
Mitigation:	Archaeological investigations in the form of testing.

Site No.:	AAP 10
Townland:	Knockrobin Upper/ Ballymore
Parish:	Toome/ Kilbride
Barony:	Scarawalsh
County:	Wexford
National Grid:	308324, 150451 to 308006, 149952
OS Map No.:	16
Chainage:	6,870 – 7,460
Field No.:	40 - 43
Dist. to Route:	0m
Classification:	Townland boundary
Legal Status:	None
Description:	The area of archaeological potential covers a relatively large area. This is due to the fact that the proposed route crosses the townland boundary (ch. 7,000) between Knockrobin Upper and Ballymore and then runs directly parallel with it. The boundary is formed by a field boundary, but also represents a parish boundary. The boundary itself is formed by a ditch on the western side of a central bank. The ditch has a depth of c. 1m whereas the bank has a varying height of 1m to 2.5m. This is a very substantial boundary, thickly planted with mature trees and barely accessible. The section between ch. 7,350 and 7,450 is as overgrown, but the earthworks are no as substantial.
Adjacent Sites:	SAP 2, SAP 3, AAP 9
Photo/Figure Ref.:	Figure 15.1 Plate 15.11
Impact Type:	Direct
Potential Impact:	Significant negative
Mitigation:	Archaeological investigations in the form of testing. Written and photographic record of townland boundary.

Site No.:	AAP 11
Townland:	Ballymore/ Rockspring
Parish:	Kilbride
Barony:	Scarawalsh
County:	Wexford
National Grid:	307927, 149849
OS Map No.:	16
Chainage:	7,600
Field No.:	45/46
Dist. to Route:	0m
Classification:	Townland boundary
Legal Status:	None
Description:	This feature consists of a townland boundary, which also forms a small road that runs between fields 45 and 46. The road is currently in use and possesses a tarmac surface. It is flanked residential units on the northern side and hedge row on the southern side. The townland boundary is marked on all three OS map editions.
Adjacent Sites:	AAP 10, BH 6-8
Photo/Figure Ref.:	Figure 15.1
Impact Type:	Direct
Potential Impact:	Significant negative
Mitigation:	Archaeological investigations in the form of testing. Written and photographic record of townland boundary.

Site No.:	AAP 12
Townland:	Crane/ Toom
Parish:	Clone
Barony:	Scarawalsh
County:	Wexford
National Grid:	300932, 143004
OS Map No.:	20
Chainage:	17,610
Field No.:	125/126/128
Dist. to Route:	0m
Classification:	Townland boundary
Legal Status:	None
Description:	This boundary consists of a bank and ditch. The bank has a height that varies between 1m and 2m, whilst the ditch, located on the northern side of the bank, has a width of c. 2-3m and a depth of c. 1m. The bank is very overgrown with mature trees and shrubs, which made access difficult. The surrounding rolling landscape is under arable crop cultivation.
Adjacent Sites:	BH 24
Photo/Figure Ref.:	Figure 15.1
Impact Type:	Direct
Potential Impact:	Significant negative
Mitigation:	Archaeological investigations in the form of testing. Written and photographic record of townland boundary.

Site No.:	AAP 13
Townland:	Rockspring/ Quarry
Parish:	Kilbride
Barony:	Scarawalsh
County:	Wexford
National Grid:	307302, 148924
OS Map No.:	16
Chainage:	8,710
Field No.:	51/53
Dist. to Route:	0m
Classification:	Townland boundary and stream
Legal Status:	None
Description:	This feature consists of a townland boundary, which forms a field boundary that runs between fields 51 and 53. The boundary consists of a deep cutting c. 1.5m below the surrounding ground level, which contains a small stream. The stream possessed a moderate flow at the time of the inspection and was relatively shallow. The stream bed consists of small stones and there is a bank located on the southern side of the stream. This was very overgrown with small trees and scrub. The townland boundary is marked on all three OS map editions.
Adjacent Sites:	N/a
Photo/Figure Ref.:	Figure 15.1 Plate 15.12
Impact Type:	Direct
Potential Impact:	Significant negative
Mitigation:	Archaeological investigations in the form of testing. Written and photographic record of townland boundary.

Site No.:	AAP 14
Townland:	Quarry/ Mountgeorge
Parish:	Kilbride/ Kilcormick
Barony:	Scarawalsh
County:	Wexford
National Grid:	306929, 148674 to 306303, 148258
OS Map No.:	16
Chainage:	9,170-9,940
Field No.:	56-61
Dist. to Route:	0m
Classification:	Townland boundary, stream, proximity to holy well
Legal Status:	None
Description:	<p>This is a large area of potential, characterised by the presence of a substantial stream, which forms the townland boundary between Quarry and Mountgeorge. The proposed route crosses this stream at ch. 9,275 and then travels parallel to it through Mountgeorge. The stream itself is located within a small ravine, which possesses a steeper slope on the northern side. This would indicate that the stream has cut away into a hill slope over a period of time. The banks of the stream are covered by a significant amount of mature trees and undergrowth. The stream itself possesses a moderate flow over a stone bed. It was deep in places, but this was inconsistent, and it was possible to cross the stream on foot during field inspection. The stream is marked on all three OS map editions. On the first edition map of 1841, it forms the boundary to the demesne associated with Mountgeorge House.</p> <p>The remainder of the area of archaeological potential is located where the route passes c. 20-50m to the SE of the stream as it travels to the SW. Here the land slopes gradually to the NW and is mostly under arable crop. The former site of Mountgeorge House is located at the summit of the higher ground to the SE of the stream. A modern farm now occupies the location of the house, which would have possessed commanding views over its associated demesne. A holy well (SAP 4) is also located close to the proposed route in this area. This is situated on a slope overlooking the stream to NW.</p>
Adjacent Sites:	AAP 15, SAP 4
Photo/Figure Ref.:	Figure 15.1 Plate 15. 13
Impact Type:	Direct
Potential Impact:	Significant negative
Mitigation:	Geophysical survey. Archaeological investigations in the form of testing. Written and photographic record of townland boundary. Underwater survey.

Site No.:	AAP 15
Townland:	Mountgeorge/ Ballycarrigeen Lower
Parish:	Kilcormick
Barony:	Gorey
County:	Wexford
National Grid:	306253, 148212
OS Map No.:	16
Chainage:	10,000
Field No.:	62/63
Dist. to Route:	0m
Classification:	Townland boundary
Legal Status:	None
Description:	This feature consists of a townland boundary, which also forms a field boundary between fields 62 and 63. The boundary is substantial in size and consists of a deep ditch, c. 1.5m in depth and c. 2m wide with an accompanying bank on the western side. The bank is c. 2m high and covered in mature vegetation such as trees and gorse. The townland boundary is marked on all three OS map editions and also forms the SW boundary to the Mountgeorge demesne.
Adjacent Sites:	AAP 14, AAP 16, SAP 4, SAP 5
Photo/Figure Ref.:	Figure 15.1 Plate 15.14
Impact Type:	Direct
Potential Impact:	Significant negative
Mitigation:	Archaeological investigations in the form of testing. Written and photographic record of townland boundary. Underwater survey.

Site No.:	AAP 16
Townland:	Ballycarrigeen Lower
Parish:	Kilcormick
Barony:	Gorey
County:	Wexford
National Grid:	306188, 148155 to 305666, 147839
OS Map No.:	16
Chainage:	10,090-10,700
Field No.:	63-67
Dist. to Route:	0m
Classification:	Riverine environment
Legal Status:	None
Description:	This is a large area of potential as the proposed route will again be travelling within 30m-50m of the stream that borders Mountgeorge to the NW. As with AAP 14, the landscape here consists of fields that slope in a NW direction towards the stream. There is a mixture of pasture and arable. Although no obvious archaeological features were observed in the area (with the exception of SAP 5 – possible <i>fulacht fiadh</i>), the proximity of the water course to the proposed route means that there is a heightened potential for archaeological remains to be present in this area.
Adjacent Sites:	AAP 15, SAP 5
Photo/Figure Ref.:	Figure 15.1
Impact Type:	Direct
Potential Impact:	Significant negative
Mitigation:	Archaeological investigations in the form of testing.

Site No.:	AAP 17
Townland:	Ballycarrigeen Lower/ Carrigeen
Parish:	Kilcormick
Barony:	Gorey
County:	Wexford
National Grid:	05176, 147243
OS Map No.:	15/16
Chainage:	11,480
Field No.:	77-79
Dist. to Route:	0m
Classification:	Townland boundary
Legal Status:	None
Description:	This feature consists of a townland boundary, which also forms a small road that runs between fields 77-79. The road is currently in use and possesses a tarmac surface. It is flanked by some residential units but is mostly flanked by a bank and hedge row on both sides. The townland boundary is marked on all three OS map editions as a road.
Adjacent Sites:	BH 16, BH 17, CH 2
Photo/Figure Ref.:	Figure 15.1
Impact Type:	Direct
Potential Impact:	Significant negative
Mitigation:	Archaeological investigations in the form of testing. Written and photographic record of townland boundary.

Site No.:	AAP 18
Townland:	Carrigeen/ Knockavocka
Parish:	Kilcormick
Barony:	Gorey
County:	Wexford
National Grid:	304437, 146796
OS Map No.:	15/16
Chainage:	12,350
Field No.:	83/84
Dist. to Route:	0m
Classification:	Townland boundary and stream
Legal Status:	None
Description:	This feature consists of a townland boundary, which also forms a field boundary between fields 83 and 84. The boundary is characterised by a moderately flowing stream c. 1.5m below the surrounding ground level. The stream width varies and travels over a stone bed. On the southern side of the stream is a bank c. 0.4m above the surrounding ground level (on southern side of stream). The townland boundary is marked on all three OS map editions.
Adjacent Sites:	AAP 19
Photo/Figure Ref.:	Figure 15.1 Plate 15.15
Impact Type:	Direct
Potential Impact:	Significant negative
Mitigation:	Archaeological investigations in the form of testing. Written and photographic record of townland boundary. Underwater survey.

Site No.:	AAP 19
Townland:	Knockavocka/ Effernoge/ Myaugh
Parish:	Kilcormick/ Ferns
Barony:	Scarawalsh
County:	Wexford
National Grid:	304237, 146710 to 303569, 146148
OS Map No.:	15/20
Chainage:	12,560 – 13,430
Field No.:	85-94
Dist. to Route:	0m
Classification:	Two townland boundaries and two streams
Legal Status:	None
Description:	<p>This area of potential is formed by a relatively large section of the landscape (850m in length). This is due to the fact that the proposed route crosses two townland boundaries, which are formed by one stream, which is crossed twice at ch. 13,100 and 13,360. Prior to crossing this stream, the route travels adjacent to it and therefore is located within a riverine environment. The stream itself is quite large in size and is a continuation of that stream that forms the boundary around the western side of Mountgeorge (AAP 14). The stream meanders through the landscape, with a moderate flow. The bed of the stream is formed by stones and gravel of various sizes and in places the depth is as much as 1m. The stream at both crossing is surrounded by thick mature vegetation and trees.</p> <p>Prior to the first crossing the route travels adjacent to the stream on the SE side. Here the landscape is formed by arable fields sloping moderately NW to the stream. After the first crossing, the route passes through a pasture landscape, which slopes to the SE. However, the pasture immediately adjacent to the stream is relatively level and likely to flood during period of heavy rain fall. On the SW bank of the stream after the second proposed crossing, the land climbs sharply, where the stream has eroded into the side of a hill over a long period of time. The resulting cutting is almost vertical and covered in rough scrub and sedge grasses. However, at ch. 13,400 the landscape levels out into rolling pasture.</p>
Adjacent Sites:	AAP 18
Photo/Figure Ref.:	Figure 15.1 Plate 15.16
Impact Type:	Direct
Potential Impact:	Significant negative
Mitigation:	Archaeological investigations in the form of testing. Written and photographic record of townland boundary. Underwater survey.

Site No.:	AAP 20
Townland:	Myaugh/ Tinnacross
Parish:	Kilcormick/ Clone
Barony:	Scarawalsh
County:	Wexford
National Grid:	302959, 145637
OS Map No.:	20
Chainage:	14,230
Field No.:	99/101
Dist. to Route:	0m
Classification:	Townland boundary and stream
Legal Status:	None
Description:	This feature consists of a townland boundary, which also forms a field boundary between fields 99 and 101. The boundary is characterised by a small stream with a slow flow stream c. 1m below the surrounding ground level. The stream width varies and travels over a stone bed. On the southern side of the stream is a bank c. 0.4-0.6m above the surrounding ground level, which is planted with a thick, mature hedge row. The townland boundary is marked on all three OS map editions and is located within a good quality pasture landscape.
Adjacent Sites:	SAP 6, BH 19
Photo/Figure Ref.:	Figure 15.1 Plate 15.17
Potential Impact:	Significant negative
Mitigation:	This townland boundary will be archaeologically investigated in order to help determine its archaeological significance, age and extent. A number of site investigation methods will be considered, including topographical survey, metal detector survey and/or archaeological test trenching. Due to the presence of a watercourse, it is also proposed to carry out an archaeological wade/dive survey on the section of stream to be impacted upon. All archaeological work will be carried out by a licenced archaeologist under the terms of the National Monuments (Amendments) Act 1930-2004, as required. Full provision will be made for the resolution of any archaeological deposits or features that may be discovered during investigations.

Site No.:	AAP 21
Townland:	Tinnacross/ Tomsallagh/ Oulartard
Parish:	Clone
Barony:	Scarawalsh
County:	Wexford
National Grid:	302609, 145400 to 301991, 144631
OS Map No.:	20
Chainage:	14,650 – 15,650
Field No.:	104-112
Dist. to Route:	0m
Classification:	Two townland boundaries and two streams
Legal Status:	None
Description:	<p>This area of potential is formed by a relatively large section of the landscape (1km in length). This is due to the fact that the proposed route crosses two townland boundaries, which are formed by one stream, which is crossed twice at ch. 14,700 and 15,550. In between the two crossings the route travels adjacent to the stream and therefore is located within a riverine environment. The stream itself is quite large in size and is a continuation of that stream that forms the boundary around the western side of Mountgeorge (AAP 14) and travels through AAP 19. The stream meanders through the landscape, with a moderate flow. The bed of the stream is formed by stones and gravel of various sizes and in places the depth is as much as 1m. The width of the stream varies and is in places quite narrow. As it travels through AAP 21, the stream is surrounded by very thick vegetation, which made accessing it difficult.</p> <p>After the first crossing the route travels adjacent to the stream on the NW side. Here the landscape is formed by a pasture landscape, which slopes in places gently SE to the stream. After the first crossing, the route passes through field 106, which contained a number of irregular and low undulations. A definite archaeological designation could not be given to these features due to their irregularity and it is likely that they are the result of modern agricultural interference or flooding action from the stream.</p> <p>After the second stream crossing, the route passes into an arable landscape. The second stream crossing is also the location of where a mill race is marked on the second edition OS map as leaving the stream and travelling in a SW direction towards a corn mill (SAP 7). There is no visible trace of this mill race where it leaves the stream.</p>
Adjacent Sites:	SAP 6, SAP 7, AAP 22
Photo/Figure Ref.:	Figure 15.1 Plate 15.18 and 19
Impact Type:	Direct
Potential Impact:	Significant negative
Mitigation:	Archaeological investigations in the form of testing. Written and photographic record of townland boundary. Underwater survey.

Site No.:	AAP 22
Townland:	Tomsallagh/ Oulartard/ Crane
Parish:	Clone
Barony:	Scarawalsh
County:	Wexford
National Grid:	301871, 144454 to 301265, 143708
OS Map No.:	20
Chainage:	15860 - 16840
Field No.:	113-118
Dist. to Route:	0m
Classification:	Two townland boundaries and one stream
Legal Status:	None
Description:	<p>This area of potential is formed by a relatively large section of the landscape (950m in length). This is due to the fact that the proposed route crosses two townland boundaries, the first of which is formed by a stream, which is crossed at ch. 16,150. After this crossing the route travels adjacent to the stream and therefore is located within a riverine environment. The stream itself is quite large in size consists of the same water way described in AAP 21 and AAP 19. The stream meanders through the landscape, with a moderate flow. The bed of the stream is formed by stones and gravel of various sizes and in places the depth is as much as 1m. The width of the stream varies and is in places quite narrow. As it travels through AAP 22, the stream is partially surrounded by thick vegetation, with other areas more accessible.</p> <p>After the first crossing the route travels adjacent to the stream on the NW side. Here the landscape is formed by an arable landscape, which slopes in places gently SE to the stream.</p> <p>The second townland boundary crossing is not represented by the stream, but by a large ditch and bank that runs perpendicular to the stream and is crossed at ch. 16,675. The ditch and bank also form part of field boundary. At the time of the inspection, the ditch had recently been cleared of vegetation with the use of a mechanical excavator. It is located on the northern side of the bank, which is planted with mature trees and bushes. The ditch had an approximate depth of 2m and a width of 5m. The bank on the southern side of the ditch rose above the base of the ditch by c. 3m.</p>
Adjacent Sites:	AAP 21, SAP 8, AH 9, BH 21
Photo/Figure Ref.:	Figure 14.1 Plate 15.20 and 21
Impact Type:	Direct
Potential Impact:	Significant negative
Mitigation:	Archaeological investigations in the form of testing. Written and photographic record of townland boundary. Underwater survey.

Site No.:	AAP 27
Townland:	Toome/ Ballydawmore/Ballynabarny
Parish:	Clone
Barony:	Scarawalsh
County:	Wexford
National Grid:	300900, 142323 to 301046, 141957
OS Map No.:	20
Chainage:	18,300 – 18,700
Field No.:	133-136
Dist. to Route:	0m
Classification:	Two Townland boundaries and two streams
Legal Status:	None
Description:	<p>This area consists of good quality pasture, which will be occupied by the proposed Ballydawmore Interchange. As a result, two streams, which also form townland boundaries, will be crossed. The first is crossed at ch. 18,375. This stream is relatively small but fast flowing and is flanked by a bank that varies in height from 1-2m. Both sides of the stream, including the bank, are characterised by mature trees and vegetation. The surrounding landscape consists of gently rolling pasture fields of good quality.</p> <p>The second stream to be crossing will be in an E-W direction and result from the construction of the western roundabout at the junction. This stream is slightly larger in size, but again is very overgrown on both sides by mature vegetation and was difficult to access at the time of the field inspection. This stream is also accompanied by a flanking bank, c. 1-2m height in places.</p>
Adjacent Sites:	AH 11, AAP 26
Photo/Figure Ref.:	Figure 15.1
Impact Type:	Direct
Potential Impact:	Significant negative
Mitigation:	Archaeological investigations in the form of testing. Written and photographic record of townland boundary. Underwater survey.

Site No.:	AAP 28
Townland:	Ballydawmore/ Ballydawmore
Parish:	Clone/ Templeshannon
Barony:	Scarawalsh
County:	Wexford
National Grid:	301276, 141533
OS Map No.:	20
Chainage:	19,180
Field No.:	138/139
Dist. to Route:	0m
Classification:	Townland boundary
Legal Status:	None
Description:	This boundary, which is also a parish boundary between Clone and Templeshannon, is formed by a small track way. Originally this track would have provided access to a small farmstead (SAP 15), the site of which is located to the immediate W of the proposed route at ch. 19,180. The track is flanked by banks topped with thick hedgerows and has sunk slightly into the landscape, possibly indicating use over a prolonged period of time. The track surface is not metalled, although the centre is overgrown with grass. This track way is marked on all three OS map editions.
Adjacent Sites:	SAP 15, AAP 29
Photo/Figure Ref.:	Figure 15.1 Plate 15.22
Impact Type:	Direct
Potential Impact:	Significant negative
Mitigation:	Archaeological investigations in the form of testing. Written and photographic record of townland boundary. Underwater survey.

Site No.:	AAP 29
Townland:	Ballydawmore/ Corbally
Parish:	Templeshannon
Barony:	Scarawalsh
County:	Wexford
National Grid:	301347, 141181
OS Map No.:	20
Chainage:	19,550
Field No.:	141/142
Dist. to Route:	0m
Classification:	Townland boundary and stream
Legal Status:	None
Description:	This townland boundary is formed by a stream, which has a width of c. 2m and runs over a stone and gravel bed. The stream is flanked by mature trees and overgrown vegetation. The stream was found to be relatively shallow for the most part and possessed a moderate flow.
Adjacent Sites:	AAP 28, SAP 15
Photo/Figure Ref.:	Figure 15.1
Impact Type:	Direct
Potential Impact:	Significant negative
Mitigation:	Archaeological investigations in the form of testing. Written and photographic record of townland boundary. Underwater survey.

Site No.:	AAP 30
Townland:	Corbally/ Tomnafunshoge
Parish:	Templeshannon
Barony:	Scarawalsh
County:	Wexford
National Grid:	300929, 140475
OS Map No.:	20
Chainage:	20,400
Field No.:	144/145
Dist. to Route:	0m
Classification:	Townland boundary and stream
Legal Status:	None
Description:	The boundary is formed by a large stream, which flows to the NW to eventually discharges into the River Slaney. The stream is substantial in size with a width of c. 6m at this location. It possesses a strong flow of water, which appears to have a depth of at least 1m in places. The banks of the stream are covered in vegetation and mature trees. However, the density of the vegetation varies and as such the stream is relatively accessible when compared to others in the surrounding area. The bed of the stream is formed by stone and gravel, with the river banks having a height that varies between 0.8m and 1.2m.
Adjacent Sites:	AH 23, BH 30
Photo/Figure Ref.:	Figure 15.1
Potential Impact:	Significant negative Plate 15.23
Mitigation:	Archaeological investigations in the form of testing. Written and photographic record of townland boundary. Underwater survey.

Site No.:	AAP 31
Townland:	Tomnafunshoge/ Drumgold
Parish:	Templeshannon/ Ballaghkeen
Barony:	Scarawalsh
County:	Wexford
National Grid:	300091, 139531 to 300027, 139419
OS Map No.:	20
Chainage:	21,660 – 21,800
Field No.:	148-150
Dist. to Route:	0m
Classification:	Townland boundary and two streams
Legal Status:	None
Description:	<p>This area consists of one townland boundary, which is formed by a stream and a second slightly smaller water course located to the S. The first stream/townland boundary is crossed at ch. 21.685. This consists of a narrow stream within a cutting c. 1-1.5m in depth. The stream has a moderate flow and is flanked on the northern side by a substantial bank, which is planted with mature trees. This is also a barony boundary. The surrounding landscape consists of undulating rough pasture to the N and well grazed fields to the S. This boundary is marked on all three OS map editions.</p> <p>The second stream is crossed at ch. 21,750. This is a smaller stream, which may be partially fed by the above townland boundary water course. The stream has a slow flow and is surrounded on both sides by mature vegetation.</p>
Adjacent Sites:	AH 12
Photo/Figure Ref.:	Figure 15.1 Plate 15.24
Impact Type:	Direct
Potential Impact:	Significant negative
Mitigation:	Archaeological investigations in the form of testing. Written and photographic record of townland boundary. Underwater survey.

Site No.:	AAP 32
Townland:	Drumgold/ Cooladine
Parish:	Templeshannon/ Ballyhuskard
Barony:	Ballaghkeen
County:	Wexford
National Grid:	300049, 138538 to 300159, 138279
OS Map No.:	26
Chainage:	22,710 – 23,000
Field No.:	158/159
Dist. to Route:	0m
Classification:	Townland boundary and stream
Legal Status:	None
Description:	This townland boundary is formed by a stream, which possesses a fast flow over a stone and gravel bed. The stream is located at a depth of c. 0.8m from the surrounding ground level, with a small bank flanking it on the northern side. This bank is planted with mature trees and scrub, which made accessing it difficult. After crossing the boundary at ch. 22,750 the proposed route runs adjacent to a further stream (aligned N-S), which forms the boundary to the former demesne associated with Ballycourcy House (BH 32). As such the proposed route will run through a riverine environment for c. 200m.
Adjacent Sites:	SAP 18, BH 32
Photo/Figure Ref.:	Figure 15.1 Plate 15.25
Impact Type:	Direct
Potential Impact:	Significant negative
Mitigation:	Archaeological investigations in the form of testing. Written and photographic record of townland boundary. Underwater survey.

Site No.:	AAP 33
Townland:	Cooladine/ Ballycourcymore
Parish:	Ballyhuskard
Barony:	Ballaghkeen
County:	Wexford
National Grid:	300239, 138075 to 300290, 137161
OS Map No.:	26
Chainage:	23,210 – 24,130
Field No.:	160-165
Dist. to Route:	0m
Classification:	Townland boundary and two streams
Legal Status:	None
Description:	<p>This area of potential covers a large part of the proposed route, as the area measures approximately 900m in length. This is due to the fact that the route crosses two streams, one of which is a townland boundary, and then travels S adjacent to the townland boundary. As such the route will be passing through a riverine environment. The first stream is crossed at ch. 23,280. This consists of a roughly NE-SW flowing stream within relatively low lying ground. The surrounding landscape is under a mixture of pasture and arable. The stream itself is fast flowing and flanked by mature trees and overgrowth. The stream had a width of c.1m and is relatively shallow. It is located within a larger cutting, which has a width of c. 6m. The banks of this ditch slope steeply to the watercourse, with a bank on the western side c. 3m in height from the level of the stream. Mature trees and overgrowth cover the flanking bank.</p> <p>The second stream, which also forms the townland boundary between Cooladine and Ballycourcymore, is crossed at ch. 23,350. The stream travels in a N-S direction and the proposed route will flank the stream on the western side for approximately 800m. Here the landscape is relatively low lying and is characterised by mixed arable and pasture fields. The stream consists of a fast flowing water course, which the route passes adjacent to in AAP 32, where it forms the boundary to the demesne landscape associated with Ballycourcy House. The stream has a width that varies between 2 and 5m and is flanked by mature vegetation, including trees and gorse. Both of the streams are marked on all three OS map editions.</p>
Adjacent Sites:	AH 13, AH 14, SAP 19
Photo/Figure Ref.:	Figure 15.1 Plate 15.26
Impact Type:	Direct
Potential Impact:	Significant negative
Mitigation:	Archaeological investigations in the form of testing. Written and photographic record of townland boundary. Underwater survey.

Site No.:	AAP 34
Townland:	Knockrathkyle/ Ballybanoge/ Monroe
Parish:	Ballyhuskard/ Edermine
Barony:	Ballaghkeen
County:	Wexford
National Grid:	300033, 136359 to 299890, 136049
OS Map No.:	26
Chainage:	24,980 – 25,330
Field No.:	169-171
Dist. to Route:	0m
Classification:	Two townland boundaries and one stream
Legal Status:	None
Description:	<p>This area of potential consists of two townland boundaries, one of which is formed by a stream and the other by a small road way. The road is crossed at ch. 25,035. It consists of a small tertiary road, c. 4-5m wide with a tarmac surface. It runs in a NW-SE direction from the cross roads at Darby's Gap (CH 6). It is for the most part flanked by mature hedge rows.</p> <p>The stream, which also forms a field boundary, is crossed at ch. 25,200. At the time of the inspection, only a very small flow was noted within the stream bed, which is located within a ditch, adjacent to a bank. Both sides of the stream are overgrown with mature vegetation. It is possible that the original path of the stream was incorporated into the field system before the publication of the first edition OS map in 1845, as this feature is very linear and does not possess as obvious natural form.</p>
Adjacent Sites:	CH 6, SAP 20, AAP 35
Photo/Figure Ref.:	Figure 15.1 Plate 15.27
Impact Type:	Direct
Potential Impact:	Significant negative
Mitigation:	Archaeological investigations in the form of testing. Written and photographic record of townland boundary. Underwater survey.

Site No.:	AAP 35
Townland:	Monroe
Parish:	Edermine
Barony:	Ballaghkeen
County:	Wexford
National Grid:	299867, 135979 to 299652, 135351
OS Map No.:	26
Chainage:	25,400 – 26,050
Field No.:	172-176
Dist. to Route:	0m
Classification:	Drained wetland
Legal Status:	None
Description:	This area of potential is relatively large in size, measuring c. 650m in length. The area consists of what appears to be relatively level, drained wetland, as the area is still water logged in places. The townland name is Monroe, which can be translated as Red Bog, which provides more evidence that this area is likely to have been drained during the post medieval period. Although no specific sites of archaeological potential were noted within this area, there is the potential for archaeological remains associated with a boggy environment, which were often utilised as a food and materials resource during the prehistoric periods.
Adjacent Sites:	AAP 34, AAP 36
Photo/Figure Ref.:	Figure 15.1 Plate 15.28
Impact Type:	Direct
Potential Impact:	Significant negative
Mitigation:	Archaeological investigations in the form of testing.

Site No.:	AAP 36
Townland:	Monroe/ Craanroe/ Glentiege
Parish:	Edermine
Barony:	Ballaghkeen
County:	Wexford
National Grid:	299648, 135334 to 299590, 135075
OS Map No.:	26
Chainage:	26,070 – 26,350
Field No.:	176-179
Dist. to Route:	0m
Classification:	Three townland boundaries
Legal Status:	None
Description:	<p>Within this area of potential the proposed route will cross three separate townland boundaries within a distance of under 200m. The first crossing is the NW-SE aligned part of the boundary between Monroe and Craanroe. This is crossed at ch. 26,100. The boundary is formed by a bank, which has a width of c. 3m and is planted with hedgerow that includes willow and gorse. This boundary is not as substantial as others that have been encountered and as such may only be post medieval in date.</p> <p>The second boundary crossing is at ch. 26,200 and forms the NE-SW aligned section of the boundary between Monroe and Craanroe. This section is formed by a 2m wide bank, flanked by a 3m wide drainage ditch, which at the time of the inspection was filled with still water. The bank was covered with low vegetation such as gorse and other shrubs, and again may be a similar post medieval date at the first townland boundary to be crossed.</p> <p>The third boundary crossing is at ch. 26,260. This boundary separates Monroe and Glenteige and is very similar in form to those described above.</p>
Adjacent Sites:	AAP 35, AAP 37
Photo/Figure Ref.:	Figure 15.1 Plate 15.29
Impact Type:	Direct
Potential Impact:	Significant negative
Mitigation:	Archaeological investigations in the form of testing. Written and photographic record of townland boundary. Underwater survey.

Site No.:	AAP 37
Townland:	Glentiege/ Riverview
Parish:	Edermine
Barony:	Ballaghkeen
County:	Wexford
National Grid:	299558, 134901 to 299524, 134729
OS Map No.:	26
Chainage:	26, 550 – 26, 700
Field No.:	179-181
Dist. to Route:	0m
Classification:	Townland boundary and stream
Legal Status:	None
Description:	Although this stream is only relatively small, it has formed a small valley through the landscape. The ground slopes down to the stream from the N and S, and it is flanked on the N side by a small tertiary road, which is only marked on the second and third OS map editions. The stream itself is c. 1m wide but fast flowing and surrounding by lush vegetation and some mature trees. The base of the stream consists of small stones.
Adjacent Sites:	AAP 36, AAP 38
Photo/Figure Ref.:	Figure 15.1 Plate 15.30
Impact Type:	Direct
Potential Impact:	Significant negative
Mitigation:	Archaeological investigations in the form of testing. Written and photographic record of townland boundary. Underwater survey.

Site No.:	AAP 38
Townland:	Riverview
Parish:	Edermine
Barony:	Ballaghkeen
County:	Wexford
National Grid:	299491, 134568
OS Map No.:	26
Chainage:	26,850
Field No.:	181-183
Dist. to Route:	0m
Classification:	Stream
Legal Status:	None
Description:	A small stream running in a NE-SW direction to join with the stream that characterises AAP 37. At the time of the inspection the stream possessed a moderate flow. The course is flanked by a bank planted by mature vegetation. It is possible that this feature may represent a field drainage feature rather than a natural watercourse. If this is the case then a more recent post medieval date is likely.
Adjacent Sites:	AAP 37, SAP 21
Photo/Figure Ref.:	Figure 15.1
Impact Type:	Direct
Potential Impact:	Significant negative
Mitigation:	Underwater survey.

Site No.:	AAP 39
Townland:	Riverview/Roperstown
Parish:	Edermine
Barony:	Ballaghkeen
County:	Wexford
National Grid:	299441, 134279
OS Map No.:	26
Chainage:	27,150
Field No.:	183/184
Dist. to Route:	0m
Classification:	Townland boundary and stream
Legal Status:	None
Description:	This boundary is formed by a stream, which is fast flowing and has a width of c. 2-4m and a bed of small stones. Both banks of the stream are covered with mature trees and under growth, which makes access to the water difficult. The fields on either side of the boundary are planted with arable crops.
Adjacent Sites:	AAP 38, SAP 21, AAP 40
Photo/Figure Ref.:	Figure 15.1
Impact Type:	Direct
Potential Impact:	Significant negative
Mitigation:	Archaeological investigations in the form of testing. Written and photographic record of townland boundary. Underwater survey.

Site No.:	AAP 40
Townland:	Roperstown/ Garrynisk/ Scurlocksbush
Parish:	Edermine
Barony:	Ballaghkeen
County:	Wexford
National Grid:	299397, 134261 to 299167, 133441
OS Map No.:	26
Chainage:	27, 185 – 28,000
Field No.:	184-190
Dist. to Route:	0m
Classification:	Townland boundary
Legal Status:	None
Description:	This is a large area of potential measuring 800m in length. This is due to the fact that the proposed route travels directly parallel to a N-S aligned townland boundary, which separates the townlands of Roperstown, Garrynisk and Scurlocksbush. Between ch. 27,400 and 27,700 the route impacts directly on the boundary. The boundary varies slightly along its length but mostly consists of a bank c. 1.5m high in places, with a ditch that runs on either the E or W side. The ditch has a width of 3-4m and at the time of inspection contained still water.
Adjacent Sites:	AAP 39, SAP 21, SAP 22, SAP 23, CH 4, CH 5
Photo/Figure Ref.:	Figure 15.1 Plate 15.31
Potential Impact:	Significant negative
Mitigation:	Archaeological investigations in the form of testing. Written and photographic record of townland boundary.

N80 Link Road

Site No.:	AAP 23
Townland:	Ballynahallin
Parish:	St. Mary's Enniscorthy
Barony:	Scarawalsh
County:	Wexford
National Grid:	298508, 144181 to 298409, 144535
OS Map No.:	20
Chainage:	0-950
Field No.:	191/192
Dist. to Route:	0m
Classification:	Riverine environment
Legal Status:	None
Description:	This area of potential has been designated as such due to the close proximity of the River Slaney, which travels in the NW-SE direction to the NE of this area. The area consists of good quality, relatively level pasture. This ground is slightly raised above the river and represents an excellent prehistoric settlement location. The proximity of the Scarawalsh Bronze Age cemetery over 1km to the NE has also been considered along with the amount of recorded ring ditches within the vicinity. This area may reference the River Slaney as a prehistoric burial area. No specific sites of archaeological potential were noted within the area, but it is possible that archaeological remains survive within this area that have no surface expression.
Adjacent Sites:	SAP 9, CH 3
Photo/Figure Ref.:	Figure 15.1
Impact Type:	Direct
Potential Impact:	Significant negative
Mitigation:	Geophysical survey. Archaeological investigations in the form of testing.

Site No.:	AAP 24
Townland:	Ballynahallin/ Kilcannon
Parish:	St. Marys Enniscorthy
Barony:	Scarawalsh
County:	Wexford
National Grid:	298970, 142928
OS Map No.:	20
Chainage:	1,700
Field No.:	200-202
Dist. to Route:	0m
Classification:	Townland boundary and stream
Legal Status:	None
Description:	The boundary is formed by a small stream with a width of 0.5m. The stream possesses a moderate flow, but is relatively shallow and is flanked by a bank on the northern side, which is characterised by mature trees and shrubs. The stream discharges into the River Slaney to the E of where the proposed route will cross the boundary.
Adjacent Sites:	SAP 12
Photo/Figure Ref.:	Figure 15.1
Impact Type:	Direct
Potential Impact:	Significant negative
Mitigation:	Archaeological investigations in the form of testing. Written and photographic record of townland boundary. Underwater survey.

Site No.:	AAP 25
Townland:	Kilcannon/ Ballynabarny
Parish:	St. Mary's Enniscorthy/ Templeshannon
Barony:	Scarawalsh
County:	Wexford
National Grid:	299620, 142024 to 299506, 142091
OS Map No.:	20
Chainage:	2,700 to 2,830
Field No.:	207/208
Dist. to Route:	0m
Classification:	River Slaney
Legal Status:	None
Description:	The River Slaney consists of a major watercourse, which flows in a roughly N-S direction through the receiving environment of the N11 Mainline and N80 Link. At the proposed crossing point the river possesses a width of c. 25m. The river is deep with a strong current but has relatively low banks, which possess a covering of vegetation in places, but remain bare in others. The railway line that travels from Rosslare to Dublin (still in use) is located on the eastern bank of the river where the proposed route will cross. The construction of this feature would have resulted in the removal of any archaeological remains that may have existing on the eastern river bank. The bridge construction across the river will be a single span structure and as such will not impact directly on the river itself
Adjacent Sites:	BH 27
Photo/Figure Ref.:	Figure 15.1 Plate 15.32
Impact Type:	Indirect
Potential Impact:	Slight negative
Mitigation:	Archaeological investigations in the form of testing either side of the River Slaney.

Site No.:	AAP 26
Townland:	Ballynabarny/ Toom
Parish:	Templeshannon/ Clone
Barony:	Scarawalsh
County:	Wexford
National Grid:	300761, 142072 to 300372, 142103
OS Map No.:	20
Chainage:	3,620 to 4,010
Field No.:	215/216/136
Dist. to Route:	0m
Classification:	Townland boundary and stream
Legal Status:	None
Description:	This area of potential contains a townland boundary, which is formed by a stream. The proposed route travels adjacent to this stream and as such passes through a riverine environment for c. 400m. The stream will be impacted on by the land take of the proposed route at ch. 3,800. Here the stream consists of a fast flowing water course, which meanders through the landscape in an E-W direction, before discharging into the River Slaney. The stream is relatively deep in places with a width that varies from 1.5-3m. It is flanked by mature vegetation, which includes small trees and shrubs. This made access to the stream difficult to achieve. This stream is also crossed by the N11 Mainline within AAP 27 to the immediate E of AAP 26.
Adjacent Sites:	AAP 27, SAP 14
Photo/Figure Ref.:	Figure 15.1
Impact Type:	Direct
Potential Impact:	Significant negative
Mitigation:	Archaeological investigations in the form of testing. Written and photographic record of townland boundary. Underwater survey.

N30 Mainline

Site No.:	AAP 23
Townland:	Clavass
Parish:	St. Mary's Enniscorthy
Barony:	Scarawalsh
County:	Wexford
National Grid:	298508, 144181
OS Map No.:	20
Chainage:	0-600
Field No.:	216-219
Dist. to Route:	0m
Classification:	Riverine environment
Legal Status:	None
Description:	This area of potential has been designated as such due to the close proximity of the River Slaney, which travels in the NW-SE direction to the NE of this area. The area consists of good quality, undulating pasture and arable. The proximity of the Scarawalsh Bronze Age cemetery over 1km to the NE has also been considered along with the amount of recorded ring ditches within the vicinity. This area may reference the River Slaney as a prehistoric burial area. No specific sites of archaeological potential were noted within the area, but it is possible that archaeological remains survive within this area that have no surface expression.
Adjacent Sites:	BH 34
Photo/Figure Ref.:	Figure 15.1
Impact Type:	Direct
Potential Impact:	Significant negative
Mitigation:	Geophysical survey. Archaeological investigations in the form of testing.

Site No.:	AAP 41
Townland:	Clavass/ Coolnahorna
Parish:	St. Mary's Enniscorthy/ Monart
Barony:	Scarawalsh
County:	Wexford
National Grid:	297869, 144039
OS Map No.:	20
Chainage:	520
Field No.:	220/221
Dist. to Route:	0m
Classification:	Townland boundary and stream
Legal Status:	None
Description:	This area of potential consists of a townland boundary and parish boundary, which is formed by a stream that flows in a northerly direction as a tributary to the River Slaney. The stream possesses a moderate flow and has a width of c. 3m. The bed of the stream consists of stones and gravel and the depth varies, but generally it is relatively shallow. On the eastern side of the stream is a bank c. 2m in height from the base of the stream. This is covered in dense vegetation and mature trees. A smaller bank is present on the western side of the stream, which possesses less vegetation.
Adjacent Sites:	AH 16, AH 17
Photo/Figure Ref.:	Figure 15.1 Plate 15.34
Impact Type:	Direct
Potential Impact:	Significant negative
Mitigation:	Archaeological investigations in the form of testing. Written and photographic record of townland boundary. Underwater survey.

Site No.:	AAP 42
Townland:	Coolnahorna/ Ballyorrlil
Parish:	Monart
Barony:	Scarawalsh
County:	Wexford
National Grid:	297209, 143479
OS Map No.:	19/ 20
Chainage:	1,400
Field No.:	227/228
Dist. to Route:	0m
Classification:	Townland boundary
Legal Status:	None
Description:	This boundary is formed by a tertiary road, which is still in use. The surface is tarmaced with the road having a width of c. 8m. It is flanked on both sides by mature hedgerows. The road is marked on all three OS map editions.
Adjacent Sites:	SAP 24
Photo/Figure Ref.:	Figure 15.1 Plate 15.35
Impact Type:	Direct
Potential Impact:	Significant negative
Mitigation:	Archaeological investigations in the form of testing. Written and photographic record of townland boundary.

Site No.:	AAP 43
Townland:	Ballyorril
Parish:	Monart
Barony:	Scarawalsh
County:	Wexford
National Grid:	296962, 143278 to 296792, 143132
OS Map No.:	19/20
Chainage:	1,700 – 1,640
Field No.:	230
Dist. to Route:	0m
Classification:	Riverine environment and townland boundary
Legal Status:	None
Description:	This area of potential is formed by a pasture field that the proposed route travels through in a NE-SW direction. It travels immediately adjacent to a townland boundary, which is formed by a stream and bank. As a result the route is located within a riverine environment. The pasture is relatively level and was slightly water logged in places. The stream may have been subject to some straightening during the post medieval period, although it is present on all three OS map editions. The stream is also located further to the SW within AAP 44, where the route will cross it twice.
Adjacent Sites:	SAP 25
Photo/Figure Ref.:	Figure 15.1 Plate 15.36
Impact Type:	Direct
Potential Impact:	Significant negative
Mitigation:	Archaeological investigations in the form of testing. Written and photographic record of townland boundary.

Site No.:	AAP 44
Townland:	Ballyorril/ Moyne Middle
Parish:	Monart/ St. Mary's Enniscorthy
Barony:	Scarawalsh
County:	Wexford
National Grid:	296697, 143053 to 296294, 142709
OS Map No.:	19/ 20
Chainage:	2,050 – 2,600
Field No.:	231-234
Dist. to Route:	0m
Classification:	Two townland boundaries and two streams
Legal Status:	None
Description:	This area of potential is relatively large, measuring 550m in length. This is due to the fact that the proposed route crosses a stream, which also forms a townland boundary, twice. In between the crossings it runs directly adjacent to the stream. The first crossing is at ch. 2,200, whilst the second takes place at ch. 2,500. The stream is the same as the one within AAP 43. It possesses a moderate flow over a bed formed by stones of various sizes. The stream is relatively shallow, but this again varies along its length. The width of the stream is 3-4m. The banks are largely overgrown with dense vegetation including mature trees. The stream is only properly accessible where livestock access it for water.
Adjacent Sites:	SAP 25-29
Photo/Figure Ref.:	Figure 15.1 Plate 15.37
Impact Type;	Direct
Potential Impact:	Significant negative
Mitigation:	Archaeological investigations in the form of testing. Written and photographic record of townland boundary. Underwater survey.

Site No.:	AAP 45
Townland:	Ballyorril/ Killalligan North
Parish:	Monart
Barony:	Scarawalsh
County:	Wexford
National Grid:	295714, 142462 to 295603, 142441
OS Map No.:	19
Chainage:	3,220 – 3,340
Field No.:	238/239
Dist. to Route:	0m
Classification:	Townland boundary and stream
Legal Status:	None
Description:	This feature consists of a townland boundary, which is formed by a stream. The stream possesses a fast flow of water and appears to be deep in places. It has a width of 3m and is flanked on both sides by banks that are covered in mature vegetation including trees. The landscape either side of the stream at the crossing location is under arable crop production, with the landscape sloping gently down to the stream from the NE and SW.
Adjacent Sites:	BH 41
Photo/Figure Ref.:	Figure 15.1 Plate 15.38
Impact Type:	Direct
Potential Impact:	Significant negative
Mitigation:	Archaeological investigations in the form of testing. Written and photographic record of townland boundary. Underwater survey.

Site No.:	AAP 46
Townland:	Killalligan North/ Askunshin
Parish:	Monart
Barony:	Scarawalsh
County:	Wexford
National Grid:	295041, 142424 to 295119, 142116
OS Map No.:	19
Chainage:	3,890
Field No.:	242-244
Dist. to Route:	0m
Classification:	Townland boundary
Legal Status:	None
Description:	This boundary is formed by a tertiary road, which is still in use. The surface is tarmaced with the road having a width of c. 8m. It is flanked on both sides by mature hedgerows planted with a mixture of tree species. The road is marked on all three OS map editions.
Adjacent Sites:	BH 40
Photo/Figure Ref.:	Figure 15.1 Plate 15.39
Impact Type:	Direct
Potential Impact:	Significant negative
Mitigation:	Archaeological investigations in the form of testing. Written and photographic record of townland boundary.

Site No.:	AAP 47
Townland:	Askunshin/ Milehouse
Parish:	Monart
Barony:	Scarawalsh
County:	Wexford
National Grid:	294573, 141898 to 294307, 141759
OS Map No.:	19
Chainage:	4,550 – 4,800
Field No.:	250/251
Dist. to Route:	0m
Classification:	Townland boundary
Legal Status:	None
Description:	This area consists of a townland boundary that is located partially along the existing R702 at ch.4,800, and then turns in an NE direction where it is formed by a field boundary. The boundary consists of a linear hedge row, which is mature in its form, consisting of mostly gorse and hawthorn. However, the lack of trees and variety of species suggests that this particular boundary may not possess great age.
Adjacent Sites:	SAP 31, AAP 48
Photo/Figure Ref.:	Figure 15.1
Impact Type:	Direct
Potential Impact:	Significant negative
Mitigation:	Archaeological investigations in the form of testing. Written and photographic record of townland boundary.

Site No.:	AAP 48
Townland:	Milehouse
Parish:	Monart
Barony:	Scarawalsh
County:	Wexford
National Grid:	294354, 141735 to 294238, 141618
OS Map No.:	19
Chainage:	4,800 – 4,950
Field No.:	254
Dist. to Route:	0m
Classification:	Elevated ground
Legal Status:	None
Description:	This Area consists of an a pasture field that is elevated above a small river located to the SW. The higher ground overlooks the river and would be a good location for prehistoric settlement activity.
Adjacent Sites:	AAP 49, SAP 32
Photo/Figure Ref.:	Figure 15.1 Plate 15.40
Impact Type:	Direct
Potential Impact:	Significant negative
Mitigation:	Archaeological investigations in the form of testing.

Site No.:	AAP 49
Townland:	Milehouse/ Monart East
Parish:	Monart
Barony:	Scarawalsh
County:	Wexford
National Grid:	294184, 141565 to 294093, 141475
OS Map No.:	19
Chainage:	5,050 – 5,180
Field No.:	258/260
Dist. to Route:	0m
Classification:	Townland boundary and stream
Legal Status:	None
Description:	The area of potential consists of a townland boundary, which is formed by a N-S flowing stream that is a tributary of the River Urrin. The stream possesses a fast flow over a bed of various sized stones. It varies in width from 3-6m and is flanked on both sides by a belt of mature trees and vegetation. The land to the immediate E of the stream is level and water logged. The site of a mill race (now back filled) runs adjacent to the stream in a N-S direction on the eastern side (SAP 32).
Adjacent Sites:	AAP 48, SAP 32-34
Photo/Figure Ref.:	Figure 15.1 Plate 15.41
Impact Type:	Direct
Potential Impact:	Significant negative
Mitigation:	Archaeological investigations in the form of testing. Written and photographic record of townland boundary. Underwater survey.

Site No.:	AAP 50
Townland:	Monart East/ Bessmount
Parish:	Monart
Barony:	Scarawalsh
County:	Wexford
National Grid:	294120, 141475 to 293543, 140980
OS Map No.:	19
Chainage:	5,170 – 5,900
Field No.:	260-264
Dist. to Route:	0m
Classification:	Townland boundary
Legal Status:	None
Description:	This area of potential consists of a relatively large area measuring 700m in length. Here the proposed route will truncate a portion of townland boundary that separates Monart East and Bessmount. The townland boundary is formed by a large bank, c. 2m high, which is topped with mature trees. This boundary also forms the NW side of the former demesne lands associated with Monart House, which is located to the E of the route, outside of the receiving environment. However, this particular area has lost most of its demesne characteristics.
Adjacent Sites:	SAP 33, SAP 34
Photo/Figure Ref.:	Figure 15.1 Plate 15.42
Impact Type:	Direct
Potential Impact:	Significant negative
Mitigation:	Archaeological investigations in the form of testing. Written and photographic record of townland boundary.

Site No.:	AAP 51
Townland:	Bessmount/ Templescoby
Parish:	Monart/ Templescoby
Barony:	Scarawalsh/ Bantry
County:	Wexford
National Grid:	293301, 140550 to 293511, 140282
OS Map No.:	19
Chainage:	6300 - 6600
Field No.:	267-270/272
Dist. to Route:	0m
Classification:	River Urrin
Legal Status:	None
Description:	This is a substantial river, with a width that varies from 4m to 7m. The depth appears to vary and it is likely deep in places. The river possesses a moderate flow and is bordered by dense vegetation, including mature trees. The landscape slopes down to the river from the N, as it has created a small river valley. A mill race is located c. 100m to the N of the river at the point where the proposed route will cross. The pasture on both sides of the river possesses potential to contain archaeological remains relating to possible prehistoric settlements, which may have focused on the river as a natural resource. The proposed route will cross this river via means of a single span bridge structure and as such the river itself will not be directly impacted on by the proposed route.
Adjacent Sites:	SAP 35, SAP 36
Photo/Figure Ref.:	Figure 15.1 Plate 15.43
Impact Type:	Indirect
Potential Impact:	Slight negative
Mitigation:	Archaeological investigations in the form of testing either side of the River Urrin.

Site No.:	AAP 53
Townland:	Templescoby/ Dunsiane
Parish:	Templescoby
Barony:	Bantry
County:	Wexford
National Grid:	293611, 139900 to 293355, 139720
OS Map No.:	19
Chainage:	7,000
Field No.:	276/277
Dist. to Route:	0m
Classification:	Townland boundary
Legal Status:	None
Description:	This boundary is formed by a tertiary road, which is still in use. The surface is tarmaced with the road having a width of c. 5m. It is flanked on both sides by mature hedgerows and some mature trees. The road is marked on all three OS map editions.
Adjacent Sites:	SAP 37
Photo/Figure Ref.:	Figure 15.1 Plate 15.44
Impact Type:	Direct
Potential Impact:	Significant negative
Mitigation:	Archaeological investigations in the form of testing. Written and photographic record of townland boundary.

Site No.:	AAP 54
Townland:	Dunsiane/ Templescoby
Parish:	Templescoby
Barony:	Bantry
County:	Wexford
National Grid:	293714, 139012 to 293433, 139036
OS Map No.:	19/ 25
Chainage:	7,850
Field No.:	283/284
Dist. to Route:	0m
Classification:	Townland boundary
Legal Status:	None
Description:	This townland boundary is formed by a disused section of roadway, which was replaced when the current old N30 was constructed. The disused section measures c. 400m in length, although only a small section will be impacted on by the proposed route. The road retains its tarmac surface and possesses a width of c. 5m. It is marked on all three OS map editions. The southern side of the road is flanked by a mature hedgerow with trees. No boundary remains on the northern side of the road.
Adjacent Sites:	BH 48, BH 47
Photo/Figure Ref.:	Figure 15.1 Plate 15.45
Impact Type:	Direct
Potential Impact:	Significant negative
Mitigation:	Archaeological investigations in the form of testing. Written and photographic record of townland boundary.

M11 Gorey to Enniscorthy Scheme

Environmental Impact Statement

Appendix 15.3

Sites of Archaeological Potential

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APPENDIX 15.3: SITES OF ARCHAEOLOGICAL POTENTIAL WITHIN THE RECEIVING ENVIRONMENT OF THE PROPOSED ROUTES

Please note that all archaeological investigations are to be carried out by archaeologists under the terms of the National Monuments (Amendments) Act 1930-2004. Full provision will be made for the resolution of any archaeological deposits or features that may be discovered during investigations.

All measurements are to the designated constraint area around the potential site unless otherwise stated.

N11 Mainline

Site No.:	SAP 1
Townland:	Ballyeden
Parish:	Toome
Barony:	Gorey
County:	Wexford
National Grid:	310071, 152202
OS Map No.:	16
Chainage:	4,400
Field No.:	N/a
Dist. to Route:	198m
Classification:	Possible enclosure
Legal Status:	None
Description:	This site was identified during the desk based survey of the proposed N11 Mainline. It is visible in aerial photographs of the area and within the historical cartographic resource. It may represent an enclosure, as a small stream curves in a semi-circle to possibly delineate the NE edge of this site. There was no indication of a continuation of any enclosing element on the southern side of the site, although this may have been removed by agricultural practices. It is also possible that this is a natural feature created by the flow of a stream or part of a former quarry.
Adjacent Sites:	AAP 5, AAP 6
Photo/Figure Ref.:	Figure 15.1
Impact Type:	Indirect
Potential Impact:	Imperceptible negative
Mitigation:	N/a

Site No.:	SAP 2
Townland:	Knockrobin Upper
Parish:	Toome
Barony:	Scarawalsh
County:	Wexford
National Grid:	308121, 150344
OS Map No.:	16
Chainage:	7,070
Field No.:	42
Dist. to Route:	12m
Classification:	Possible rectilinear enclosure
Legal Status:	None
Description:	This potential site was identified through the analysis of aerial photographs of the area and was evident as a possible rectilinear enclosure. This was only visible in the vertical aerial photographs dating to the 1970s that are held by the GSI. The site appears to measure c. 75m E-W by c. 60m N-S and is located with a pasture field that slopes gently to the NW. No archaeological features were identified at this located during the field inspection and it is possible that this feature represents drainage works or a variant in the vegetation.
Adjacent Sites:	AAP 9, AAP 10, SAP 3
Photo/Figure Ref.:	Figure 15.1
Impact Type:	Indirect
Potential Impact:	Slight negative
Mitigation:	Archaeological investigations in the form of testing within the CPO adjacent to the potential archaeological site.

Site No.:	SAP 3
Townland:	Knockrobin Upper
Parish:	Toome
Barony:	Scarawalsh
County:	Wexford
National Grid:	308092, 150191
OS Map No.:	16
Chainage:	7,220
Field No.:	42
Dist. to Route:	32m from features
Classification:	Two mounds
Legal Status:	None
Description:	<p>This site consists of two low mounds, which may have an archaeological origin. Both mounds are oval in plan. They are adjacent to one another, separated by a distance of c. 13m and aligned NE-SW. The larger of the two is the SW mound, which measures c. 13m NW-SE by c. 11m NE-SW. The smaller NE mound measures c. 8m NE-SW by c. 11m NW-SE. Both mounds rise c. 0.75m above the surrounding ground level and possess a gradual break of slope and base. They are located within the corner of a large pasture field that slopes gently to the NW. This field also contains SAP 2, which may represent a possible rectilinear enclosure, located 100m to the N of the mounds. It is also possible that these mounds represent more recent agricultural activity.</p>
Adjacent Sites:	SAP 2, AAP 9, AAP 10
Photo/Figure Ref.:	Figure 15.1 Plate 15.46
Impact Type:	Indirect
Potential Impact:	Slight negative
Mitigation:	Archaeological investigations in the form of testing within the CPO adjacent to the potential archaeological site.

Site No.:	SAP 4
Townland:	Mountgeorge
Parish:	Kilcormick
Barony:	Gorey
County:	Wexford
National Grid:	306380, 148229
OS Map No.:	16
Chainage:	9,900
Field No.:	62
Dist. to Route:	46m from feature
Classification:	Holy Well
Legal Status:	None
Description:	<p>This site consists of a possible holy well, which has so far remained unrecorded within the SMR/RMP. The site was also identified during public consultations associated with the proposed scheme. Information on it was given in the form of what appears to be a news paper cutting. This states that the well was dedicated to a Saint Maunyeen, who was a contemporary of St. Patrick. St. Patrick told the Saint to go to Ferns in order to investigate the accounts of a certain King Dunlang. However, the Saint was chased away by the King's dogs and eventually found his way to the townland of Mountgeorge, where he planted his thorn walking stick into the ground and went to sleep. By the morning a great tree has grown from the stick and a spring flowed from his feet. This is referred to as a 'skeogh' within the article, which is likely to mean a white thorn bush. It is not clear from the article whether a religious foundation was made in association with well and no archaeological evidence was discovered within the surrounding area of early ecclesiastical remains.</p> <p>However, it should be noted that this site is located within the former demesne associated with Mountgeorge House. The house site, which is now occupied by a modern house and farm, was located on the summit of a hill c. 400m E of the well. The ground drops away on all sides from the summit of this hill with the demesne surrounded to the NE and NW by a stream, to the SE by a road and to the SW by a substantial field boundary. The summit would have been an ideal location for a ringfort or religious foundation during the early medieval period as it possesses excellent views of the surrounding landscape. The well is located on a moderate NW facing slope under good quality pasture. The site itself consists of a small circular enclosure (c. 8m NE-SW by c. 6m NW-SE) defined by a roughly constructed dry stone wall, which surrounds a slightly sunken area. The wall possesses an internal height of c. 0.5-7m and an external height of 0.3-5m. On the SE side of the enclosure is a large and very mature Ash tree (not thorn). The roots of this tree have grown over stone walling, which is evident beneath the root bowl, indicating that the site does possess a significant age.</p> <p>The spring rises c. 1m from the base of the root bowl and runs around the NE side of the stone enclosure for c. 2.5m before disappearing under ground. On the section of wall adjacent to</p>

	the spring a number of white quartz stones were noted, which appear to have been purposefully placed. Where the water runs away from the enclosure (under the stone wall), a large stone, possessing a deliberately hollowed but small basin was also noted. This could represent a possible bullaun stone, which is a feature often associated with early medieval Christian sites and may have featured as an element of pagan worship, which was carried forward as a Christian ritual during the early medieval period. The Archaeological Inventory of Wexford lists a total of 23 recorded bullaun stones.
Adjacent Sites:	AAP 14, AAP 15, SAP 5
Photo/Figure Ref.:	Figure 15.1 Plate 15.47, 15.48 and 15.49
Impact Type:	Indirect
Potential Impact:	Moderate negative
Mitigation:	Written and photographic record of landscape context.

Site No.:	SAP 5
Townland:	Ballycarrigeen lower
Parish:	Kilcormick
Barony:	Gorey
County:	Wexford
National Grid:	306035, 148133
OS Map No.:	16
Chainage:	10,230
Field No.:	64
Dist. to Route:	0m
Classification:	Possible <i>fulacht fiadh</i> /burnt mound
Legal Status:	None
Description:	<p>This potential site consists of two low mounds, which are located within a pasture field c. 20m to the S of a stream. These may represent the remains of fulacht fiadh or burnt mounds. However, it should be noted that some ground disturbances had been carried out in the field at the time of the inspection, c. 10m to the N of the mounds and no archaeological material was noted.</p> <p>The eastern, smaller mound measured c. 7m N-S by c. 10m E-W, whilst the other larger western mound measured c. 9m E-W by c. 10m N-S. Both mounds rise c. 0.3m above the surrounding ground level, which consists of rough and water logged pasture.</p>
Adjacent Sites:	AAP 15, AAP 16, SAP 4
Photo/Figure Ref.:	Figure 15.1 Plate 15.50
Impact Type:	Direct
Potential Impact:	Profound negative
Mitigation:	Archaeological investigations in the form of testing.

Site No.:	SAP 6
Townland:	Tinnacross
Parish:	Clone
Barony:	Scarawalsh
County:	Wexford
National Grid:	302762, 145510
OS Map No.:	20
Chainage:	14,460
Field No.:	103
Dist. to Route:	0m
Classification:	Site of a school house
Legal Status:	None
Description:	This site of archaeological potential was identified through the analysis of the historic cartographic record. A small school house is marked at this location on the first and second edition OS map. Today there is no visible trace of a structure and an agricultural lay-by adjacent to the tertiary road now occupies this location. It is possible that the small stone wall that provides part of the dividing element between the lay-by and the field to the E may have originally formed part of a wall enclosing a small school yard. It is possible that the foundations of a school are located within this area. These are likely to date to the post-medieval period.
Adjacent Sites:	AAP 20, BH 19
Photo/Figure Ref.:	Figure 15.1 Plate 15.51
Impact Type:	Direct
Potential Impact:	Profound negative
Mitigation:	Archaeological investigations in the form of testing.

Site No.:	SAP 7
Townland:	Oulartard
Parish:	Clone
Barony:	Scarawalsh
County:	Wexford
National Grid:	302040, 144716
OS Map No.:	20
Chainage:	15,550
Field No.:	110-112
Dist. to Route:	0m
Classification:	Site of weir/ head of mill race
Legal Status:	None
Description:	<p>This site was initially identified during an analysis of the historical cartographic resource. Although not present on the first edition OS map, by the time of the second edition, a weir is marked within the stream where the proposed mainline will cross. It is adjacent to the head of a mill race, which runs in a westerly direction before turning SW and then S. (The proposed mainline crosses the millrace again at ch. 16,000). During the field inspection it was not possible to identify any remains within the stream associated with the weir. Neither could any evidence of the head of the mill race be discerned. The field in which the mill race was located is now planted with an arable crop. No evidence of the path of the mill race could be identified during the inspection.</p>
Adjacent Sites:	SAP 6, AAP 21
Photo/Figure Ref.:	Figure 15.1 Plate 15.52
Impact Type:	Direct
Potential Impact:	Profound negative
Mitigation:	Archaeological investigations in the form of testing. Underwater survey.

Site No.:	SAP 8
Townland:	Oulartard
Parish:	Clone
Barony:	Scarawalsh
County:	Wexford
National Grid:	301768, 144426 to 301673, 144028
OS Map No.:	20
Chainage:	15,960 – 16,300
Field No.:	113, 114
Dist. to Route:	0m to mill race, 60m from mill site
Classification:	Site of mill and mill race
Legal Status:	None
Description:	This site of archaeological potential was initially identified from an analysis of the historic cartographic resource. Although not marked on the first edition, a corn mill is marked on the second edition OS map c. 60m from the N11 mainline. This mill is fed by a mill race, which runs from SAP 7, and drains back into the stream to the immediate SW of the mill. During the course of the field inspection no remains of the mill could be discerned, although some demolition rubble was noted within the topsoil in the area of the mill. The mill race itself has been completely backfilled. There was no obvious trace of it apart from a strip of darker grass noted along what would have formed its southern portion.
Adjacent Sites:	AAP 22
Photo/Figure Ref.:	Figure 15.1 Plate 15.53
Impact Type:	Direct
Potential Impact:	Significant negative
Mitigation:	Archaeological investigations in the form of testing.

Site No.:	SAP 15
Townland:	Ballydawmore
Parish:	Clone
Barony:	Scarawalsh
County:	Wexford
National Grid:	301201, 141486
OS Map No.:	20
Chainage:	19,200
Field No.:	141
Dist. to Route:	24m from site
Classification:	Former PM settlement
Legal Status:	None
Description:	This site consists of a former post medieval settlement area, which was initially identified during historic cartographic analysis. It is marked as a small farmstead on the first edition as possessing two small structures. This is accessed by a laneway (AAP 28), which also forms a townland boundary. By the time of the second edition there are three buildings marked, which are located within a footprint that differs from the buildings marked on the first edition. At the time of the field inspection only one standing building was noted, which consists of a corrugated iron barn of a relatively recent date. Areas of overgrowth were noted, which may represent the overgrown ruins of the former ruined buildings.
Adjacent Sites:	AAP 28, AAP 29
Photo/Figure Ref.:	Figure 15.1 Plate 15.54
Impact Type:	Indirect
Potential Impact:	Slight negative
Mitigation:	Archaeological investigations in the form of testing within the CPO adjacent to the potential archaeological site.

Site No.:	SAP 16
Townland:	Tomnafunshoge
Parish:	Templeshannon
Barony:	Scarawalsh
County:	Wexford
National Grid:	300621, 140289
OS Map No.:	20
Chainage:	20,750
Field No.:	145
Dist. to Route:	0m
Classification:	Surface anomaly
Legal Status:	None
Description:	This site was initially identified during historic cartographic analysis. It is marked as a sub-oval feature on the first edition OS map and as rough ground on the second edition. It is located to the S of an unusually rounded field boundary, which may be archaeological in origin. The feature itself was not visible during the field inspection. It is possible that it represents a gravel pit or pond and is of relatively recent date. However, the age and nature of this site may be confirmed during archaeological testing.
Adjacent Sites:	SAP 17
Photo/Figure Ref.:	Figure 15.1
Impact Type:	Direct
Potential Impact:	Profound negative
Mitigation:	Archaeological investigations in the form of testing.

Site No.:	SAP 17
Townland:	Tomnafunshoge
Parish:	Templeshannon
Barony:	Scarawalsh
County:	Wexford
National Grid:	300472, 140110
OS Map No.:	20
Chainage:	20,980
Field No.:	145/146
Dist. to Route:	0m
Classification:	Former track
Legal Status:	None
Description:	<p>This site was initially identified during historic cartographic analysis. It is marked on the first edition as part of the road that runs through Drumgold and Tomnafunshogue. This was the main route way until the construction of the road now located c. 200m to the S. Once the later road was constructed, this section became defunct and went out of use. By the time of the second edition it is only marked as a track. During the field inspection, no evidence for the road/track could be discerned to the S of a substantial field boundary that is raised up from the ground level of the pasture field to the N. Part of the area has been used for construction or covered with concrete. However, it is likely that the surface, which was probably metalled, has been covered over and may still exist beneath the current ground level. This route way predates the current route that is now used to the S and as a result may be medieval in date.</p>
Adjacent Sites:	SAP 16
Photo/Figure Ref.:	Figure 15.1
Impact Type:	Direct
Potential Impact:	Significant negative
Mitigation:	Archaeological investigations in the form of testing.

Site No.:	SAP 18
Townland:	Cooladine
Parish:	Ballyhuskard
Barony:	Ballaghkeen
County:	Wexford
National Grid:	300102, 138455
OS Map No.:	20
Chainage:	22,800
Field No.:	159
Dist. to Route:	0m
Classification:	Surface anomaly
Legal Status:	None
Description:	This site consists of slight rise in a field that at the time of inspection was planted with wheat. The rise within the field is well defined on the eastern side, but not to the same degree on the western side. The summit of the rise has an approximate diameter of 25m and overlooks lower ground and a river to the S (AAP 32). Although the landscape within the surrounding area is undulating in places, this site represents an ideal spot for either temporary or permanent occupation due to its views of the surrounding landscape and its close proximity to a water course.
Adjacent Sites:	AAP 32, BH 32
Photo/Figure Ref.:	Figure 15.1 Plate 15.55
Impact Type:	Direct
Potential Impact:	Profound negative
Mitigation:	Archaeological investigations in the form of testing.

Site No.:	SAP 19
Townland:	Ballycourcymore
Parish:	Ballyhuskard
Barony:	Ballaghkeen
County:	Wexford
National Grid:	300338, 136972
OS Map No.:	26
Chainage:	24,300
Field No.:	166
Dist. to Route:	32m to site
Classification:	Former PM settlement
Legal Status:	None
Description:	This site was initially identified during historic cartographic analysis. It is marked on the first edition OS map as a small farmstead consisting of three buildings, which is accessed via a NNW-SSE trackway. However, by the time of the second edition there are no buildings marked at this location and the trackway has been removed. It is likely that this site represents a small post medieval farm. Elements of the field boundaries and trackway are visible within the aerial photographic resource. However, no trace of the site was apparent during the field inspection with the exception of a 'kink' in the field boundary that may have once formed one side of the farmyard.
Adjacent Sites:	AAP 33, AH 13
Photo/Figure Ref.:	Figure 15.1
Impact Type:	Indirect
Potential Impact:	Slight negative
Mitigation:	Archaeological investigations in the form of testing within the CPO adjacent to the potential archaeological site.

Site No.:	SAP 20
Townland:	Ballycourcymore/ knockrathkyle
Parish:	Ballyhuskard
Barony:	Ballaghkeen
County:	Wexford
National Grid:	300081, 136468
OS Map No.:	26
Chainage:	24,850
Field No.:	168
Dist. to Route:	0m
Classification:	Former PM settlement and townland boundary
Legal Status:	None
Description:	This site was initially identified through historic cartographic analysis. A settlement is marked here on the first edition OS map on both sides of an E-W aligned tertiary road, which also forms the townland boundary between Ballycourcymore and Knockrathkyle. Three buildings are marked on the northern side of the road, whereas six small buildings are marked on the southern side. By the time of the second edition all the buildings have disappeared. These are likely to represent cottages belonging to farm workers or the rural poor, as a layout of the buildings does not indicate an agricultural function. During the field inspection no trace of the former settlement could be identified. Both fields either side of the road are under cultivation.
Adjacent Sites:	AAP 34
Photo/Figure Ref.:	Figure 15.1 Plate 15.56
Impact Type:	Direct
Potential Impact:	Profound negative
Mitigation:	Archaeological investigations in the form of testing. Written and photographic record of townland boundary.

Site No.:	SAP 21
Townland:	Riverview
Parish:	Edermine
Barony:	Ballaghkeen
County:	Wexford
National Grid:	299439, 134352
OS Map No.:	26
Chainage:	27,060
Field No.:	183
Dist. to Route:	0m
Classification:	Struck flint find spot
Legal Status:	None
Description:	A piece of struck flint was discovered at this location during the field inspection of the proposed route. This may indicate the close proximity of a prehistoric site. However it may also represent an item that has been dropped whilst a prehistoric population passed through the landscape. A watercourse is located to the immediate S of this find spot (AAP 39), which would make the area desirable for occupation.
Adjacent Sites:	AAP 38, AAP 39
Photo/Figure Ref.:	Figure 15.1
Impact Type:	Direct
Potential Impact:	Significant negative
Mitigation:	Archaeological investigations in the form of testing.

Site No.:	SAP 22
Townland:	Roperstown
Parish:	Edermine
Barony:	Ballaghkeen
County:	Wexford
National Grid:	299380, 133871
OS Map No.:	26
Chainage:	27,560
Field No.:	186
Dist. to Route:	0m
Classification:	Surface anomaly
Legal Status:	None
Description:	This possible site was identified during field inspection. It consists of an obvious depression within a pasture field, which is semi-circular in shape and measures c. 20m N-S by c. 15m E-W. A similar shaped area is marked on the second edition OS map and this may represent the remains of a small pond.
Adjacent Sites:	AAP 40
Photo/Figure Ref.:	Figure 15.1 Plate 15.57
Impact Type:	Direct
Potential Impact:	Profound negative
Mitigation:	Archaeological investigations in the form of testing.

Site No.:	SAP 23
Townland:	Garrynisk
Parish:	Edermine
Barony:	Ballaghkeen
County:	Wexford
National Grid:	299324, 133731
OS Map No.:	26
Chainage:	27,720
Field No.:	700
Dist. to Route:	0m
Classification:	Former PM settlement
Legal Status:	None
Description:	This site was initially identified during historical cartographic analysis. It is marked on the first edition OS map as a small cluster of four buildings, two of which front onto the tertiary road to the N. These same buildings are also present on the second edition map. No remains of the structures were noted during the field inspection, but it is possible that foundations survive beneath the current ground level. They are likely to represent the cottages of rural workers as their arrangement does not suggest an agricultural function.
Adjacent Sites:	SAP 22
Photo/Figure Ref.:	Figure 15.1
Impact Type:	Direct
Potential Impact:	Significant negative
Mitigation:	Archaeological investigations in the form of testing.

N80 Link Road

Site No.:	SAP 9
Townland:	Ballynahallin
Parish:	St. Mary's Enniscorthy
Barony:	Scarawalsh
County:	Wexford
National Grid:	298520, 144136
OS Map No.:	20
Chainage:	400
Field No.:	193
Dist. to Route:	0m
Classification:	Surface anomaly
Legal Status:	None
Description:	This potential site was identified during field inspection. It consists of a slight rise within a pasture field, which is sub-circular in plan and has a diameter of c. 30m. It is quite well defined on the SW side, but less so on the NE side. The potential site is marked in close proximity to a small quarry pit on the second edition OS map and as a result may be related to post medieval quarrying activity. However, an archaeological origin cannot be ruled out.
Adjacent Sites:	AAP 23
Photo/Figure Ref.:	Figure 15.1 Plate 15.58
Impact Type:	Direct
Potential Impact:	Profound negative
Mitigation:	Archaeological investigations in the form of testing.

Site No.:	SAP 10
Townland:	Ballynahallin
Parish:	St. Mary's Enniscorthy
Barony:	Scarawalsh
County:	Wexford
National Grid:	298551, 143999
OS Map No.:	20
Chainage:	540
Field No.:	193
Dist. to Route:	0m
Classification:	Surface anomaly
Legal Status:	None
Description:	This potential site is located within the same pasture field as SAP 9 and as a result it also in close proximity to a quarry that is marked on the second edition map. The anomaly consists of five distinct small rises in an area measuring 10m by 10m. They vary in size from 1m by 2m to 2m by 3m. It is possible that these features relate to recent agricultural practices or may be related to quarrying in the area.
Adjacent Sites:	SAP 9
Photo/Figure Ref.:	Figure 15.1 Plate 15.59
Impact Type:	Direct
Potential Impact:	Profound negative
Mitigation:	Archaeological investigations in the form of testing.

Site No.:	SAP 11
Townland:	Ballynahallin
Parish:	St. Mary's Enniscorthy
Barony:	Scarawalsh
County:	Wexford
National Grid:	298685, 143690
OS Map No.:	20
Chainage:	875
Field No.:	194
Dist. to Route:	0m
Classification:	Linear anomaly
Legal Status:	None
Description:	This potential site consists of a linear anomaly, which is likely to represent the path of a former trackway, which is marked on the first and second edition. The track appears to provide access to fields and is aligned in an ENE-WSW direction. During the field inspection, this site presented as a strip of darker pasture with a slight central depression that was c. 6m in width. The proposed route will truncate a small section of the southern part of this feature.
Adjacent Sites:	SAP 10, AH 5
Photo/Figure Ref.:	Figure 15.1
Impact Type:	Direct
Potential Impact:	Significant negative
Mitigation:	Archaeological investigations in the form of testing.

Site No.:	SAP 12
Townland:	Kilcannon
Parish:	St. Mary's Enniscorthy
Barony:	Scarawalsh
County:	Wexford
National Grid:	298969, 142897
OS Map No.:	20
Chainage:	1,715
Field No.:	201
Dist. to Route:	0m
Classification:	Former PM settlement
Legal Status:	None
Description:	This site was initially identified during historic cartographic analysis. One small rectangular building is marked at this location on the first edition OS map, but is not present on the second edition. It is most likely that this represents an agricultural outbuilding. No trace of the structure could be discerned during the field inspection. However, it is possible that remains associated with the building survive beneath the current ground level.
Adjacent Sites:	AAP 24
Photo/Figure Ref.:	Figure 15.1
Impact Type:	Direct
Potential Impact:	Profound negative
Mitigation:	Archaeological investigations in the form of testing.

Site No.:	SAP 13
Townland:	Kilcannon
Parish:	St. Mary's Enniscorthy
Barony:	Scarawalsh
County:	Wexford
National Grid:	299310, 142437
OS Map No.:	20
Chainage:	2,275
Field No.:	N/a
Dist. to Route:	17m
Classification:	Former PM settlement
Legal Status:	None
Description:	This site was initially identified through historic cartographic analysis. A small farmstead is marked on the first edition OS map, which is accessed via a small lane (BH 25). Four rectangular buildings are marked, with three of them arranged around a courtyard. By the time of the second edition only one building is marked although the probable ruins of two others are also depicted. The site was visited during field inspection. It is now very overgrown. However, large piles of rubble were identified at the site, which are likely to represent the collapsed remains of building.
Adjacent Sites:	BH 25, AH 7, AH 8, AH 9
Photo/Figure Ref.:	Figure 15.1 Plate 15.60
Potential Impact:	Slight negative
Mitigation:	Written and photographic record of landscape context

Site No.:	SAP 14
Townland:	Ballynabarney
Parish:	Templeshannon
Barony:	Scarawalsh
County:	Wexford
National Grid:	300242, 142088
OS Map No.:	20
Chainage:	3,490
Field No.:	213
Dist. to Route:	0m
Classification:	Former PM settlement
Legal Status:	None
Description:	This site was initially identified through historic cartographic analysis. The first edition OS map shows a small cluster of buildings at this location. Three buildings are marked, which are accessed via a N-S aligned trackway that runs from Ballyvarna House to the S (BH 4). This may represent a small farmstead associated with the house, or possibly cottages for workers. By the time of the second edition map only two structures remain. No trace of the settlement could be discerned within the pasture field during the field inspection. However, it is possible that remains associated with the settlement survive beneath the current ground level. The proposed route will truncate part of this potential site.
Adjacent Sites:	AAP 26, AAP 27
Photo/Figure Ref.:	Figure 15.1 Plate 15.61
Potential Impact:	Significant negative
Mitigation:	Archaeological investigations in the form of testing.

Site No.:	SAP 39
Townland:	Kilcannon
Parish:	St. Mary's Enniscorthy
Barony:	Scarawalsh
County:	Wexford
National Grid:	299200,142569
OS Map No.:	20
Chainage:	2,100
Field No.:	202
Dist. to Route:	0m
Classification:	Possible enclosure
Legal Status:	None
Description:	This site was initially identified through historic cartographic analysis. The first edition OS map shows a small circular feature at this location, which may represent a small enclosure. However, it is also possible that this is a small quarry pit as there are a large number marked within the surrounding area. No surface trace of the site was visible during the field inspection.
Adjacent Sites:	SAP 13, AH 7
Photo/Figure Ref.:	Figure 15.1
Potential Impact:	Profound negative
Mitigation:	Archaeological investigations in the form of testing.

N30 Mainline

Site No.:	SAP 24
Townland:	Coolnahorna
Parish:	Monart
Barony:	Scarawalsh
County:	Wexford
National Grid:	297250, 143497
OS Map No.:	20
Chainage:	1,350
Field No.:	227
Dist. to Route:	0m
Classification:	Surface anomaly
Legal Status:	None
Description:	This potential site was identified during field inspection of the proposed route. It is located within a pasture field and consists of a slight rise, which is sub-circular in shape and measures c. 22m in diameter. This may be a natural undulation with the fields itself, but an archaeological origin cannot be ruled out.
Adjacent Sites:	AAP 42
Photo/Figure Ref.:	Figure 15.1 Plate 15.62
Impact Type:	Direct
Potential Impact:	Profound negative
Mitigation:	Archaeological investigations in the form of testing.

Site No.:	SAP 25
Townland:	Ballyorril
Parish:	Monart
Barony:	Scarawalsh
County:	Wexford
National Grid:	296677, 143061
OS Map No.:	20
Chainage:	2,050
Field No.:	231
Dist. to Route:	0m
Classification:	Surface anomaly
Legal Status:	None
Description:	This potential site was identified during field inspection. It consists of a slight rise within a pasture field. The rise is sub-circular in shape and has an approximate diameter of 30m. It is located to the N of a stream and although may be a natural undulation, could also represent archaeological remains.
Adjacent Sites:	AAP 43
Photo/Figure Ref.:	Figure 15.1 Plate 15.62
Impact Type:	Direct
Potential Impact:	Profound negative
Mitigation:	Archaeological investigations in the form of testing.

Site No.:	SAP 26
Townland:	Moyne middle
Parish:	St. Mary's Enniscorthy
Barony:	Scarawalsh
County:	Wexford
National Grid:	296523, 142924
OS Map No.:	20
Chainage:	2300
Field No.:	232
Dist. to Route:	0m
Classification:	Spring
Legal Status:	None
Description:	This site is marked on the 25inch OS map as 'spring' and is located on the banks on a water course, which also forms AAP 44. No visible trace of the spring could be discerned during the field inspection, although it is likely that it still exists beneath the current ground level.
Adjacent Sites:	AAP 44
Photo/Figure Ref.:	Figure 15.1
Impact Type:	Direct
Potential Impact:	Profound negative
Mitigation:	Archaeological investigations in the form of testing.

Site No.:	SAP 27
Townland:	Ballyorril
Parish:	Monart
Barony:	Scarawalsh
County:	Wexford
National Grid:	296322, 142749
OS Map No.:	20
Chainage:	2,550
Field No.:	233
Dist. to Route:	0m
Classification:	Surface anomaly
Legal Status:	None
Description:	This potential site was identified during field inspection. It consists of a slight circular rise that measures c. 30m NE-SE by c. 25m NW-SE. It is located within a field of pasture, part of which appears to be prone to flooding from the stream that borders the field to the E (AAP 44). It is possible that this may be a natural undulation, but an archaeological origin cannot be ruled out.
Adjacent Sites:	AAP 44
Photo/Figure Ref.:	Figure 15.1 Plate 15.63
Impact Type:	Direct
Potential Impact:	Profound negative
Mitigation:	Archaeological investigations in the form of testing.

Site No.:	SAP 28
Townland:	Ballyorril
Parish:	Monart
Barony:	Scarawalsh
County:	Wexford
National Grid:	296229, 142673
OS Map No.:	20
Chainage:	2,650
Field No.:	235
Dist. to Route:	0m
Classification:	Surface anomaly
Legal Status:	None
Description:	This site was identified during field inspection. It consists of a linear anomaly that runs in a NNW-SSE direction across a field of pasture within an undulating landscape. A stream is located c. 80m to the E. The anomaly has a width of c. 1m and is visible at intervals across the field. It is likely that this represents a former field boundary. However, no boundaries are marked on the OS map editions in this field and as such an archaeological origin cannot be discounted.
Adjacent Sites:	AAP 44, SAP 27, SAP 29, SAP 30
Photo/Figure Ref.:	Figure 15.1
Impact Type:	Direct
Potential Impact:	Profound negative
Mitigation:	Archaeological investigations in the form of testing.

Site No.:	SAP 29
Townland:	Ballyorril
Parish:	Monart
Barony:	Scarawalsh
County:	Wexford
National Grid:	296251, 142629
OS Map No.:	20
Chainage:	2670
Field No.:	235
Dist. to Route:	0m
Classification:	Surface anomaly
Legal Status:	None
Description:	This site was identified during field inspection. It consists of a slight rise within a pasture field. The rise is sub-circular in plan and measures c. 10m in diameter. It is possible that this may be a natural undulation, but an archaeological origin cannot be ruled out.
Adjacent Sites:	AAP 44, SAP 28, SAP 29
Photo/Figure Ref.:	Figure 15.1 Plate 15.64
Impact Type:	Direct
Potential Impact:	Profound negative
Mitigation:	Archaeological investigations in the form of testing.

Site No.:	SAP 30
Townland:	Ballyorril
Parish:	Monart
Barony:	Scarawalsh
County:	Wexford
National Grid:	296166, 142637
OS Map No.:	20
Chainage:	2,750
Field No.:	235
Dist. to Route:	0m
Classification:	Surface anomaly
Legal Status:	None
Description:	This site was identified during field inspection. It consists of a shallow depression within a pasture field. The depression is roughly circular and has a diameter of c. 6m. Clumps of nettles grow within the feature, possibly indicating some disturbance in the past. It is possible that this represents a backfilled pond or more recent agricultural disturbance.
Adjacent Sites:	SAP 28, SAP 29, BH 38
Photo/Figure Ref.:	Figure 15.1 Plate 15.65
Impact Type:	Direct
Potential Impact:	Profound negative
Mitigation:	Archaeological investigations in the form of testing.

Site No.:	SAP 31
Townland:	Askunshin
Parish:	Monart
Barony:	Scarawalsh
County:	Wexford
National Grid:	294561, 141990
OS Map No.:	19
Chainage:	4,500
Field No.:	249
Dist. to Route:	21m to site
Classification:	Former PM settlement
Legal Status:	None
Description:	<p>This site was initially identified from historic cartographic analysis. A small settlement is marked at this location on the first edition OS map. It consists of three buildings fronting onto the tertiary road to the NW. A small orchard appears to accompany the settlement, which is likely to represent a small farmstead. Only one building is marked at the location on the second edition OS map and there is no trace of the accompanying orchard. No trace of the site could be discerned during the field inspection. The settlement would have occupied the side of a NW facing slope, although a dip in the field was noted during the inspection, which may represent the former orchard area. It is likely that the proposed route will travel to the immediate S of the position of the buildings as they were marked on the OS maps.</p>
Adjacent Sites:	AAP 47, BH 58
Photo/Figure Ref.:	Figure 15.1 Plate 15.66
Impact Type:	Direct
Potential Impact:	Moderate negative
Mitigation:	Archaeological investigations in the form of testing adjacent to site.

Site No.:	SAP 32
Townland:	Milehouse
Parish:	Monart
Barony:	Scarawalsh
County:	Wexford
National Grid:	294212, 141736 to 294213, 141514
OS Map No.:	19
Chainage:	4,900 – 5,070
Field No.:	254, 255, 257, 258
Dist. to Route:	0m
Classification:	Mill race
Legal Status:	None
Description:	<p>This particular feature was first identified during historic cartographic analysis. The feature is marked as a mill race on the first edition OS map. Overall the feature has a particularly long length for a mill race and travels in a southerly direction before entering the River Urrin to the SW of Enniscorthy town. It originates to the N of the where the proposed route crosses the feature. The first edition OS map does not mark any mills along its length, although it is possible that a mill exists to the N of the crossing point, adjacent to Monart Bridge (BH 44). This is marked as a mill on the second edition OS map, but is not evident today. Otherwise, it is unclear as to why the race possesses such a great length.</p> <p>The majority of the mill race has been back filled where the proposed N30 will cross. Its path is marked by a band of sedge grasses, which prefer waterlogged ground. However, to the immediate N of the crossing point, a section of the race still survives and is at present filled with standing water. This section is very overgrown with trees and appears deep, but this was not possible to verify during the inspection. No structural elements were visible, but it is possible that the sides of the race are revetted with wood or stone.</p>
Adjacent Sites:	AAP 48, AAP 49
Photo/Figure Ref.:	Figure 15.1 Plate 15.67
Impact Type:	Direct
Potential Impact:	Significant negative
Mitigation:	Archaeological investigations in the form of testing.

Site No.:	SAP 33
Townland:	Bessmount
Parish:	Monart
Barony:	Scarawalsh
County:	Wexford
National Grid:	293987, 141343
OS Map No.:	19
Chainage:	5,350
Field No.:	260
Dist. to Route:	0m
Classification:	Former PM settlement
Legal Status:	None
Description:	This site was initially identified during historic cartographic analysis. It consists of a small settlement, which is marked on the first edition OS map as possessing just one building. It is located adjacent to a small road just within the shaded demesne area associated with Monart House. As a result it is possible that this represents a gate lodge as this section of the road travels through Monart Demesne. It may also represent the cottage of an estate worker. By the time of the second edition the building is no longer marked. No trace of the building could be discerned during the field inspection. However, it is possible that features associated with the building may exist beneath the current ground level.
Adjacent Sites:	AAP 50
Photo/Figure Ref.:	Figure 15.1 Plate 15.68
Impact Type:	Direct
Potential Impact:	Profound negative
Mitigation:	Archaeological investigations in the form of testing.

Site No.:	SAP 34
Townland:	Bessmount
Parish:	Monart
Barony:	Scarawalsh
County:	Wexford
National Grid:	293973, 141265
OS Map No.:	19
Chainage:	5,400
Field No.:	262
Dist. to Route:	36m to site
Classification:	Former PM settlement
Legal Status:	None
Description:	This site was initially identified during historic cartographic analysis. It consists of a small settlement formed by three buildings arranged around a small yard. The site is not present on the first edition, but is present by the time of the second edition. It is likely to represent a small farmstead. No visible trace of the site could be discerned during the field inspection. However, it is possible that features associated with the buildings may exist beneath the current ground level.
Adjacent Sites:	AAP 50
Photo/Figure Ref.:	Figure 15.1 Plate 15.69
Impact Type:	Direct
Potential Impact:	Moderate negative
Mitigation:	Archaeological investigations in the form of testing adjacent to the site.

Site No.:	SAP 35
Townland:	Bessmount
Parish:	Monart
Barony:	Scarawalsh
County:	Wexford
National Grid:	293502, 140489
OS Map No.:	19
Chainage:	6,400
Field No.:	267/260
Dist. to Route:	0m
Classification:	Mill race
Legal Status:	None
Description:	<p>The mill race was first identified on the first edition OS map. It travels in an E-W direction and travels parallel (on the northern side) to the River Urrin. It originally served a mill, located further to the E of where the proposed N30 will cross the race. The very western section of the race forms a townland boundary and as such may therefore possess a greater age than a similar post medieval industrial feature.</p> <p>The race today is still a functioning watercourse. However, it is very overgrown and although a moderate flow of water was visible, the depth and any structural components of the feature were not apparent during the inspection.</p>
Adjacent Sites:	AAP 51
Photo/Figure Ref.:	Figure 15.1 Plate 15.70
Impact Type:	Direct
Potential Impact:	Significant negative
Mitigation:	Archaeological investigations in the form of testing. Underwater survey.

Site No.:	SAP 36
Townland:	Templescoby
Parish:	Templescoby
Barony:	Bantry
County:	Wexford
National Grid:	293444, 140266
OS Map No.:	19
Chainage:	6,600
Field No.:	273
Dist. to Route:	45m from feature
Classification:	Surface anomaly
Legal Status:	None
Description:	This site was identified during field inspection and consists of a slight, sub-circular rise measuring c. 11m in diameter. At the southern end of this rise is an area of rock outcropping and nettles. The surrounding landscape does contain some undulations and as such this feature may be natural in origin. However, an archaeological origin cannot be ruled out.
Adjacent Sites:	AAP 51
Photo/Figure Ref.:	Figure 15.1 Plate 15.71
Impact Type:	Indirect
Potential Impact:	Slight
Mitigation:	Archaeological investigations in the form of testing adjacent to the site.

Site No.:	SAP 37
Townland:	Bessmount
Parish:	Monart
Barony:	Scarawalsh
County:	Wexford
National Grid:	293494,140642
OS Map No.:	19
Chainage:	6,980
Field No.:	276
Dist. to Route:	0m
Classification:	Former PM settlement
Legal Status:	None
Description:	This site was initially identified during historic cartographic analysis. It consists of a small settlement formed by four building, which are marked on the first edition OS map. These are likely to represent cottages rather than a farmstead due to the arrangement of the buildings. By the time of the second edition only three buildings remain at this location. No trace of the buildings could be discerned in the area during field inspection, which is now under arable crop production. However, it is possible that features associated with the settlement may survive beneath the current ground level.
Adjacent Sites:	AAP 53
Photo/Figure Ref.:	Figure 15.1 Plate 15.72
Impact Type:	Direct
Potential Impact:	Profound negative
Mitigation:	Archaeological investigations in the form of testing.

Site No.:	SAP 38
Townland:	Templescoby
Parish:	Templescoby
Barony:	Bantry
County:	Wexford
National Grid:	293533, 139895
OS Map No.:	19
Chainage:	6,240
Field No.:	N/a
Dist. to Route:	0m
Classification:	Former PM settlement
Legal Status:	None
Description:	This site was initially identified during historic cartographic analysis. It consists of a small settlement formed by several buildings, which are marked on the first edition OS map. The site is now occupied by a number of modern buildings, including a garage work shop and bungalow. No trace of the post medieval structures were visible during the field inspection and it is likely that they were demolished and the site leveled prior to the construction of the modern buildings.
Adjacent Sites:	AAP 53
Photo/Figure Ref.:	Figure 15.1
Impact Type:	Indirect
Potential Impact:	Imperceptible negative
Mitigation:	No specific mitigation required as site is occupied by modern buildings.

M11 Gorey to Enniscorthy Scheme

Environmental Impact Statement

Appendix 15.4

Built Heritage Sites

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APPENDIX 15.4: BUILT HERITAGE SITES WITHIN THE RECEIVING ENVIRONMENT OF THE PROPOSED ROUTES

All measurements are to designated constraint area surrounding the structure, unless otherwise stated.

Site No.:	BH 1
RPS No.:	N/A
NIAH No.:	15701117
Townland:	Ballinclay
Parish:	Liskinfere
Barony:	Gorey
County:	Wexford
National Grid:	310165, 154304
OS Map No.:	11
Chainage:	2,470
Field No.:	N/a
Distance from Route:	260m
Classification:	Ballinclay House
Legal Status:	Draft NIAH building
Description:	<p>The main building consists of a detached five-bay, two-storey over basement country house, c.1725 (extant 1743). It has an L-shaped plan with a two-bay, full-height return to S. Re-roofed and renovated, post-2004. Hipped roof on the L-shaped plan with replacement artificial slate, post-2004.</p> <p>Roughcast walls on rendered plinth with replacement roughcast walls, post-2004, to rear (S) elevation replacing slate hanging. Square-headed window openings with cut-granite sills, six-over-six (ground floor) and three-over-six (first floor) timber sash windows without horns. Hipped elliptical-headed door opening approached by flight of four cut-granite steps with rendered parapets over red brick construction, timber panelled (hollow) pilaster mullions supporting cornice. Replacement timber panelled door with sidelights having margins, and fanlight. Interior with timber panelled shutters to window openings. This structure is accompanied by two large stone out building and a walled garden.</p> <p>An elegantly appointed country house of the middle size having reputedly been built for occupation by John Wright (1698-1785) on the occasion of his marriage (1721) to Margaret Hill (d.1774). Having been reasonably well maintained, the house continues to present an early aspect with much of the historic or original fabric surviving in place, both to the exterior and to the interior, including crown or cylinder glazing panels, thus upholding the character or integrity of the composition.</p> <p>This house is present on all OS map editions. A small demesne is marked as shaded on the first edition, which accompanies the house. The maximum extent of this demesne is marked on Figure 15.1. The SE corner of the original demesne extent is truncated by the proposed route.</p>
Sources:	Draft NIAH
Adjacent Sites:	N/a

Photo/Figure Ref.:	Figure 15.1
Importance:	Regional
Interest category:	Architectural, Historical, Social
Impact Type:	No predicted impact
Potential Impact:	Neutral
Mitigation:	N/a

Site No.:	BH 2
RPS No.:	N/A
NIAH No.:	N/A
Townland:	Ballygullen
Parish:	Liskinfere
Barony:	Gorey
County:	Wexford
National Grid:	310504, 153521
OS Map No.:	11
Chainage:	3,100
Field No.:	N/a
Distance from Route:	38m
Classification:	Railway Bridge
Legal Status:	None
Description:	This bridge carries a tertiary road across the railway track in an E-W direction. The railway runs from Dublin to Rosslare and is still in use. The bridge was constructed at the same time as the railway and is present on the second edition OS map. The bridge section itself is relatively narrow, as the road is carried up on both sides by stone revetted embankments. These are topped with random rubble walls, topped with vertically placed coping stones. These are very overgrown with ivy and moss. Part of the walls belonging to the span of the bridge have been replaced with modern work.
Sources:	Field inspection
Adjacent Sites:	AAP 4
Photo/Figure Ref.:	Figure 15.1 Plate 15.73
Importance:	Local
Interest category:	Social, Industrial
Impact Type:	Indirect
Potential Impact:	Slight negative
Mitigation:	Written and photographic record of bridge and landscape context

Site No.:	BH 3
RPS No.:	N/A
NIAH No.:	15701608
Townland:	Ballyeden
Parish:	Toome
Barony:	Gorey
County:	Wexford
National Grid:	309378, 152068
OS Map No.:	16
Chainage:	4,950
Field No.:	N/a
Distance from Route:	47m
Classification:	House
Legal Status:	Draft NIAH building
Description:	<p>Detached, five-bay two-storey double-pile house, dated to between 1850 and 1860 and originally consisting of a three-bay two-storey double-pile. The house was derelict in 1997 but then underwent extensive restoration and extension. Random rubble stone walls originally rendered incorporating sections of red brick irregular bond construction to side (E) elevation following course of chimneys. Square-headed window openings with cut-granite sills, red brick block-and-start surrounds incorporating red brick voussoirs, and replacement six-over-six timber sash windows. Waisted square-headed door opening with rough hewn stone step.</p> <p>A house of the middle size originally intended as a smaller composition representing an element of the mid 19th century domestic architectural heritage of the region having historic connections with the Swaine family. Whilst an additional range blends almost seamlessly with the original portion, the removal of the rendered surface finish has not only had an negative impact on the external expression or integrity of the house, but may also have a negative impact on the fabric of the walls in the long term.</p> <p>This house is present on the second edition OS map. Buildings occupy the site on the first edition map, but these are located within a different footprint to the current buildings on site.</p>
Sources:	Draft NIAH and field inspection
Adjacent Sites:	AAP 7, AAP 9
Photo/Figure Ref.:	Figure 15.1 Plate 15.74
Importance:	Regional
Interest category:	Architectural, Historical, Social
Impact Type:	Indirect
Potential Impact:	Moderate negative
Mitigation:	Written and photographic record of house and landscape context. Screening.

Site No.:	BH 5
RPS No.:	N/A
NIAH No.:	N/A
Townland:	Knockrobin
Parish:	Toome
Barony:	Scarawalsh
County:	Wexford
National Grid:	308309, 151062
OS Map No.:	16
Chainage:	6,450
Field No.:	N/a
Distance from Route:	232m
Classification:	Farm and house
Legal Status:	None
Description:	<p>This particular site was initially identified during cartographic analysis, as buildings are marked at this located on all three OS map editions. However, none of the current structures match the footprint of those shown on the first edition map. By the time of the second addition, the layout of the buildings at this farm are similar to those found on site today. It is likely that the outbuildings therefore date to the second part of the 19th century. The existing house has been much modified and extended and as such it is difficult to discern its original character. However, it does appear to consist of a two storey vernacular structure with a pitched, slate roof and a chimney stack at the northern gable end. It is likely that the southern gable end would have also possessed a stack, but this part of the building has been extended with a two storey extension possessing a width of two bays. It is likely the original house possessed a width of three bays, with a central door opening on the main SE facing façade that overlooks the farmyard. The building is rendered and has modern UPCC windows. A red brick single storey extension has also been attached to the NW facing façade.</p> <p>The farmyard remains in a better state of preservation, with three principle ranges of outbuildings surviving around the NE, SE and SW sides of the yard. These structures are single storey (with loft) with the SE range possessing a pitched slate roof, whilst the SW range has a hipped corrugated roof. The buildings are rendered, but constructed from random rubble. Most possess what appear to be their original wooden doors and represent former milking byres, workshops and stables. A number of modern outbuildings have also been erected at this farm outside of the original yard space.</p>
Sources:	Field inspection
Adjacent Sites:	AAP 4
Photo/Figure Ref.:	Figure 15.1 Plate 15.75, 15.76
Importance:	Local
Interest category:	Social, Historical

Impact Type:	Indirect
Potential Impact:	Imperceptible negative
Mitigation:	No specific mitigation measures required.

Site No.:	BH 6
RPS No.:	WCC0509
NIAH No.:	15701607
Townland:	Ballymore
Parish:	Kilbride
Barony:	Scarawalsh
County:	Wexford
National Grid:	308136, 149835
OS Map No.:	16
Chainage:	7,500
Field No.:	N/a
Distance from Route:	108m
Classification:	Former school house
Legal Status:	Draft NIAH building, Recorded Protected Structure
Description:	<p>Detached three-bay, single-storey former Erasmus Smith school, sanctioned 1840. The building has a symmetrical T-shaped plan with single-bay, single-storey breakfront on a canted plan with single-bay, single-storey lean-to recessed lower flanking entrance bays, and two-bay two-storey central return to the SE. Now in residential use. It possesses a hipped slate roof on a T-shaped plan incorporating half-polygonal slate section to breakfront with hipped slate roofs to entrance bays. The walls are roughcast. Square-headed window openings including square-headed window opening in quadripartite arrangement to breakfront having square-headed window openings in tripartite arrangement to flanking bays. Square-headed door openings with two steps, and tongue-and-groove timber panelled double doors. Interior retaining timber shutters to window openings to return.</p> <p>A small-scale school recognised as an important element of the 19th century built heritage of Ballymore on account of the status as the earliest-surviving purpose-built educational institution in the region. This was established by Richard Donovan (1781-1849) of nearby Ballymore House with the assistance of a grant from the Erasmus Smith Trust (chartered 1669). The architectural value of the school is underscored by attributes such as the compact symmetrical plan form accommodating classroom blocks centred on an expressed breakfront, the elegant glazing patterns retaining pretty glazing panels. Having been sympathetically adapted to accommodate an alternative use in the late 20th century, the school continues to present an early aspect with most of the original fabric surviving in place, both to the exterior and to the interior.</p> <p>The school is marked on the second and third OS map editions.</p>
Sources:	Draft NIAH, Wexford County Development Plan
Adjacent Sites:	AAP 10, AAP 11, BH 7, BH 8
Photo/Figure Ref.:	Figure 15.1 Plate 15.77
Importance:	Regional

Interest category:	Architectural, Historical, Social
Impact Type:	Indirect
Potential Impact:	Slight negative
Mitigation:	Written and photographic record of house and landscape context.

Site No.:	BH 7
RPS No.:	N/A
NIAH No.:	N/A
Townland:	Ballymore
Parish:	Kilbride
Barony:	Scarawalsh
County:	Wexford
National Grid:	307951, 149845
OS Map No.:	16
Chainage:	7,580
Field No.:	45
Distance from Route:	0m
Classification:	Vernacular cottage (in ruins)
Legal Status:	None
Description:	<p>This structure is present on all OS map editions and may date to the late 18th or early 19th century. It consists of a single storey, vernacular cottage, which possesses a width of three bays, with a door entrance offset from the centre. It also possesses the remains of a red brick chimney stack, also offset from centre. The cottage is rendered, but it is possible to discern that the core of the buildings possesses random rubble foundations with the remainder being constructed from clay. This was more visible where the render has fallen away from the building on the rear (NE facing) façade. There are no window openings on the NE façade and the three window openings on the main SW façade, which overlooks the roadway, have lost their frames and are very denuded being blocked by corrugated iron. Red brick sills were evident here though. The pitched roof is also of corrugated iron, which is likely to have replaced a slate or thatched roof. Generally the building is in a very derelict state and has been impacted on by overgrowth such as ivy. However, the cottage represents an important part of the local social history. This was once a common structure to be found within the Irish landscape, but has become increasingly rare as the buildings have fallen into ruin, been knocked down or modified to the extent that their original character is no longer discernable.</p>
Sources:	Field inspection, OS mapping
Adjacent Sites:	AAP 10, AAP 11, BH 6, BH 8
Photo/Figure Ref.:	Figure 15.1 Plate 15.78
Importance:	Local
Interest category:	Historical, Social, archaeological
Impact Type:	Direct
Potential Impact:	Significant negative
Mitigation:	Written and photographic record of cottage and landscape context along with a full floor plan.

Site No.:	BH 8
RPS No.:	N/A
NIAH No.:	N/A
Townland:	Ballymore
Parish:	Kilbride
Barony:	Scarawalsh
County:	Wexford
National Grid:	307851, 149903
OS Map No.:	16
Chainage:	7,600
Field No.:	N/a
Distance from Route:	38m
Classification:	Cottage
Legal Status:	None
Description:	<p>This building represents a structure that would have been built as a result of The Labourers' Act of 1883. This act enabled local authorities to erect 50,000 cottages for the landless labourers by 1921. Most possessed a more formal type of architecture than private dwellings, and this is evident within the architecture of this cottage, which consists of a detached single storey house with half-dormer attic and advanced porch to the centre ground floor. The red brick chimney stack is slightly offset on top of the pitched slate roof. One of the windows on the main SW facing façade retains its original wooden sash frame, whilst the other has been replaced with a UPVC frame. Stone corbels support the guttering just below the eaves of the building, which is rendered with ruled and lined walls. The windows and door entrance are square headed, the windows possessing stone lintels. The main entrance possesses a step threshold but a wooden, likely replacement door. The building is set within a sizable plot, is well maintained and retains the original iron entrance gate and a small stone outbuilding to the rear. It has not been negatively impacted on by later extensions to the structure and survives as an important element of local social history. The structure is not present on the first edition OS map, but is present by the second edition. As such it is likely to date to the 1880s or 90s.</p>
Sources:	Field inspection
Adjacent Sites:	AAP 10, AAP 11, BH 6, BH 7
Photo/Figure Ref.:	Figure 15.1 Plate 15.79
Importance:	Local
Interest category:	Historical, Social, Architectural
Impact Type:	Indirect
Potential Impact:	Slight negative
Mitigation:	Written and photographic record of the cottage and its landscape context.

Site No.:	BH 9
RPS No.:	N/A
NIAH No.:	N/A
Townland:	Rockspring
Parish:	Kilbride
Barony:	Scarawalsh
County:	Wexford
National Grid:	307452, 149222
OS Map No.:	16
Chainage:	8,370
Field No.:	48
Distance from Route:	0m
Classification:	Vernacular cottage (in ruins)
Legal Status:	None
Description:	<p>This building is marked on the first edition OS map as a rectangular structure aligned N-S and situated perpendicular to a tertiary road located to the immediate S. It is accompanied by three other structures located to the NE, which also appear to represent cottages. By the time of the second edition only this building survives and is marked with a reduced footprint. Today the structure is in ruins and is extremely overgrown. Two gable end walls are still upstanding, constructed from random rubble masonry and indicating that the cottage possessed a pitched roof. Very little else could be discerned during the field inspection due to the overgrowth. However, no evidence of the structures marked on the first edition to the NE could be identified. An entrance to the plot has been created by forming a gate pillar from the corner of the gable end. This must have been carried out after the house went into disrepair.</p> <p>An oral history is attached to this site, which was recounted by the owner of Rockspring house (BH 11), Beryl Jameson. Two bachelor brothers used to occupy the cottage and had lived together for years. However, one night one of the brothers decided his other brother had driven him mad for too long and he had quietly put up with it. As a result he took his pocket watch and broke it. When the other brother discovered the crime, he too went mad after all the years of putting up with the other brother and killed him in a fit of rage. After that no body wanted to live in the cottage and that was the reason it fell into disrepair and became a ruin.</p>
Sources:	Field inspection
Adjacent Sites:	AAP 12, AAP 13, BH 10, BH 11, BH 12
Photo/Figure Ref.:	Figure 15.1 Plate 15.80
Importance:	Local
Interest category:	Historical, Social, Archaeological
Impact Type:	Direct
Potential Impact:	Significant negative
Mitigation:	Written and photographic record of remains of cottage and landscape context

Site No.:	BH 10
RPS No.:	N/A
NIAH No.:	N/A
Townland:	Rockspring
Parish:	Kilbride
Barony:	Scarawalsh
County:	Wexford
National Grid:	307652, 149183
OS Map No.:	16
Chainage:	8,350
Field No.:	N/a
Distance from Route:	119m
Classification:	Entrance to Rockspring House
Legal Status:	None – although the house is listed within the draft NIAH
Description:	The formal entrance to Rockspring House and demesne. This roadside structure consists of rendered gate piers, incorporating cut granite wheel guards and topped by pyramidal cap stones. The recess of the entrance is formed by the remains of a lime rendered, random rubble stone wall with cut granite coping and terminating piers also with pyramidal cap stones. The decorative wooden gate is hung with decorative iron hinges.
Sources:	Field inspection, draft NIAH
Adjacent Sites:	AAP 12, AAP 13, BH 9, BH 11, BH 12
Photo/Figure Ref.:	Figure 15.1 Plate 15.81
Importance:	Local
Interest category:	Historical, Social
Impact Type:	Indirect
Potential Impact:	Imperceptible negative
Mitigation:	No specific mitigation measures required.

Site No.:	BH 11
RPS No.:	N/A
NIAH No.:	15701605
Townland:	Rockspring
Parish:	Kilbride
Barony:	Scarawalsh
County:	Wexford
National Grid:	307713, 149075
OS Map No.:	16
Chainage:	8,400
Field No.:	N/a
Distance from Route:	179m
Classification:	Rockspring House and complex
Legal Status:	Draft NIAH building
Description:	<p>Detached five-bay, two-storey country house with dormer attic, c.1725, reputedly originally three-bay three-storey with lateral screen walls leading to single-bay (single-bay deep) single-storey gable-fronted advanced terminating pavilion blocks with half-dormer attics. The house was burnt in 1798 and then repaired at the start of the 19th century, producing present composition.</p> <p>Hipped slate roof with pitched (gable-fronted) slate roofs to pavilion blocks, clay ridge tiles, red brick running bond chimney stacks having capping supporting yellow terracotta tapered pots. Creeper-covered roughcast lime rendered walls over random rubble stone construction with battlemented parapets to screen walls having coping. Square-headed window openings with cut-granite sills. Hipped elliptical-headed door opening with three cut-granite steps, rendered surround, timber mullions and transom, timber panelled door having sidelights and fanlight. Segmental-headed door openings to screen walls with concealed dressings, and wrought iron gates. Pointed-arch window openings to pavilion blocks with cut-granite sills, and fixed-pane timber fittings having interlocking Y-tracery glazing bars. The interior of the house remains very well preserved with very little modernisation. In the entrance hall the floor is formed by Brixon plank timber parquet floor, carved timber surrounds to door openings having timber panelled or glazed timber panelled doors, timber panelled cantilevered staircase with turned timber balustrade supporting timber handrail, and run moulded plasterwork cornice to ceiling. The kitchen has lime-washed (whitewashed) random rubble stone walls, a hearth with segmental-headed opening and red brick surround supporting red brick voussoirs and an exposed timber ceiling construction, which supports the timber floors to first floor. The house is set back from road in its own grounds with landscaped grounds to site including a garden terrace with flight of six steps having parapets supporting urns. To the rear (E) of the main house there is a substantial farm complex that consists of stone outbuildings ranged on the</p>

	<p>N, E and S sides. The buildings are mostly single storey, of random rubble construction and possess either pitched slate or corrugated iron roofs. Many of the buildings were used as stables and byres but today are used mostly for storage. Local small scale industry also took place here with a brewery, brick works and tannery also present. Modern farm structures have been erected to the E of the original farm complex.</p> <p>A country house of the middle size representing an important, if little known component of the domestic built heritage of County Wexford with origins dating back to at least the mid 18th century. Having been reconstructed in the early 19th century following substantial damage caused by arsonists led by Father John Murphy at the outbreak of the 1798 Rebellion (this was the house rented by the Commander of the local forces Captain Bookey). The architecture indicates an awareness of the contemporary interest in the revival of Palladian planning having been intended to accommodate coach house and hay house ranges with Churchwarden tracery-like glazing panels continuing the Georgian Gothic theme. Having been very well maintained, the house continues to express an early aspect with most of the original fabric surviving in place, both to the exterior and to the interior where an elegant staircase displays good quality carpentry and the plasterwork accents identify the artistic potential of the composition.</p> <p>The house is present on all three OS map editions. The first edition map shows it surrounded by a small demesne, the extent of which is shaded. This is marked on Figure 15.1 and the proposed route will cut the NW corner of the original demesne extent.</p>
Sources:	Draft NIAH
Adjacent Sites:	AAP 12, AAP 13, BH 9, BH 10, BH 12
Photo/Figure Ref.:	Figure 15.1 Plate 15.82, 15.83
Importance:	Regional
Interest category:	Historical, Social, Architectural, Artistic
Impact Type:	Indirect
Potential Impact:	Imperceptible negative
Mitigation:	No specific mitigation measures required.

Site No.:	BH 12
RPS No.:	WCC0708
NIAH No.:	15801601
Townland:	Rockspring
Parish:	Kilbride
Barony:	Scarawalsh
County:	Wexford
National Grid:	307730, 149147
OS Map No.:	16
Chainage:	8,340
Field No.:	N/a
Distance from Route:	174m
Classification:	Garden Folly
Legal Status:	Draft NIAH structure, Recorded Protected Structure
Description:	<p>Freestanding single-bay two-stage thatched folly, c.1825, on an octagonal plan. Octagonal roof with moss-covered reed thatch on iron or timber construction, concrete capping to raised ridge to apex above exposed stretchers having exposed scallops, ivy-clad red brick chimney stack having capping and slightly overhanging rendered eaves. Remains of roughcast lime rendered walls to first stage over random rubble stone construction with remains of roughcast lime rendered walls to second stage over red brick Flemish bond construction. Square-headed window openings behind pointed-arch openings with cut-granite sills, red brick block-and-start surrounds incorporating red brick voussoirs and timber fittings having decorative iron glazing panels. Pointed-arch door openings including one pointed-arch door opening to second stage approached by remains of flight of stone steps with cut-granite sill steps, red brick block-and-start surrounds incorporating red brick voussoirs and timber boarded doors. Interior with rendered walls over rubble stone construction incorporating segmental-headed recessed niches. The structure is now falling into disrepair. It is incorporated into the walled garden that is located to the N of Rockspring House, and overlooks the garden from the NW corner. However, it is also accessible from the tertiary road that runs to the immediate N of the structure and the garden. The walled garden itself survives in good condition and is now used as a pasture paddock. Some small sections of the wall have been replaced and in places the interior facing of red brick has come away from the stone core of the wall.</p>
Sources:	Draft NIAH, Wexford County Development Plan
Adjacent Sites:	AAP 12, AAP 13, BH 9, BH 10, BH 11
Photo/Figure Ref.:	Figure 15.1 Plate 15.84, 15.85
Importance:	Regional
Interest category:	Architectural
Impact Type:	Indirect
Potential Impact:	Imperceptible negative
Mitigation:	No specific mitigation measures required.

Site No.:	BH 13
RPS No.:	N/A
NIAH No.:	N/A
Townland:	Ballycarrigeen Lower
Parish:	Kilcormick
Barony:	Gorey
County:	Wexford
National Grid:	305670, 147577
OS Map No.:	16
Chainage:	10,900
Field No.:	N/a
Distance from Route:	104m
Classification:	Vernacular house and farmyard
Legal Status:	None
Description:	<p>This site was originally identified during analysis of historical OS mapping. Buildings are shown at this site on the first edition OS map although the main house is not present. However, it appears that the original farm cottage (which is still present as an outbuilding under renovation) is marked on this map. By the time of the second edition the main house is marked. Today the main house consists of a two storey, four bay detached residential house, with a pitched slate roof and an offset red brick chimney stack. The main entrance is also offset from the centre of the main W facing façade and is accessed via a gabled advanced porch. The door and windows are all square headed openings and contain modern UPBV frames and a replacement wooden door. The exterior is rendered with pebble dash and the building retains its original cast iron guttering and down pipes. The house overlooks a small farmyard that contains two outbuildings to the W and SW, both of which contain part of their original stone fabric, but have been much altered with breeze block insertions and corrugated iron roofs. To the ENE of the main house is the original farm cottage, which was replaced when the main house was built. The cottage was then kept to function as an outbuilding. Today it is undergoing renovation and the random rubble course masonry has been exposed and some of the entrances have been blocked. It is likely that this building originally possessed a hipped and thatched roof. However, the gable ends have been built up with new stone and the building now possesses a replacement pitched roof, which does not blend well with the original structure. The house owner stated during the field inspection that she had been informed that the cottage could date to the late 18th century, which is likely when considering its original form.</p>
Sources:	Field inspection
Adjacent Sites:	BH 14, BH 15
Photo/Figure Ref.:	Figure 15.1 Plate 15.86, 15.87
Importance:	Local

Interest category:	Social, Historical
Impact Type:	Indirect
Potential Impact:	Slight negative
Mitigation:	Written and photographic record of farm complex and landscape context.

Site No.:	BH 14
RPS No.:	N/A
NIAH No.:	N/A
Townland:	Ballycarrigeen Lower
Parish:	Kilcormick
Barony:	Gorey
County:	Wexford
National Grid:	305584, 147519
OS Map No.:	16
Chainage:	11,000
Field No.:	N/a
Distance from Route:	60m
Classification:	Vernacular house and farmyard (derelict)
Legal Status:	None
Description:	<p>This site was originally identified during analysis of historical OS mapping. Buildings are shown at this site on the first edition OS map, with a structure marked in the same position as the main house that survives on site today. Outbuildings are shown in a yard arrangement to the W of the house. Today outbuildings survive on the N and S sides of the yard. By the time of the second edition, the building occupying the site of the main house is still marked, although it is a little blurred in the mapping. However, the current structure appears to date to the later part of the 19th century, rather than the first part and is similar in form to the main house found at BH 13.</p> <p>The house is derelict and falling into a ruin. It was also very overgrown at the time of the inspection and as a result some of the architectural features could not be discerned. The structure consists of a detached, two storey, four bay farm house with a hipped, slate roof. The main entrance is via a gabled advanced porch. The gable portion slopes very steeply and looks out of proportion with the rest of the house, with the tip of the gable reaching the roof eaves. No chimney stacked could be discerned and access to the rear of the property was impossible, although it was possible to note a single storey lean-to extension at the rear from the southern gable end. There is an additional door entrance adjacent to the southern gable end at ground level, but it is not clear if this was originally a window opening that was modified. All door and window openings are square headed and some of the original wooden sash frames remain within the openings. There are concrete window sills present. The structure is stone built and has been rendered, which is starting to fall away. The main W facing façade of the house overlooks a small yard, which now contains two ranges of random rubble stone outbuildings that possess corrugated iron roofs. These have been white-washed and appear to retain their original wooden doors. These too were very overgrown at the time of the inspection.</p> <p>Although this site is accessed via a N-S track that runs from a tertiary road to the S, a sunken track also leads from the</p>

	farm in a westerly direction. This presumably provided access to the fields. However, the sunken nature of the trackway suggests it has been in use for a considerable amount of time and as such may point to earlier activity in this area that pre-dates this post medieval farmstead.
Sources:	Field inspection
Adjacent Sites:	BH 13, BH 15
Photo/Figure Ref.:	Figure 15.1 Plate 15.88, 15.89
Importance:	Local
Interest category:	Social, Historical
Impact Type:	Indirect
Potential Impact:	Slight negative
Mitigation:	Written and photographic record of farm complex and landscape complex.

Site No.:	BH 15
RPS No.:	N/A
NIAH No.:	N/A
Townland:	Ballycarrigeen Lower
Parish:	Kilcormick
Barony:	Gorey
County:	Wexford
National Grid:	305390, 147471
OS Map No.:	16
Chainage:	11,160
Field No.:	73/74
Distance from Route:	0m
Classification:	Hollow trackway
Legal Status:	None
Description:	<p>This particular feature was identified during field inspection and does not appear to represent a usual trackway often found in association with post medieval farmsteads. This trackway is hollow and therefore it implies that it has been used over a considerable amount of time. The OS map editions show that it runs in a roughly E-W direction from the farmstead BH 14 and provides access to the fields as it does not lead to any other buildings or features. However, its depth and implied usage may indicate the presence of an earlier possibly medieval track network, which was incorporated into the post medieval farm when it was established. The track itself is relatively narrow, having a width of c. 3m and possesses a depth of c. 1-1.25m below the surrounding ground level. The sides have been revetted with stone in places and it is now very overgrown on both sides and within the centre and is barely accessible. There is no indication with the historical mapping or the aerial photographs of the track continuing further to the E and W.</p>
Sources:	Field inspection
Adjacent Sites:	BH 14
Photo/Figure Ref.:	Figure 15.1 Plate 15.90
Importance:	Local
Interest category:	Archaeological, Historical
Impact Type:	Direct
Potential Impact:	Significant negative
Mitigation:	Archaeological investigation in the form of testing.

Site No.:	BH 16
RPS No.:	N/A
NIAH No.:	N/A
Townland:	Ballycarrigeen Lower
Parish:	Kilcormick
Barony:	Gorey
County:	Wexford
National Grid:	305076, 147504
OS Map No.:	15
Chainage:	11,400
Field No.:	N/a
Distance from Route:	180m
Classification:	Farm Complex
Legal Status:	None
Description:	<p>This complex was originally identified as a potential site during analysis of the historic cartographic resource. Four structures are shown arranged around a yard on the first edition OS map. A building is shown close to the position of the existing house, but the footprint does not match exactly. By the time of the second edition several more structures are shown and a building matching the footprint of the current main house is also present. The main house today has lost most of its original vernacular character. It consists of a detached, two storey, three bay structure with a hipped roof and offset chimney stack. The original main entrance was positioned centrally on the ESE facing façade. However, this has been blocked and a new entrance and porch has been constructed offset from the centre of the main façade. Two of the upper storey windows on the ESE façade have been enlarged and all are fitted with UPVC frames. A small extension has been added to the NNE gable end.</p> <p>Although the house has lost much of its vernacular character, the outbuildings remain as good examples of 19th century farm structures. They are located in ranges on the N, E and S sides of the yard. The best preserved building consists of a single storey (with attic) structure constructed from random rubble with a recessed entrance with a segmental arch. This also possesses a date, as 1876, along with the initials M.G have been inscribed into a large stone at the apex of the NW facing gable end.</p>
Sources:	Field inspection
Adjacent Sites:	AAP 17, BH 1
Photo/Figure Ref.:	Figure 15.1 Plate 15.91, 15.92
Importance:	Local
Interest category:	Social, historical
Impact Type:	Indirect
Potential Impact:	Imperceptible negative
Mitigation:	No specific mitigation measures required.

Site No.:	BH 17
RPS No.:	N/A
NIAH No.:	N/A
Townland:	Carrigeen
Parish:	Kilcormick
Barony:	Gorey
County:	Wexford
National Grid:	304921, 147290
OS Map No.:	15
Chainage:	11,650
Field No.:	N/a
Distance from Route:	86m
Classification:	Farm complex
Legal Status:	None
Description:	<p>This complex was originally identified as a potential site during analysis of the historic cartographic resource. The first edition shows a building within the same footprint of the current farm house, with outbuildings arranged around a courtyard to the immediate SW of the house. By the time of the second edition, the main house is shown as an extended structure and there are additional outbuildings shown within the yard. The house has subsequently been subject to modernisation, with the main SE facing façade now resembling a building dating to the 1970s. The windows have been enlarged and are fitted with modern UPVC and a large single storey extension has been constructed, which appears to function as a porch.</p> <p>However, the rear of the house (NW facing façade) contains more architectural features although they do not have any regularity. The rear door is accessed via a gabled advanced porch, with a recessed arch above the square headed door entrance. There is one window at ground level and three at first floor level, two of which possess round heads, with the most easterly possessing an original wooden frame with stained glass inserts. Two further smaller windows are located slightly above the first floor. This may indicate the insertion of another floor level within the building at some point in the past. The exterior of the building is rendered with pebble dash but there are cut stone quoins at each corner of the building, which have now been painted. It is possible that this structure retains elements of the building that is shown on the first edition OS map, which was subsequently extended. It is not possible to see the phases of building due to the exterior render. However, the owner of the property stated that during modern extension works, several of the internal walls were found to be extremely substantial.</p> <p>The stone farm buildings, located around the edge of the farmyard are gradually falling into disrepair. Much of the render has fallen away from the stone work and the roofs have been replaced with corrugated iron. However, the buildings are quite substantial, with most possessing two</p>

	storeys. It is likely that during the 19 th century, this was a relatively affluent farm.
Sources:	Field inspection
Adjacent Sites:	AAP 17, BH 16
Photo/Figure Ref.:	Figure 15.1 Plate 15.93, 15.94
Importance:	Local
Interest category:	Social, historical
Impact Type:	Indirect
Potential Impact:	Slight negative
Mitigation:	Written and photographic record of farm complex and landscape context.

Site No.:	BH 18
RPS No.:	N/A
NIAH No.:	N/A
Townland:	Myaugh
Parish:	Kilcormick
Barony:	Scarawalsh
County:	Wexford
National Grid:	303167, 146039
OS Map No.:	15
Chainage:	13,800
Field No.:	N/a
Distance from Route:	101m
Classification:	Farm complex (in ruins)
Legal Status:	None
Description:	<p>This complex was originally identified as a potential site during analysis of the historic cartographic resource. The first edition map shows four buildings at this location, three of which are substantial in size. By the time of the second edition the site has been reorganised, with some buildings removed and others erected. Today the denuded remains of two structures exist at the site. The southernmost appears to consist of the remains of a single storey cottage. However, the northern gable end has been removed and it is covered with a modern pitched roof and is now used as a storage barn. Several small square windows opes were noted along with at least two entrances. To the N of this structure is the remains of a single storey stone structure which has also been covered with a corrugated roof. Part of the original rear wall of the structure is now used as a low wall to form the side of a livestock pen. The remains at the site are very denuded, but it seems likely that these buildings are represented on the first edition OS map and as a result may date to the late 18th or early 19th century.</p>
Sources:	Field inspection
Adjacent Sites:	AAP 19
Photo/Figure Ref.:	Figure 15.1 Plate 15.95
Importance:	Local
Interest category:	Social, historical
Impact Type:	Indirect
Potential Impact:	Slight negative
Mitigation:	Written and photographic record of farm complex and landscape context.

Site No.:	BH 19
RPS No.:	N/A
NIAH No.:	15702035
Townland:	Tinnacross
Parish:	Clone
Barony:	Scarawalsh
County:	Wexford
National Grid:	302708, 145672
OS Map No.:	20
Chainage:	14,450
Field No.:	N/a
Distance from Route:	49m
Classification:	Bridge
Legal Status:	Draft NIAH structure
Description:	<p>A two arch, rubble stone, hump-back road bridge, which crosses a small stream and dates to c. 1775. Random rubble stone walls with rubble stone triangular cut water to pier having grass covered coping and rubble stone soldier course (vertical) coping to parapets. The bridge possesses a pair of round arches with rubble stone voussoirs and rubble stone soffits.</p> <p>This structure represents an important element of the mid to late 18th century transport heritage of the region.</p>
Sources:	Draft NIAH
Adjacent Sites:	AAP 20, SAP 6
Photo/Figure Ref.:	Figure 15.1 Plate 15.96
Importance:	Regional
Interest category:	Architectural, Technical
Impact Type:	Indirect
Potential Impact:	Moderate negative
Mitigation:	Written and photographic record of bridge and landscape context.

Site No.:	BH 20
RPS No.:	N/A
NIAH No.:	15702030
Townland:	Tomsallagh
Parish:	Clone
Barony:	Scarawalsh
County:	Wexford
National Grid:	301208, 144276
OS Map No.:	20
Chainage:	16,450
Field No.:	N/a
Distance from Route:	256m
Classification:	Summerville House
Legal Status:	Draft NIAH building
Description:	<p>Detached three-bay, two-storey over part raised basement farmhouse with dormer attic, c.1850, with single-bay two-storey side elevations and single-bay full-height central return to NW having single-bay full-height flanking return to S with single-bay two-storey infill return with dormer attic, c.1775 (extant 1798), completing square plan. Reroofed, 1976. Renovated and re-fenestrated, pre-2004. Hipped and pitched roof on an L-shaped plan with replacement fibre-cement slate, 1976, retaining half-Mansard slate roof to infill return, ridge tiles, rendered chimney stacks on axis with ridge having cornices under capping supporting terracotta tapered pots, roof-lights, and replacement rainwater goods on slate flagged eaves. Replacement grit-dashed roughcast walls, pre-2004, with rendered quoins to corners, and roughcast walls to rear (NW) elevation retaining section of slate hanging to gable. Square-headed window openings with cut-granite sills, and replacement UPVC casement windows, pre-2004. Elliptical-headed door opening approached by flight of eight carved cut-granite steps with replacement cement rendered parapet, pre-2004, having coping, splayed reveals, replacement glazed UPVC door having sidelights, and fanlight. Interior with timber panelled shutters to window openings.</p> <p>The house is accompanied by a number of substantial outbuildings located to the immediate NW of the house, which surround a small yard.</p> <p>An interesting farmhouse of the middle size representing the mid 19th century re-development of an existing range (extant 1840/1) indicated on the first edition of the Ordnance Survey. This is suggested by attributes such as the compact, albeit nonetheless multi-faceted plan form with further traits underpinning an attractive, if standard design programme including the symmetrical arrangement of the principal facade centred on an elegant swept door case. The diminishing in scale of the openings on each floor in the Classical manner produces a graduated visual impression. However, while the elementary form and massing prevail together with a quantity of the historic fabric, both to the</p>

	<p>exterior and to the interior, possibly retaining some 18th century timber work, the character or external expression of the house has not benefited from a comprehensive renovation programme undertaken in the late 20th century involving the introduction of replacement fittings to the openings. A collection of attendant outbuildings exhibiting a comparatively informal, somewhat vernacular quality arranged about a shared courtyard contributes positively to the group and setting values of a farmyard ensemble. Buildings are marked at this location on the first edition OS map. Two substantial buildings are marked, with a structure occupying a footprint slightly larger than the existing house. The surrounding landscape is planted with a mixture of deciduous and coniferous trees and has yet to take on the appearance of a demesne landscape. By the time of the second edition the layout of the house and yard to the W resemble the existing site layout. A drive way to the house has been inserted that travels from the road in a NE-SW direction. Although a demesne is not shaded, the layout of the surrounding land possesses a demesne character, the remains of which were confirmed during field inspection. The proposed route will travel through the eastern portion of the former demesne lands, which is now used for arable farming.</p>
Sources:	Draft NIAH
Adjacent Sites:	AAP 22
Photo/Figure Ref.:	Figure 15.1 Plate 15.97
Importance:	Regional
Interest category:	Architectural
Impact Type:	Indirect
Potential Impact:	Imperceptible negative
Mitigation:	No specific mitigation measures required.

Site No.:	BH 21
RPS No.:	N/A
NIAH No.:	N/A
Townland:	Crane
Parish:	Clone
Barony:	Scarawalsh
County:	Wexford
National Grid:	301131, 143828
OS Map No.:	20
Chainage:	16,800
Field No.:	N/a
Distance from Route:	58m
Classification:	Farm Complex (in ruins)
Legal Status:	None
Description:	<p>This site consists of the substantial but ruined remains of a farm house, which is accompanied by a ruined outbuilding. The first edition OS map shows three buildings on site, with two garden areas showing formals walks located to the S of the buildings. Both the site of the main house and the outbuilding to the S are shown as occupied on this edition. The presence of the gardens would suggest a wealthy farmer, or possibly a connection with the later named Summerville House, which is only located 400m to the N. By the time of the second edition the gardens are no longer marked, but the structures are still present.</p> <p>Today the main house is very derelict, with the rear (NE) façade completely overgrown with ivy. The roof has collapsed on only the main SW facing façade can be clearly discerned. The structure is constructed from random rubble course masonry. It is detached, with two storeys and has a width of four bays, with the main entrance offset from the centre. It is possible that the ground floor formed the original building, as there is a slight difference in the stone work of the first floor and the first floor windows possess red brick surrounds, incorporating red brick voussoirs. The ground floor windows and door openings do not possess any red brick, although all the windows possess cut granite sills. It is not clear what type of roof the building possessed as the gable ends are much denuded. However, if this was the home of a relatively wealthy landowner, or was connected with the Summerville estate, it may have possessed a hipped roof.</p> <p>The ruined outbuilding is of random rubble course constructed and would have possessed a pitched roof, which was likely covered in slate. Two door entrances were noted through the surviving walls but no obvious windows. This building was also very overgrown.</p>
Sources:	Field inspection
Adjacent Sites:	AAP 21, AAP 22, SAP 8, AH 3
Photo/Figure Ref.:	Figure 15.1 Plate 15.98
Importance:	Local

Interest category:	Social, Historical
Impact Type:	Indirect
Potential Impact:	Slight negative
Mitigation:	Written and photographic record of farm complex and landscape context.

Site No.:	BH 22
RPS No.:	N/A
NIAH No.:	15702031
Townland:	Crane
Parish:	Clone
Barony:	Scarawalsh
County:	Wexford
National Grid:	300874, 143718
OS Map No.:	20
Chainage:	17,000
Field No.:	N/a
Distance from Route:	272m
Classification:	Bridge
Legal Status:	Draft NIAH building
Description:	<p>Single arch, rubble stone road bridge that crosses a stream and dates to c. 1850. Random rubble stone walls continuing into random rubble advanced outer piers with cut granite stringcourse. These support a parapet with rubble stone soldier course and vertical coping terminating in cut granite capping. The span of the bridge consists of a segmental arch with tooled, cut granite voussoirs and rubble stone soffits retaining sections of roughcast lime render.</p> <p>This represents an attractive small scale bridge, which forms an element of mid 19th century civil engineering or transport heritage. This structure appears to have replaced an earlier bridge, which is marked as present on the first edition OS map (1841).</p>
Sources:	Draft NIAH
Adjacent Sites:	BH 21, BH 23
Photo/Figure Ref.:	Figure 15.1 Plate 15.99
Importance:	Regional
Interest category:	Architectural, Technical
Impact Type:	Neutral
Potential Impact:	No predicted impact
Mitigation:	No specific mitigation measures required.

Site No.:	BH 23
RPS No.:	N/A
NIAH No.:	N/A
Townland:	Crane
Parish:	Clone
Barony:	Scarawalsh
County:	Wexford
National Grid:	300896, 143475
OS Map No.:	20
Chainage:	17,200
Field No.:	N/a
Distance from Route:	134m
Classification:	Vernacular House
Legal Status:	None
Description:	<p>This site consists of a detached, two storey house located within a generous plot, which is set back from a N-S tertiary road located to the W. A building is marked at this location on the first edition OS map, although it appears to be an outbuilding associated with a larger structure depicted to the N. By the time of the second edition the larger structure to the N has disappeared but the smaller building within the footprint of the current house is still present. There is no change on the third edition map.</p> <p>It is possible that an outbuilding was modified to create this structure. The house, which is in good condition, has a width of three bays, with a central hipped elliptical-headed door opening, which has lost its original side lights and fan light frames. The square headed windows retain their original wooden sash frames and cut granite sills. Iron bars are present on the ground floor windows. Hipped and slated roof with no evidence for chimney stacks.</p> <p>This structure is likely to represent a modest farm house, which employed some classical detailing such as the hipped roof and arched door entrance. It is likely to date to the mid part of the 19th century and may have replaced an earlier outbuilding, which is marked on the site on the first edition OS map.</p>
Sources:	Field inspection
Adjacent Sites:	BH 22, BH 27
Photo/Figure Ref.:	Figure 15.1 Plate 15.100
Importance:	Local
Interest category:	Social, Historical
Impact Type:	Indirect
Potential Impact:	Imperceptible negative
Mitigation:	No specific mitigation measures required.

Site No.:	BH 24
RPS No.:	N/A
NIAH No.:	N/A
Townland:	Toom
Parish:	Clone
Barony:	Scarawalsh
County:	Wexford
National Grid:	301047, 142744
OS Map No.:	20
Chainage:	17,850
Field No.:	N/a
Distance from Route:	21m
Classification:	Farm complex (in ruins)
Legal Status:	None
Description:	This site is first marked on the first edition OS map as a cluster of four large and two small buildings arranged around a farmyard. By the time of the second edition all the structures are still marked and some appear to have been extended. The farm is still present on the third edition map, with two additional square structures marked to the NW of the farmyard. The farm appears to then have gone out of use, as the site is now a ruin with very little remaining in the form of upstanding walls. Where the ruins of the buildings are evident above the undergrowth, it is clear to see that they were of random rubble construction. No evidence for a house or cottage was noted during the field inspection.
Sources:	Field inspection
Adjacent Sites:	AAP 52
Photo/Figure Ref.:	Figure 15.1 Plate 15.101
Importance:	Local
Interest category:	Social, Historical
Impact Type:	Indirect
Potential Impact:	Slight negative
Mitigation:	Written and photographic record of farm complex and landscape context.

Site No.:	BH 29
RPS No.:	N/A
NIAH No.:	N/A
Townland:	Ballydawmore
Parish:	Clone
Barony:	Scarawalsh
County:	Wexford
National Grid:	301461, 141795
OS Map No.:	20
Chainage:	19,030
Field No.:	N/A
Distance from Route:	188m
Classification:	Farm complex
Legal Status:	None
Description:	<p>This site is present on the first edition OS map as a cluster of buildings grouped around a yard. A structure is marked within the current footprint of the main residential house. By the time of the second edition there are fewer buildings present, but the main house is still shown with buildings arranged around a courtyard to the N.</p> <p>The house itself dates to c. 1800 and consists of a detached, single storey, five bay, lobby entry structure. It has undergone some modification, as what would have originally consisted of a pitched thatch roof has now been replaced by corrugated iron. The building has been rendered, along with the offset chimney stack. When the property was thatched it is likely that an entrance pediment sat above the entrance lobby, but this has since been removed. The windows along the main N facing façade vary in size and depth and are furnished with different wooden frames. The westerly most window in the largest opening. All door and windows openings are square headed and the windows possess cut stone sills.</p> <p>Although modified more recently from its original appearance, this cottage, which is still inhabited, is a vital part of the late 18th/early 19th century vernacular tradition in the county. Few of the attendant outbuildings survive as depicted on the first and second edition OS maps. One stone built, single storey outbuilding survives along the eastern side of the farmyard.</p>
Sources:	Field inspection
Adjacent Sites:	SAP 15, AAP 28
Photo/Figure Ref.:	Figure 15.1 Plate 15.102
Importance:	Local
Interest Category:	Social, Historical
Impact Type:	Indirect
Potential Impact:	Imperceptible negative
Mitigation:	No specific mitigation measures required.

Site No.:	BH 30
RPS No.:	N/A
NIAH No.:	15702026
Townland:	Ballynabarny
Parish:	Templeshannon
Barony:	Scarawalsh
County:	Wexford
National Grid:	300693, 140689
OS Map No.:	20
Chainage:	20,500
Field No.:	N/a
Distance from Route:	235m
Classification:	Bridge
Legal Status:	Draft NIAH structure
Description:	Single arch, rubble stone, hum back road bridge (over a river) dating to c. 1825. Randon rubble stone walls with rubble stone soldier course (vertical) coping to parapets. Single round arch with square rubble stone voussoirs. An attractive small scale bridge identified as an early element of 19 th century civil engineering or transport heritage. Present on all OS map editions and named as Ballynabarny Bridge.
Sources:	Draft NIAH
Adjacent Sites:	AAP 30
Photo/Figure Ref.:	Figure 15.1 Plate 15.103
Importance:	Regional
Interest category:	Architectural, Technical
Impact Type:	No predicted impact
Potential Impact:	Neutral
Mitigation:	No specific mitigation measures required.

Site No.:	BH 31
RPS No.:	N/A
NIAH No.:	N/A
Townland:	Tomnafunshoge
Parish:	Templeshannon
Barony:	Scarawalsh
County:	Wexford
National Grid:	300629, 139876
OS Map No.:	20
Chainage:	21,100
Field No.:	N/a
Distance from Route:	0m
Classification:	Post box
Legal Status:	None
Description:	A plain metal post box, painted green and inset into a random rubble stone wall on the southern side of a set of crossroads. This is likely to be relatively recent in date as it does not possess the British post box fittings. However, it may have replaced an earlier box and its presence within a relatively undeveloped area illustrates how the rural populations relied on the postal system, when many could not access the post offices set within towns and villages.
Sources:	Field inspection
Adjacent Sites:	AH 25
Photo/Figure Ref.:	Figure 15.1 Plate 15.104
Importance:	Local
Interest category:	Social
Impact Type:	Indirect
Potential Impact:	Significant negative
Mitigation:	Written and photographic record of post box and landscape context.

Site No.:	BH 32
RPS No.:	N/A
NIAH No.:	15702639
Townland:	Ballycourcymore
Parish:	Ballyhuskard
Barony:	Ballaghkeen
County:	Wexford
National Grid:	299917, 138336
OS Map No.:	26
Chainage:	22,850
Field No.:	N/a
Distance from Route:	110m
Classification:	Ballycourcy House
Legal Status:	Draft NIAH building
Description:	<p>Detached three-bay two-storey country house, c.1800 (extant 1811), on a complex L-shaped plan, probably incorporating fabric of earlier house, extant 1792. Box bay window to right ground floor, single-bay two-storey side (SE) elevation having canted bay window to ground floor extending through three-bay, two-storey return to SW. Three-bay, two-storey lower return wing to SW flanking single-bay (two-bay deep), two-storey central lower return to SW giving way to seven-bay, single-storey kitchen wing. Re-fronted in 1930, producing present composition. In use as resort, pre-2003 and now in residential use.</p> <p>Hipped slate roof on an L-shaped plan incorporating hipped double-pile (M-profile) slate roofs to returns; hipped and pitched slate roof to return wing; pitched and hipped stepped slate roof to kitchen wing with clay ridge tiles. Replacement rendered wall, to front (NW) elevation retaining creeper-covered lime render, remainder over random rubble stone construction with creeper-covered random rubble stone walls to kitchen wing incorporating sections of red brick construction.</p> <p>Round-headed door opening with four cut-granite steps supporting iron boot scraper, moulded (Torus) rendered surround leading through concaved reveals into timber reeded colonette doorcase, supporting fluted frieze, and glazed timber panelled double doors having fanlight.</p> <p>Attached seven-bay single-storey outbuilding with-half-attic, extant 1840-1, about a shared courtyard to SW with single-bay full-height entrance breakfront. Hipped slate roof part behind parapet with roll moulded clay or terracotta ridge tiles, and cast-iron rainwater goods on eaves having iron ties. Part creeper-covered remains of roughcast lime rendered wall to front (SW) elevation over random rubble stone construction incorporating cast-iron tie bars, and lime washed (whitewashed) lime rendered wall to courtyard (NE) elevation over red brick construction incorporating cast-iron 'pattress' tie plates with rubble stone buttress pier.</p> <p>Square-headed door openings with red brick block-and-start surrounds incorporating red brick voussoirs and timber</p>

	<p>boarded doors. Elliptical-headed integral carriageway to breakfront with semi-coursed squared stone piers rising into red brick voussoirs, no fittings surviving, random rubble stone parapet with red brick quoins to corners flanking red brick voussoirs forming round relieving arch and cut-stone chamfered coping supporting red brick gabled bell cote to apex with pointed-arch aperture retaining cast-iron bell.</p> <p>This house is marked on the first edition OS map within a shaded demesne, which is accessed via a lengthy E-W driveway which possesses a gate lodge at the main entrance. The first edition map shows an ornamental lake located to the E of the house. However, this has been removed by the time of the second edition. A thick belt of trees now exist within this area, which lies between the house and proposed route. The proposed route runs in a N-S direction to the immediate E of the maximum extent of the demesne lands as shown on the first edition.</p>
Sources:	Draft NIAH
Adjacent Sites:	SAP 18, AAP 32
Photo/Figure Ref.:	Figure 15.1 Plate 15.105, 15.106
Importance:	Regional
Interest category:	Architectural, Historical, Social
Impact Type:	Indirect
Potential Impact:	Imperceptible negative
Mitigation:	No specific mitigation measures required.

Site No.:	BH 33
RPS No.:	N/A
NIAH No.:	N/A
Townland:	Monroe
Parish:	Edermine
Barony:	Ballaghkeen
County:	Wexford
National Grid:	300116, 136112
OS Map No.:	26
Chainage:	25,180
Field No.:	N/A
Distance from Route:	87m
Classification:	Farm complex
Legal Status:	None
Description:	<p>This complex is first marked within the historic map resource as a small farm consisting of four large and two small buildings. The current main residence is not marked on this edition. By the time of the second edition, the main house is marked along with four other buildings arranged around a yard to the immediate SE of the house. Today, little remains of the original farmyard, with a number of modern structures having been erected. However, the main house is still extant, although at the time of the field inspection was undergoing modification and renovation. The house consists of a detached, two storey, three bay farmhouse. It possesses a hipped roof, which appears to have been replaced relatively recently. There was no evidence of chimney stacks. The door and windows are square headed and have lost their original frames, although the windows possess painted cut stone sills. The core of the house is of random rubble construction but has been rendered, which is characterised by line and rule. Corner quoin stones have been painted onto the corners of the house. The main SSW facing elevation has been disturbed, with the left section, including the window openings, having been removed as part of the renovation works.</p> <p>A single storey, stone building farm outbuilding exists to the SW of the main house. This represents the eastern range of farm yard buildings as marked on the second edition OS map.</p>
Sources:	Field inspection
Adjacent Sites:	AAP 34
Photo/Figure Ref.:	Figure 15.1 Plate 15.107
Importance:	Local
Interest Category:	Social, Historical
Potential Impact:	Slight negative
Mitigation:	Written and photographic record of farm complex and landscape context.

Site No.:	BH 51
RPS No.:	N/A
NIAH No.:	15801602
Townland:	Cronyhorn
Parish:	Kilbride
Barony:	Scarawalsh
County:	Wexford
National Grid:	306167, 148391
OS Map No.:	16
Chainage:	9,900
Field No.:	N/A
Distance from Route:	95m
Classification:	Vernacular house
Legal Status:	Draft NIAH building
Description:	<p>Detached four-bay, single-storey lobby entry farmhouse with dormer attic dating to c.1775. This building would originally have possessed a pitched, thatched roof, but it was replaced with corrugated iron in 1992. Single-bay, single-storey gabled entrance windbreak and single-bay single-storey lean-to outbuilding end bay to right. In use during the 1980s, but now disused and falling derelict. Hipped roof incorporating flat timber roofs to dormer attic windows with replacement corrugated-iron, over oat thatch, pressed iron ridge, red brick Running bond squat chimney stack having rendered chamfered capping and no rainwater goods on slightly overhanging eaves.</p> <p>Pitched (gabled) slate roof to entrance windbreak with decorative terracotta ridge tile, timber coping, and no rainwater goods on eaves. Lime washed (whitewashed) lime rendered walls over mud wall construction with rendered buttresses. Square-headed window openings with timber sills, concealed lintels and replacement two-over-two timber sash windows, c.1900. Square-headed door opening with threshold and tongue-and-groove timber panelled door. Square-headed door opening to outbuilding end bay with timber lintel, and timber boarded door having over light.</p> <p>This structure is accompanied by a detached single-bay single-storey outbuilding, extant 1841. Reroofed in c.1950 but now disused. Pitched roof with replacement corrugated-iron, rolled iron ridge, and no rainwater goods on eaves. Remains of fine roughcast walls over random rubble stone construction. Square-headed door opening with timber lintel, and timber boarded half-door.</p> <p>This site is recorded on the first edition OS map and consisted of a substantial farmstead. Seven buildings are marked on the first edition, including the main house and surviving outbuildings located on the western side of the farmyard. By the time of the second and third edition all of the buildings are still present.</p> <p>A farmhouse of the middle size representing an important element of the mid to late 18th century vernacular legacy of the county and includes substantial sections of mud wall</p>

	<p>construction identified by stout buttress. Although the original thatched roof has been concealed, the replacement corrugated-iron covering is considered a trait of the 20th century vernacular tradition. Although now falling derelict, much of the historic or original fabric survives in place, both to the exterior and to the interior.</p> <p>During the field inspection it was clear that a large amount of demolition had been carried out on site, with potentially three farm yard buildings located to the SE of the main house having been removed relatively recently.</p>
Sources:	Field inspection
Adjacent Sites:	AAP 14, AAP 15, SAP 4
Photo/Figure Ref.:	Figure 15.1 Plate 15.108
Importance:	Regional
Interest Category:	Social, Architectural
Impact Type:	Indirect
Potential Impact:	Slight negative
Mitigation:	Written and photographic record of house and landscape context.

N80 Link Road

Site No.:	BH 4
RPS No.:	N/A
NIAH No.:	15702023
Townland:	Ballynabarny
Parish:	Templeshannon
Barony:	Scarawalsh
County:	Wexford
National Grid:	300252,141798
OS Map No.:	20
Chainage:	3,420
Field No.:	N/a
Distance from Route:	184m
Classification:	Ballyvarna House
Legal Status:	Draft NIAH building
Description:	<p>Detached three-bay, two-storey house with dormer attic, between dating to between 1841 and 1853. Single-bay, single-storey, flat-roofed projecting porch to centre ground floor, three-bay, two-storey side elevations and single-bay full-height lean-to advanced central return to N continuing into two-bay, two-storey lower return to NE. Hipped slate roof continuing into lean-to slate roof to central return with pitched slate roof to lower return. Running bond central chimney stacks on yellow brick Running bond bases having stepped capping supporting post, rendered chimney stack to lower return. Flat roof to porch not visible behind parapet.</p> <p>Creeper-covered rendered, ruled and lined walls on rendered plinth incorporating moulded rendered cushion course with rendered quoins to corners rising to rendered band to eaves. Inscribed rendered pilasters to corners to porch on plinths on two cut-granite steps having stringcourses under dosserets supporting moulded cornice to parapet. Square-headed window openings with cut-granite sills, moulded rendered surrounds to front (S) elevation, and two-over-two timber sash windows having six-over-six timber sash windows to lower return. Round-headed window opening to central return with sill not visible and one-over-one timber sash window having paired margins incorporating stained glass panels.</p> <p>Square-headed window openings to porch with fixed-pane timber windows on panelled risers having margins incorporating stained glass panels, and over-lights. Square-headed door opening with glazed timber panelled door having margins incorporating stained glass panels and over-light. Square-headed door opening to lower return with timber panelled door having over-light.</p> <p>This main structure is accompanied by a detached eight-bay, two-storey outbuilding, located to the N, now re-roofed. Pitched roof with replacement corrugated-iron, rolled iron ridge, and no rainwater goods surviving on red brick header bond eaves. Random rubble stone walls with red brick</p>

	<p>quoins to corners. Square-headed window openings with cut-granite sills, red brick block-and-start surrounds incorporating red brick voussoirs, and timber boarded fittings. Within the accompanying yard is a detached five-bay single-storey coach house. Pitched and hipped slate roof with clay ridge tiles, rendered chimney stack over red brick construction having stringcourse under stepped capping. Random rubble stone walls with red brick quoins to corners. Square-headed window openings with cut-granite sills, red brick block-and-start surrounds incorporating red brick voussoirs, and timber boarded fittings. Elliptical-headed carriageway to right with red brick block-and-start surround rising through cut-granite springers into red brick voussoirs having cut-granite keystone and timber boarded double doors having wicket gate.</p> <p>A very well appointed house of the middle size possibly built by the Rudd family representing an important component of the mid 19th century domestic architectural heritage of the region. It possesses attributes underpinning a sophisticated, albeit somewhat understated Classical design programme including the symmetrical configuration of the principal block centred on an expressed porch retaining pretty margined glazing panels. Having been very well maintained, the house continues to present an early aspect with most of the original fabric surviving in place, both to the exterior and to the interior. A collection of attendant outbuildings formally arranged about a shared courtyard contributes significantly to the group.</p> <p>The first edition OS map shows a small farmstead of five buildings arranged around a courtyard to the E of the current Ballyvarna House. This appears to represent a typical farmstead often found within this area. However, by the time of the second edition, the current house is present along with a yard located to the rear (N). The other previous yard has been planted over with trees. Elements of a demesne landscape have been introduced to the landscape surrounding the house, with a recessed entrance of curving driveway marked along with scattered planting of deciduous trees. This setting is still evident within the landscape today.</p>
Sources:	Draft NIAH
Adjacent Sites:	AH 10, AH 11, SAP 14
Photo/Figure Ref.:	Figure 15.1 Plate 15.109
Importance:	Regional
Interest Category:	Social, Architectural
Impact Type:	Indirect
Potential Impact:	Imperceptible negative
Mitigation:	No specific mitigation measures required.

Site No.:	BH 25
RPS No.:	N/A
NIAH No.:	N/A
Townland:	Kilcannon
Parish:	St. Mary's Enniscorthy
Barony:	Scarawalsh
County:	Wexford
National Grid:	299220, 142612 to 299061, 142532
OS Map No.:	20
Chainage:	2,085
Field No.:	204/205
Distance from Route:	0m
Classification:	Trackway
Legal Status:	None
Description:	A laneway that is shown on the first edition OS map edition as running in a roughly E-W direction from the main road to the W, past the small settlement close to Kilcannon Church (SAP 13), past the site of Kilcannon Church (AH 8) and on to the River Slaney. Although no ford is marked, a track way is marked on the opposite side of the river, suggesting access across the river was possible at this location. By the time of the second edition the track is less clearly marked and the construction of the railway on the eastern bank of the river has removed the trackway located on the opposite bank. It is possible that this feature represents an early route through the landscape associated with accessing Kilcannon Church and fording the Slaney River. Today it exists as a laneway c. 5m in width, bordered by a mixture of wire and wooden fencing, with sections of stone walls and mature mixed hedgerow.
Sources:	Field inspection
Adjacent Sites:	SAP 13, AH 6
Photo/Figure Ref.:	Figure 15.1 Plate 15.110
Importance:	Local
Interest Category:	Historical
Impact Type:	Direct
Potential Impact:	Significant negative
Mitigation:	Archaeological investigations in the form of testing. Written and photographic record of track.

Site No.:	BH 26
RPS No.:	N/A
NIAH No.:	15702022
Townland:	Ballynabarney
Parish:	Templeshannon
Barony:	Scarawalsh
County:	Wexford
National Grid:	299912, 142219
OS Map No.:	20
Chainage:	3,200
Field No.:	N/a
Distance from Route:	190m
Classification:	Yorke Ville House
Legal Status:	Draft NIAH building
Description:	<p>Detached three-bay, two-storey over part raised basement house with dormer attic dating to c.1800. Single-bay, single-storey gabled projecting open porch to centre ground floor. Hipped roof with replacement artificial slate, paired replacement cement rendered central chimney stacks, having capping, roof lights, and no rainwater goods on slightly overhanging eaves. Pitched (gabled) slate roof to porch with ridge tiles, and no rainwater goods on timber eaves. Roughcast lime rendered walls over slate hanging on lime rendered mortar over random rubble stone construction incorporating slight batter.</p> <p>Square-headed window openings with cut-granite sills supporting iron grilles to basement. Round-headed window opening to centre first floor rear (E) elevation with shallow sill, and fixed-pane timber window having fanlight. Square-headed opening to porch approached by flight of seven cut-granite steps with iron railings, portico with fluted Doric columns on plinths between chamfered timber posts supporting lintel, and no fitting having fixed-pane timber windows to 'cheeks' on panelled risers. Round-headed door opening into house with threshold, carved timber mullions and transom, glazed timber panelled door having sidelights on panelled risers and fanlight. Square-headed door opening to basement to rear (E) elevation with tongue-and-groove timber panelled door.</p> <p>This building is accompanied by a detached five-bay, two-storey outbuilding, extant 1840/1, to E. Now in ruins. Pitched slate roof now missing with remains of cast-iron rainwater goods on eaves having iron ties. Random rubble stone walls with cast-iron tie bars to first floor. Square-headed window openings with shallow sills, lintels, and timber boarded fittings. Elliptical-headed door openings with rubble stone voussoirs and no fittings surviving. Square-headed loading (loft) door opening to centre first floor with no fittings surviving.</p> <p>A pleasantly composed farmhouse of the middle size recognised as an important element of the late 18th - or early 19th century domestic built legacy of the environs of</p>

	<p>Enniscorthy. Although having fallen into some disrepair following a period out of use, the farmhouse continues to express an early aspect with most of the original fabric surviving in place, both to the exterior and to the interior, including substantial sections of slate hanging or 'weather slating' concealed under a lime rendered surface in a manner regarded as a hallmark of the architectural heritage of County Wexford.</p> <p>The first edition OS map shows this building located within a small demesne, which the proposed route passes immediately to the S. By the time of the second edition map the demesne is no longer shaded, but still possesses typical characteristics of a demesne landscape.</p>
Sources:	Draft NIAH
Adjacent Sites:	SAP 14, AH 7, AH 8
Photo/Figure Ref.:	Figure 15.1 Plate 15.111
Importance:	Regional
Interest Category:	Architectural, Historical, Social
Impact Type:	Indirect
Potential Impact:	Imperceptible negative
Mitigation:	No specific mitigation measures required

Site No.:	BH 27
RPS No.:	N/A
NIAH No.:	N/A
Townland:	Ballynabarney
Parish:	Templeshannon
Barony:	Scarawalsh
County:	Wexford
National Grid:	299890, 141782
OS Map No.:	20
Chainage:	2,900
Field No.:	N/a
Distance from Route:	100m
Classification:	Bridge
Legal Status:	None
Description:	<p>Single arch, rubble stone road bridge over a river present on the first edition map of 1841 and subsequent editions and named as Whites Bridge. Random rubble stone walls continuing into dressed rubble stone advanced outer piers with cut granite stringcourse supporting parapet. Parapet is topped with rubble stone soldier (vertical) coping terminating in cut stone capping. Single round arch with cut granite voussoirs and rubble stone soffits.</p> <p>Another important element of late early to mid 19th century civil engineering or transport heritage for the county. Displays excellent stone masonry in the detail of the string course, voussoirs and cut stone piers.</p>
Sources:	Field inspection
Adjacent Sites:	AAP 25
Photo/Figure Ref.:	Figure 15.1 Plate 15.112
Importance:	Local
Interest Category:	Architectural, Technical
Impact Type:	Indirect
Potential Impact:	Imperceptible negative
Mitigation:	No specific mitigation measures required.

Site No.:	BH 28
RPS No.:	N/A
NIAH No.:	N/A
Townland:	Clonhasten
Parish:	Templeshannon
Barony:	Scarawalsh
County:	Wexford
National Grid:	299461, 141730
OS Map No.:	20
Chainage:	2,835
Field No.:	N/a
Distance from Route:	217m
Classification:	Whitefield House
Legal Status:	None
Description:	<p>Detached, three bay, two storey house dating to between 1841 and 1853, currently in residential use having undergone some renovation. Hipped, slate roof with stone ridge tiles. No evidence of a chimney stack survives. Rendered walls with square headed window opening that have lost their fittings and been replaced with UPVC casement windows. Round headed door opening, which has also lost its original fittings, having been replaced with a UPVC door, fanlight and side lights. A two storey wing is present on the rear (W) elevation, which gives the house a T shaped plan. From the historical mapping, this appears to be contemporary with the main body of the house.</p> <p>A number of buildings are present within this plot of land on the first edition map, with one building occupying part of the footprint of the existing house. By the time of the second edition map, the existing house is marked with a T shaped plan and named as Whitefield House. It is accompanied by a number of outbuildings around a yard to the rear (E) of the property. Today these have been replaced by modern agricultural buildings such as metal barns.</p>
Sources:	Field inspection
Adjacent Sites:	BH 27
Photo/Figure Ref.:	Figure 15.1 Plate 15.113
Importance:	Local
Interest Category:	Historical, Social
Potential Impact:	Imperceptible negative
Mitigation:	No specific mitigation measures required.

N30 Mainline

Site No.:	BH 34
RPS No.:	N/A
NIAH No.:	15702003/ 15702004
Townland:	Coolnahorna
Parish:	Monart
Barony:	Scarawalsh
County:	Wexford
National Grid:	298193, 144732
OS Map No.:	20
Chainage:	0
Field No.:	N/a
Distance from Route:	224m
Classification:	House and Post box
Legal Status:	Draft NIAH buildings
Description:	<p>Detached two-bay, two-storey house dating to c.1775. In use as stagecoach stopping point pre-1832. Pitched slate roof with clay ridge tiles, red brick Running bond chimney stacks including one red brick Running bond chimney stack on rendered stepped base with red brick stringcourses under profiled capping, and cast-iron rainwater goods on eaves having iron ties. Roughcast lime rendered walls over random rubble stone construction possibly incorporating sections of mud wall construction with roughcast lime rendered buttress to front (NE) elevation. Square-headed window openings with sills and rendered surrounds. Square-headed door opening with rendered surround and glazed timber panelled door. Interior with timber shutters to window openings.</p> <p>An amiable small-scale house identified as an important component of the mid to late 18th century vernacular legacy of the rural environs of Enniscorthy. Having been well maintained, the house continues to present an early aspect with much of the original fabric surviving in place, both to the exterior and to the interior, thus upholding the positive contribution made to the aesthetic appeal of character of the street scene. Meanwhile, the house remains of additional interest for the historic status as a stagecoach stopping point until the early to mid 19th century.</p> <p>To the N of the house, set into a rendered wall is a metal post box. This is of relatively plain design, but illustrates again how the rural populations relied on the postal system, when many could not access the post offices set within towns and villages.</p>
Sources:	Draft NIAH
Adjacent Sites:	CH 3, AAP 23
Photo/Figure Ref.:	Figure 15.1 Plate 15.114
Importance:	Regional
Interest Category:	Historical, Social, Architectural
Impact Type:	Indirect

Potential Impact:	Imperceptible negative
Mitigation:	No specific mitigation measures required.

Site No.:	BH 35
RPS No.:	N/A
NIAH No.:	N/A
Townland:	Ballyorril
Parish:	Monart
Barony:	Scarawalsh
County:	Wexford
National Grid:	296964, 143509
OS Map No.:	20
Chainage:	1,555
Field No.:	N/a
Distance from Route:	101m
Classification:	Small Country House
Legal Status:	None
Description:	<p>Detached three-bay, two-storey house dating to the late 18th or early 19th century. Hipped slate roof with ridge tiles, rendered, chimney stack. Square-headed window openings with cut-granite sills and cut granite surrounds. Replacement UPVC casement fittings. Elliptical-headed, recessed door opening with flagged threshold, timber doorcase on padstones with timber panelled door and decorative side lights and fan light. The building possesses a return on a NE-SW axis on the rear (SW) façade, which has been added to by a more recent flat roof, two storey extension. The return has two storeys and is evident on the second edition OS map. It possesses a hipped, slate roof and has a width of two bays. Only one first floor window was visible are the remainder has been impacted on by the recent extension.</p> <p>A number of outbuildings are present to the rear (SW) of the house, some of which are modern. However, two stone built buildings are still present, which appear on the second edition map. These are single storey (with attic) random rubble buildings, with pitched slate roofs. The larger of the two possesses a carriage entrance with elliptical arch featuring red brick voussoirs and start and block red brick surrounds. The smaller of the two buildings has been slightly modified with the insertion of two square headed door openings. A blocked attic entrance is visible in the NE facing gable end, with block and start red brick surrounding, featuring red brick voussoirs.</p> <p>Although much modified, this building represents the farmhouse of a well to do farmer, with some of the better quality outbuildings also surviving relatively intact. However, the main house has suffered due to the insertion of replacement fittings and the addition of an extension, which is not at all in keeping with the remainder of the architecture.</p>
Sources:	Field inspection
Adjacent Sites:	SAP 24, AAP 42
Photo/Figure Ref.:	Figure 15.1 Plate 15.115

Importance:	Local
Interest Category:	Social, Historical
Impact Type:	Indirect
Potential Impact:	Slight
Mitigation:	Written and photographic record of the house and landscape context.

Site No.:	BH 36
RPS No.:	N/A
NIAH No.:	N/A
Townland:	Ballyorril
Parish:	Monart
Barony:	Scarawalsh
County:	Wexford
National Grid:	296270, 142909
OS Map No.:	20
Chainage:	2,480
Field No.:	N/a
Distance from Route:	80m
Classification:	Farm complex
Legal Status:	None
Description:	<p>The complex is first marked on the first edition OS map and is shown to contain three building, the main L shaped of which is likely to have represented the main residence. By the time of the second edition this building has been removed and replaced with the existing building, which is now derelict, but would have once formed the main house to the farm. A number of out buildings are shown to the NW of the made house.</p> <p>This structure consists of a detached, single storey (with attic) structure, with a pitched roof. The original slate has been replaced with corrugated iron. There is a substantial offset red brick chimney stack. The rear façade of the building (NW) is rendered and painted. However, the main SE façade shows a random rubble construction, but has been added to by a concrete block lean to extension for livestock. The rear NW façade also possesses a later smaller lean too extension and three square headed door openings are apparent on this façade, two of which are relatively recent insertions. The interior of the former house is used to keep livestock and as a result it was not possible to discern any blocked windows/doors or the layout of the building.</p> <p>Although denuded, this structure represents an important survival of 19th century vernacular agricultural housing, as fewer and fewer of these types of structures are surviving within a working farm environment.</p>
Sources:	Field inspection
Adjacent Sites:	SAP 26, SAP 27, BH 37
Photo/Figure Ref.:	Figure 15.1 Plate 15.116
Importance:	Local
Interest Category:	Social, Historical
Impact Type:	Indirect
Potential Impact:	Slight negative
Mitigation:	Written and photographic record of farm complex and landscape context.

Site No.:	BH 37
RPS No.:	N/A
NIAH No.:	N/A
Townland:	Ballyorril
Parish:	Monart
Barony:	Scarawalsh
County:	Wexford
National Grid:	296149/142960
OS Map No.:	20
Chainage:	2,525
Field No.:	N/a
Distance from Route:	197m
Classification:	Cottage
Legal Status:	None
Description:	<p>This building represents a structure that would have been built as a result of The Labourers' Act of 1883. This act enabled local authorities to erect 50,000 cottages for the landless labourers by 1921. Most possessed a more formal type of architecture than private dwellings, and this is evident within the architecture of this cottage, which consists of a detached single storey house with half-dormer attic and advanced porch to the centre ground floor. The red brick chimney stack is slightly offset on top of the pitched slate roof. The windows on the main SE facing façade retain their original wooden sash frames. The walls are rendered. The windows and door entrance are square headed, with the windows possessing stone lintels. The main entrance possesses a step threshold but a wooden replacement door. The building is set within a sizable plot, but is becoming very overgrown, although apparently is still inhabited. It has not been negatively impacted on by later extensions to the structure and survives as an important element of local social history. The structure is not present on the first or second edition OS map, but is present by the third edition. As such it is likely to date to the turn of the 20th century.</p>
Sources:	Field inspection
Adjacent Sites:	BH 36
Photo/Figure Ref.:	Figure 15.1 Plate 15.117
Importance:	Local
Interest Category:	Social, Historical
Impact Type:	Indirect
Potential Impact:	Imperceptible negative
Mitigation:	No specific mitigation required.

Site No.:	BH 38
RPS No.:	N/A
NIAH No.:	N/A
Townland:	Ballyorril
Parish:	Monart
Barony:	Scarawalsh
County:	Wexford
National Grid:	296002, 142704
OS Map No.:	20
Chainage:	2,870
Field No.:	N/a
Distance from Route:	70m
Classification:	Cottage
Legal Status:	None
Description:	As with the above BH 53 building represents a structure that would have been built as a result of The Labourers' Act of 1883. This cottage, consists of a detached single storey house with half-dormer attic and advanced porch to the centre ground floor. It has been renovated and as such has been re-rendered and has replacement windows and door. The chimney stack is rendered and sits atop a pitched, replacement slate roof. The windows on the main SE facing have been enlarged. A lean to extension has been added to the rear (NW) façade. Although renovated this structure survives as an important element of local social history. The structure is not present on the first or second edition OS map, but is present by the third edition. As such it is likely to date to the first quarter of the 20 th century.
Sources:	Field inspection
Adjacent Sites:	SAP 30
Photo/Figure Ref.:	Figure 15.1 Plate 15.118
Importance:	Local
Interest Category:	Social, Historical
Impact Type:	Indirect
Potential Impact:	Slight
Mitigation:	Written and photographic record of cottage and landscape context.

Site No.:	BH 39
RPS No.:	N/A
NIAH No.:	N/A
Townland:	Ballyorril
Parish:	Monart
Barony:	Scarawalsh
County:	Wexford
National Grid:	295873, 142355
OS Map No.:	20
Chainage:	3,100
Field No.:	N/a
Distance from Route:	65m
Classification:	Farm complex
Legal Status:	None
Description:	<p>A detached, four bay, two storey vernacular farmhouse, which is first present on the second edition OS map. No farm complex is marked at this location on the first edition map. The structure, which has been significantly extended to the rear (SE) recently, is rendered with a pitched replacement slate roof, with rendered chimney stacks at each gable end. The door and window openings are square headed but contain replacement UPVC fittings. However, cut granite sills still remain as a characteristic of the window openings. The entrance to the property is via an advanced porch, with flat roof. There is a modern lean to extension also attached to the SW gable end. The farm house is surrounded by a large amount of modern agricultural buildings. However, a range of stone built outbuildings are present, which are marked on the second edition map and flank the tertiary road that passing the farm. These are single storey construction of random rubble, a section of which retains its original pitched slate roof, whilst part of it has been replaced with corrugated iron. The small window openings have been emphasised by red brick surrounds, whilst the door openings are characterised by block and start red brick surrounds.</p> <p>This farm house, although much modified still displays its vernacular character through the style of its architecture.</p>
Sources:	Field inspection
Adjacent Sites:	AAP 45
Photo/Figure Ref.:	Figure 15.1 Plate 15.119
Importance:	Local
Interest Category:	Social, Historical
Impact Type:	Indirect
Potential Impact:	Slight negative
Mitigation:	Written and photographic record of the cottage and landscape context.

Site No.:	BH 40
RPS No.:	N/A
NIAH No.:	N/A
Townland:	Askunshin
Parish:	Monart
Barony:	Scarawalsh
County:	Wexford
National Grid:	294974, 142544
OS Map No.:	19
Chainage:	3,975
Field No.:	N/a
Distance from Route:	219m
Classification:	Farm complex (derelict)
Legal Status:	None
Description:	<p>The remains of a small farmstead. The principle residence is now almost in ruins, but is located on a NE-SW axis on the NW side of the yard. The building appears to have originally consisted of a single storey, random rubble cottage with advanced porch entrance, which is likely to have been thatched. The southern part of this structure then appears to have been extended and a two storey structure, with a pitched slate roof added. Much of the ground floor structure has disappeared. However, the single storey range of outbuildings that surround the yard on the NE, SE and SW sides of the yard remain relatively intact. The NE range of buildings are constructed from a mixture of stone and mud construction, with red brick surrounds to the door entrances. The walls are partially rendered, although this is falling away to reveal the mud walls. The pitched roof is covered with replacement corrugated iron. The SE outbuilding is of random rubble construction with a pitched slate roof and survives in the best condition of all the buildings.</p> <p>The first edition map shows a total of seven structures at this site, although these do not appear to represent the structures that are currently found on site. By the time of the second edition the footprint of the existing structures is clearly visible within the mapping. There are additional structures marked to the E of the house and farmyard that are not apparent today.</p>
Sources:	Field inspection
Adjacent Sites:	AAP 46
Photo/Figure Ref.:	Figure 15.1 Plate 15.120
Importance:	Local
Interest Category:	Social, Historical
Impact Type:	Indirect
Potential Impact:	Imperceptible negative
Mitigation:	No specific mitigation measures required.

Site No.:	BH 41
RPS No.:	N/A
NIAH No.:	N/A
Townland:	Killalligan North
Parish:	Monart
Barony:	Scarawalsh
County:	Wexford
National Grid:	295464, 142529
OS Map No.:	19
Chainage:	3,450
Field No.:	239
Distance from Route:	44m
Classification:	Vernacular House and farm (derelict)
Legal Status:	None
Description:	<p>Disused farmhouse, outbuildings and yard at end of private access lane. The land surrounding is in crop, with fairly high ground to the W. The ground falls quite steeply towards the river at the E. The farm complex is shown on the first edition OS map with a very similar layout to the buildings as exists on site today. The main house is marked with a T shape plan, whilst two ranges of outbuildings are located around a yard to the E of the house. A possible orchard is marked within a field to the E of the complex. By the time of the second edition little has changed at the site, with the exception of a new access track running in a N-S direction from the farm to the tertiary road to the S.</p> <p>The house is likely to date from the late 18th/early 19th century. It is a detached, three bay, two storey derelict structure with square window and door openings. The outbuildings to the rear consist of two ranges of single storey, random rubble built buildings with simple square window and door openings. The roofs have been replaced with corrugated iron. The structure at the eastern most end of the northern range appears to represent a possible labourers cottage. The building has a width of three bays with possible attic level and a central red brick chimney stack. It is of rubble construction, although is roughly coursed. There are red brick camber arches above the two window openings with red brick block and start surrounds. The door opening also possessing red brick block and start surrounding incorporating red brick voussoirs. Above both the door and windows is a round arch detail picked out with red brick amongst rubble walls.</p>
Sources:	Field inspection
Adjacent Sites:	AH 16, AH 17
Photo/Figure Ref.:	Figure 15.1 Plate 15.121
Importance:	Local
Interest Category:	Historical, Social
Impact Type:	Indirect
Potential Impact:	Slight negative
Mitigation:	Written and photographic record of farm complex and

	landscape context.
Site No.:	BH 42
RPS No.:	N/A
NIAH No.:	N/A
Townland:	Askunshin
Parish:	Monart
Barony:	Scarawalsh
County:	Wexford
National Grid:	294685, 142188
OS Map No.:	19
Chainage:	4,270
Field No.:	N/a
Distance from Route:	35m
Classification:	Farm complex
Legal Status:	None
Description:	<p>This complex is marked on the first edition OS map as a house with two attendant outbuildings located to the NW. The house is located within the footprint of the existing house on site. By the time of the second edition map the structure is still present and a yard has been developed to the NW. It is possible that the existing house dates from the first edition or prior to it. The main SE facing façade of the structure has been subject to some modification, due to the addition of a modern porch entrance at ground floor. The house also joins the NE range of outbuildings. However, it is likely that originally this would have consisted of a detached, three bay, two storey structure. The structure is rendered with a slight batter to the walls. It has a hipped and gabled roof with replacement tiles and a red brick chimney stack. The window openings are square headed and quite small compared with the size of the building. The windows contain replacement fittings, but still possess cut stone sills. The NW façade of the building is now used as the main access/egress to the building as it overlooks the farmyard. Here much of the original character of the house has been lost as a two storey extension has been added to this side of the house and all the window openings have been enlarged and contain modern fittings.</p> <p>The outbuildings surrounding farmyard to the NW of the property have been well maintained and date to between 1841 and 1902. All are single storey structures with corrugated iron roofs. However, a smaller building at the entrance possesses a roof that has been covered in rough pieces of flat stone. Although the house has been subject to modification, the main façade facing the tertiary road remains relatively complete. This twinned with the well maintained farmyard makes an attractive farm complex that is an important element of rural County Wexford.</p>
Sources:	Field inspection
Adjacent Sites:	BH 43
Photo/Figure Ref.:	Figure 15.1 Plate 15.122

Importance:	Local
Interest Category:	Social, Historical
Impact Type:	Indirect
Potential Impact:	Slight negative
Mitigation:	Written and photographic record of farm complex and landscape context.

Site No.:	BH 43
RPS No.:	N/A
NIAH No.:	N/A
Townland:	Askunshin
Parish:	Monart
Barony:	Scarawalsh
County:	Wexford
National Grid:	294650, 142110
OS Map No.:	19
Chainage:	4,350
Field No.:	N/a
Distance from Route:	12m from building
Classification:	Cottage
Legal Status:	None
Description:	BH 43 represents a structure that would have been built as a result of The Labourers' Act of 1883. This cottage, consists of a detached single storey house with half-dormer attic and advanced porch to the centre ground floor. It has been renovated and as such has been re-rendered and has replacement windows and door. The red brick chimney stack is rendered and sits atop a pitched, replacement slate roof. An extension has been added to the main SW façade and the porch has also been altered. However, stone corbels remain as a feature that would have held the original guttering to the property, which has since been replaced. Although renovated this structure survives as an important element of local social history. The structure is not present on the first edition OS map, but is present by the second edition. As such it is likely to the late 19 th century.
Sources:	Field inspection
Adjacent Sites:	BH 42, SAP 31
Photo/Figure Ref.:	Figure 15.1 Plate 15.123
Importance:	Local
Interest Category:	Social, Historical
Impact Type:	Indirect
Potential Impact:	Slight negative
Mitigation:	Written and photographic record of cottage and landscape context.

Site No.:	BH 44
RPS No.:	N/A
NIAH No.:	15701928
Townland:	Askunshin
Parish:	Monart
Barony:	Scarawalsh
County:	Wexford
National Grid:	294057, 141542
OS Map No.:	19
Chainage:	5,000
Field No.:	N/a
Distance from Route:	Side road alignment adjacent to bridge
Classification:	Bridge
Legal Status:	Draft NIAH structure
Description:	<p>Two arch, rubble stone hump back bridge over a stream dating to c.1800. Ivy covered, random rubble stone walls with rubble stone coping to parapet incorporating sections of rubble stone soldier course (vertical) coping. Pair of segmental arches with squared rubble stone voussoirs and rubble stone soffits.</p> <p>A bridge exhibiting traditional field stone construction representing an element of late 18th or early 19th century civil engineering or transport heritage. Marked on all OS map editions and named as Monart Bridge.</p>
Sources:	Draft NIAH
Adjacent Sites:	SAP 32, AAP 47-49
Photo/Figure Ref.:	Figure 15.1 Plate 15.124
Importance:	Regional
Interest Category:	Architectural, Technical
Impact Type:	Indirect
Potential Impact:	Slight
Mitigation:	Written and photographic record of bridge and landscape context.

Site No.:	BH 45
RPS No.:	N/A
NIAH No.:	N/A
Townland:	Milehouse
Parish:	Monart
Barony:	Scarawalsh
County:	Wexford
National Grid:	294364, 141455
OS Map No.:	19
Chainage:	5,015
Field No.:	N/a
Distance from Route:	102m
Classification:	Farm complex
Legal Status:	None
Description:	<p>This site consists of a large farm complex. The first edition OS map shows a total of six buildings at the site, but these are all located on differing alignments and positions to those buildings that exist on site today. By the time of the second edition the complex is marked as being much larger and contains eleven buildings. The majority of these structures exist on site today and the farm has been very well maintained. The main house has been subject to modification. It is probable that the original house consisted of a detached, five bay, two storey structure. The windows openings have all been enlarged and fitted with modern frames and a modern porch has been added to the E façade. A two storey extension has been added to the W façade. The roof is hipped and gabled and possesses a rendered chimney stack and replacement tiles. Much of the original fabric has been lost, with only the roof line belying the earlier origins of the property. However, the farmyard has been well maintained and many of the ranges of outbuildings still survive. Some of the buildings consist of single storey stone built structures with pitched tiled roofs and well maintained render. Some of the larger structures have been constructed from corrugated iron and form long barns or smaller outhouses. Some more modern barns also exist on site. The farm is situated on the side of a valley and possesses excellent views to the SW. It again represents an important element of the country side of County Wexford.</p>
Sources:	Field inspection
Adjacent Sites:	AAP 48, AAP 49, SAP 32
Photo/Figure Ref.:	Figure 15.1 Plate 15.125, 15.126
Importance:	Local
Interest Category:	Social, Historical
Impact Type:	Indirect
Potential Impact:	Slight negative
Mitigation:	Written and photographic record of farm complex and landscape context.

Site No.:	BH 46
RPS No.:	N/A
NIAH No.:	N/A
Townland:	Bessmount
Parish:	Monart
Barony:	Scarawalsh
County:	Wexford
National Grid:	293823, 140540
OS Map No.:	19
Chainage:	6,330
Field No.:	N/a
Distance from Route:	135m
Classification:	House
Legal Status:	None
Description:	<p>This building is located within the original demesne associated with Monart House, which is shaded on the first edition OS map. The building is not marked on this map, but is present by the time of the second edition. The structure has been renovated and extended. However, the original house would have consisted of a detached, three bay, two storey structure. This has now been extended to four bays. The pitched and slate roof has been replaced as part of the renovation and decorative ridge tiles have been added and an additional chimney stack has been added to the two existing stacks, which were centrally placed within the original composition. The house has been re-rendered with render window surrounds. The windows are square headed with replacement UPVC fittings. The door entrance possess an elliptical arch, which would have originally contained a fan light and side lights. However, these have also been replaced with modern fittings. A single storey stone outbuilding to the rear of the house, which is also present on the second edition map, has been included within the renovation work.</p> <p>Although extended with many modifications, the original character of the structure is still plainly visible, especially as the structure has been re-rendered and not stripped to the bare stone work. It is likely that the structure dates to the late 19th century.</p>
Sources:	Field inspection
Adjacent Sites:	AAP 51
Photo/Figure Ref.:	Figure 15.1 Plate 15.127
Importance:	Local
Interest Category:	Social, Historical
Impact Type:	Indirect
Potential Impact:	Imperceptible negative
Mitigation:	No specific mitigation measures required.

Site No.:	BH 47
RPS No.:	N/A
NIAH No.:	15071915
Townland:	Ballybrannis
Parish:	Monart
Barony:	Scarawalsh
County:	Wexford
National Grid:	293180, 140839
OS Map No.:	19
Chainage:	6,100
Field No.:	N/a
Distance from Route:	269m
Classification:	Urrinfort House
Legal Status:	Draft NIAH building
Description:	<p>Detached three-bay, two-storey over part-raised basement house dating to c.1800 (extant 1837), with single-bay, full-height side elevations and single-bay full-height lean-to central return to NW on an elliptical or segmental plan. Reroofed post-2004. Hipped roof continuing into lean-to to return with replacement artificial slate and ridge tiles. Replacement cement rendered wall head chimney stacks, on axis with ridge on roughcast buttressed piers with red brick capping incorporating red brick sawtooth-profiled courses supporting pots.</p> <p>Roughcast walls with rendered stringcourses to each floor. Square-headed window openings with cut-granite forming part of stringcourses and replacement aluminium casement windows. Hipped elliptical-headed door opening approached by flight of five steps with rendered parapets having coping, replacement glazed aluminium door, having sidelights and fanlight.</p> <p>A house of the middle size representing an element of the late 18th or early 19th century domestic built heritage of the locality. Commanding views out over the surrounding rural landscape to Vinegar Hill in the distance, the diminishing in scale of the openings on each floor in the Classical manner produces a graduated visual impression. However, while the essential composition prevails, the introduction of replacement fittings to the openings has not had a beneficial impact on the character or integrity of a house.</p> <p>The house is marked on all OS map editions and possessed a small yard surrounded by buildings to the rear (NW). The small plot of land surrounding the house possesses demesne characteristics within the OS mapping, although little of this survives today.</p>
Sources:	Draft NIAH
Adjacent Sites:	AH 19
Photo/Figure Ref.:	Figure 15.1 Plate 15.128
Importance:	Regional
Interest Category:	Historical, Social, Architectural
Impact Type:	Neutral

Potential Impact:	No predicted impact
Mitigation:	No specific mitigation measures required.

Site No.:	BH 48
RPS No.:	N/A
NIAH No.:	N/A
Townland:	Dunsinane
Parish:	Templescoby
Barony:	Bantry
County:	Wexford
National Grid:	293936, 139707
OS Map No.:	19
Chainage:	7,180
Field No.:	N/a
Distance from Route:	236m
Classification:	Former entrance to Dunsinane House
Legal Status:	None
Description:	<p>This site is marked on the first edition as the principle entrance to Dunsinane House and demesne. A gate lodge is marked as being adjacent to the entrance. By the time of the second edition the entrance is marked as being recessed and the gate lodge appears within a smaller footprint. Today the site survives as very denuded remains. The walls that mark the recessed entrance survive at varying heights, although it seems likely that the wall height fell from a maximum height either side of the gateway down to the flanking walls of the entrance. There were no visible remains of a gate lodge, with the exception of a blocked doorway through the western gate pier, which would have provided access to the lodge. The second edition shows it attached to the southern side of the western pier. The standing remains of the entrance are constructed from random rubble, but were likely to have been rendered. Much of the eastern remains are totally overgrown with ivy. Beyond the gateway Dunsinane House is visible on top of a rise to the S. However, the former demesne area has almost completely lost its original character having been given over to agricultural use.</p>
Sources:	Field inspection
Adjacent Sites:	AAP 53
Photo/Figure Ref.:	Figure 15.1 Plate 15.129
Importance:	Local
Interest Category:	Social, Historical
Impact Type:	Neutral
Potential Impact:	No predicted impact
Mitigation:	No specific mitigation measures required.

Site No.:	BH 49
RPS No.:	N/A
NIAH No.:	15702540
Townland:	Dunsiane
Parish:	Templescoby
Barony:	Bantry
County:	Wexford
National Grid:	293952, 139209
OS Map No.:	25
Chainage:	7,600
Field No.:	N/a
Distance from Route:	284m
Classification:	Dunsiane House
Legal Status:	Draft NIAH building
Description:	<p>Detached three-bay, single-storey over part basement house with half- dormer attic dating to c.1760. Designed on a U-shaped plan with three-bay, full-height, canted frontispiece incorporating single-bay, full-height entrance bay to centre on a canted plan, three-bay, full-height return to SE and three-bay, single-storey outbuilding return to NE. Hipped gabled roof continuing into half-polygonal roof to frontispiece incorporating half-polygonal roof to entrance bay with replacement artificial slate retaining pitched slate roofs to returns.</p> <p>Roughcast walls with rusticated cut-granite quoins to corners and rendered band to eaves. Square-headed window openings including one square-headed window opening in tripartite arrangement to front (W) elevation with cut-granite sills, carved timber engaged colonette mullions to tripartite opening. Round-headed door opening with granite flagged threshold, replacement fluted timber surround rising into moulded archivolt having fluted keystone, replacement timber panelled door having sidelights and decorative fanlight.</p> <p>A beguiling house of the middle size representing a particularly interesting component of the mid 18th century domestic architectural heritage having reputedly been built for the Farmer family with a distinctive design programme evocative of a hunting lodge. Although modified over the course of the 20th century, the house continues to present an early aspect with substantial quantities of the original fabric surviving in place, both to the exterior and to the interior, including some crown or cylinder glazing panels in hornless sash frames.</p> <p>Marked on all three OS map editions. The first edition shows the house located within a quite substantial demesne landscape, with the principle entrance and lodge located to the N (BH 61). A substantial amount of outbuildings are marked to the W of the house with a walled garden to the SE. By the time of the second edition, the demesne area is marked as being reduced but the house is present and is accompanied by additional outbuildings. The former</p>

	demesne area will not be impacted on by the proposed route.
Sources:	Draft NIAH
Adjacent Sites:	AAP 54, BH 50
Photo/Figure Ref.:	Figure 15.1
Importance:	Regional
Interest Category:	Historical, Social, Architectural
Impact Type:	Neutral
Potential Impact:	No predicted impact
Mitigation:	No specific mitigation measures required.

Site No.:	BH 50
RPS No.:	N/A
NIAH No.:	15072539
Townland:	Clohass
Parish:	Templescoby
Barony:	Bantry
County:	Wexford
National Grid:	293912, 138829
OS Map No.:	25
Chainage:	8,000
Field No.:	N/a
Distance from Route:	283m
Classification:	Clohass House
Legal Status:	Draft NIAH building
Description:	<p>Detached three-bay, two-storey over part raised basement farmhouse dating to between 1760-70, with two-bay, full-height side elevations. Hipped slate roof with ridge tiles, replacement rendered, ruled and lined chimney stack, on axis with ridge having stepped capping and iron rainwater goods on overhanging granite or stone flagged eaves having iron brackets. Square-headed window openings with cut-granite sills. Elliptical-headed door opening approached by flight of four cut-granite steps with concave reveals, timber doorcase with engaged colonettes on padstones rising into frieze, tongue-and-groove timber panelled door having sidelights, and fanlight.</p> <p>An elegantly appointed house of the middle size believed to represent a component of the mid to late 18th century domestic built legacy of rural County Wexford, but ultimately projecting a design aesthetic redolent of the so-called "Regency period" of the early 19th century. Having been well maintained, the farmhouse continues to present an early aspect with much of the original fabric surviving in place, both to the exterior and to the interior, thus upholding the character of integrity of a composition.</p> <p>The house is marked on the first edition OS map within its own small demesne type landscape. By the time of the second edition the house is still marked with additional outbuildings to the W. The construction of the new section of the N30 route way, which will join up with the proposed N30 Bypass, has had an impact on part of the original setting to the house, as the NW corner has been truncated by this recent road.</p>
Sources:	Draft NIAH
Adjacent Sites:	AAP 54, BH 49
Photo/Figure Ref.:	Figure 15.1
Importance:	Regional
Interest Category:	Historical, Social, Architectural
Impact Type:	Neutral
Potential Impact:	No predicted impact
Mitigation:	No specific mitigation measures required.

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Appendix 15.5

Cultural Heritage Sites

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APPENDIX 15.5: CULTURAL HERITAGE SITES IDENTIFIED WITHIN THE RECEIVING ENVIRONMENT

Please note that all archaeological investigations are to be carried out by archaeologists under the terms of the National Monuments (Amendments) Act 1930-2004. Full provision will be made for the resolution of any archaeological deposits or features that may be discovered during investigations.

N11 Mainline

Site No.:	CH 1
Townland:	Rockspring
Parish:	Kilbride
Barony:	Scarawalsh
County:	Wexford
National Grid:	307614, 149241
OS Map No.:	16
Chainage:	8,300
Field No.:	49
Dist. to Route:	22m
Classification:	Site of spring
Legal Status:	None
Description:	This site was initially identified through the historic OS mapping, as it is marked as a spring on the second and third editions. A relatively recent house now occupies the site and no trace of the spring was visible during the field inspection
Adjacent Sites:	BH 9, BH 10, BH 11, BH 12
Photo/Figure Ref.:	Figure 15.1
Impact Type:	Indirect
Potential Impact:	Imperceptible negative
Mitigation:	No specific mitigation measures required.

Site No.:	CH 2
Townland:	Ballycarrigeen Upper & Lower
Parish:	Kilcormick
Barony:	Gorey
County:	Wexford
National Grid:	305492, 146970
OS Map No.:	16
Chainage:	11,400
Field No.:	N/a
Dist. to Route:	200m
Classification:	The Harrow – village involved in the 1798 Rebellion
Legal Status:	None
Description:	<p>A small village that played a part at the beginning of the 1798 rebellion. As noted in Appendix 15.4, Rockspring House (BH 11) at the time of the beginning of the rebellion was the abode of the Commander of the Camolin Yeoman, Lieutenant Thomas Bookey. The day before the Battle of Oulart Hill, Fr John Murphy and his rebels ambushed a platoon of 20 yeoman at The Harrow as they were on their way to the house of John Boyne. This was the first significant clash of the rebellion and resulted in the death of Bookey. Once the clash had taken place warnings were issued to the surrounding settlements as retribution was taken by the yeoman who burned 170 houses belonging to the rebels and Fr Murphy's chapel at Boolavogue.</p> <p>The first edition map shows The Harrow as a small settlement containing approximately ten structures, although it is likely that some of these represent more than one house or cottage. By the time of the second edition map the village has grown in size, which is reflected within the village today. Although it is not clear from the records where the ambush specifically took place, which resulted in the death of Bookey, this place remains as an important part of the narrative that accompanies the Rebellion and illustrates that the rebels were very active within the receiving environment of the proposed route.</p>
Adjacent Sites:	AAP 17
Photo/Figure Ref.:	Figure 15.1 Plate 15.130, 15.131
Impact Type:	Indirect
Potential Impact:	Slight negative
Mitigation:	Written and photographic record of village and landscape context.

Site No.:	CH 4
Townland:	Scurlocksbush
Parish:	Edermine
Barony:	Ballaghkeen
County:	Wexford
National Grid:	299289, 133341
OS Map No.:	26
Chainage:	28,000
Field No.:	N/a
Dist. to Route:	0m
Classification:	Roadside memorial (modern)
Legal Status:	None
Description:	<p>A polished grey granite slab inscribed with the following balck lettering:</p> <p><i>Pa Mernagh, Always lovingly remembered by Tracy and Dillion</i></p> <p><i>'You'll never walk alone'.</i></p> <p>The memorial is set back on the western verge of the existing N11.</p>
Adjacent Sites:	CH 5
Photo/Figure Ref.:	Figure 15.1 Plate 15.132
Impact Type:	Direct
Potential Impact:	Significant negative
Mitigation:	Written and photographic record of memorial – reconstruction after scheme complete

Site No.:	CH 5
Townland:	Scurlocksbush
Parish:	Edermine
Barony:	Ballaghkeen
County:	Wexford
National Grid:	299235, 133338
OS Map No.:	26
Chainage:	28,000
Field No.:	N/a
Dist. to Route:	0m
Classification:	Roadside memorial (modern)
Legal Status:	None
Description:	This memorial is dedicated to the same person as described in CH 4. The memorial is located on the verge on the eastern side of the existing N11. It consists of a polished slab of black granite set into a red brick mount. It is decorated with flowers and flags. It is dedicated to Patrick Mernagh (31 st Jan 2006), from his Mam, Dad, brothers Billy and David and son Dillon.
Adjacent Sites:	CH 4
Photo/Figure Ref.:	Figure 15.1 Plate 15.133
Impact Type:	Direct
Potential Impact:	Significant negative
Mitigation:	Written and photographic record of memorial – reconstruction after scheme complete

Site No.:	CH 6
Townland:	Knockrathkyle & Ballycourcymore
Parish:	Ballyhuskard
Barony:	Ballaghkeen
County:	Wexford
National Grid:	300107, 136526 to 299950, 136177
OS Map No.:	26
Chainage:	24,800 – 25,180
Field No.:	166-168
Dist. to Route:	0m
Classification:	Darby's Gap – route of rebels escape during 1798 Rebellion
Legal Status:	None
Description:	This area consists of an escape route that was used by the Rebels just after the Battle of Vinegar Hill. It is marked on the OS map editions as 'Darby's Gap'. However, it is also known as Needham's Gap. This is after the General Needham left the gap in the lines of the British forces, which enabled rebels to escape. Today the area consists of a cross roads, but the main road travels from the N and turns E at the crossroads with the right of way. The road that travels towards Enniscorthy is a very small tertiary road, with the road travelling to the SW also a tertiary road. At the cross roads a memorial stone has been erected that marks the gap as the escape route for the rebels. It is assumed that they travels along the road, although it is possible that they crossed the fields in order to try and avoid detection by the British forces. It is possible that possessions of the rebels were dropped as they escaped through this area.
Adjacent Sites:	SAP 20, AAP 34
Photo/Figure Ref.:	Figure 15.1 Plate 15.134, 15.135
Impact Type:	Direct
Potential Impact:	Significant negative
Mitigation:	Archaeological investigations in the form of testing. Written and photographic record of the landscape through which the rebels passed.

N80 Link Road

Site No.:	CH 3
Townland:	Ballynahallin
Parish:	St. Mary's Enniscorthy
Barony:	Scarawalsh
County:	Wexford
National Grid:	298388, 144568
OS Map No.:	20
Chainage:	0
Field No.:	N/a
Dist. to Route:	0m
Classification:	Roadside memorial (modern)
Legal Status:	None
Description:	This memorial is erected on the verge, set back from the edge of a roundabout. It consists of a headstone of polished black granite and is dedicated to James Harte (6/2/06) of Gorey. The stone is decorated with flowers and stands in a polished black granite setting.
Adjacent Sites:	AAP 23
Photo/Figure Ref.:	Figure 15.1 Plate 15.136
Impact Type:	Direct
Potential Impact:	Significant negative
Mitigation:	Archaeological investigations in the form of testing. Written and photographic record of the landscape through which the rebels passed.

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Appendix 15.6

Legislative Framework Protecting the Archaeological Resource

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APPENDIX 15.6: LEGISLATIVE FRAMEWORK PROTECTING THE ARCHAEOLOGICAL RESOURCE

Protection of Cultural Heritage

The cultural heritage in Ireland is safeguarded through national and international policy designed to secure the protection of the cultural heritage resource to the fullest possible extent (Department of Arts, Heritage, Gaeltacht and the Islands 1999, 35). This is undertaken in accordance with the provisions of the *European Convention on the Protection of the Archaeological Heritage* (Valletta Convention), ratified by Ireland in 1997.

The following National and International protective guidelines and legislation were taken into account during the assessment of the archaeological heritage identified within the receiving environment of the proposed schemes.

- National Monument Act, 1930, amended 1954, 1987, 1994 and 2004 Roads Act, 1993
- Heritage Act, 1995
- National Cultural Institutions Act, 1997
- The Architectural Heritage (National Inventory) and Historic Monuments (Miscellaneous) Provisions Act, 1999
- Framework and Principles for the Protection of the Archaeological Heritage, 1999, Department of Arts, Heritage, Gaeltacht and the Islands Local Government (Planning and Development) Act, 2000
- Advice Notes on Current Practice (in the Preparation of Environmental Impact Statements), 2003, EPA
- Guidelines on the information to be contained in Environmental Impact Statements, 2002, EPA
- Environmental Impact Assessment of National Road Schemes – A Practical Guide, 2005, NRA
- Code of Practice between the NRA and the Department of Arts, Heritage, Gaeltacht and the Islands, 2000
- European Convention on the Protection of the Archaeological Heritage (the 'Valletta Convention') ratified by the Republic of Ireland in 1997
- Council of Europe Convention on the Protection of the Architectural Heritage of Europe (the 'Granada Convention') ratified by the Republic of Ireland in 1997
- International Council on Monuments and Sites (ICOMOS), advisory body to UNESCO concerning protection of sites and recommendation of World Heritage sites ratified by the Republic of Ireland in 1992

The Archaeological Resource

The *National Monuments Act 1930 to 2004* and relevant provisions of the *National Cultural Institutions Act 1997* are the primary means of ensuring the satisfactory protection of archaeological remains, which includes all man-made structures of whatever form or date except buildings habitually used for ecclesiastical purposes. A National Monument is described as 'a monument or the remains of a monument the preservation of which is a matter of national importance by reason of the historical, architectural, traditional, artistic or archaeological interest attaching thereto' (National Monuments Act 1930 Section 2).

A number of mechanisms under the National Monuments Act are applied to secure the protection of archaeological monuments. These include the Register of Historic Monuments, the Record of Monuments and Places, and the placing of Preservation Orders and Temporary Preservation Orders on endangered sites.

Ownership and Guardianship of National Monuments

The Minister may acquire national monuments by agreement or by compulsory order. The state or local authority may assume guardianship of any national monument (other than dwellings). The owners of national monuments (other than dwellings) may also appoint the Minister or the local authority as guardian of that monument if the state or local authority agrees. Once the site is in ownership or guardianship of the state, it may not be interfered with without the written consent of the Minister.

Register of Historic Monuments

Section 5 of the 1987 Act requires the Minister to establish and maintain a Register of Historic Monuments. Historic monuments and archaeological areas present on the register are afforded statutory protection under the 1987 Act. Any interference with sites recorded on the register is illegal without the permission of the Minister. Two months notice in writing is required prior to any work being undertaken on or in the vicinity of a registered monument. The register also includes sites under Preservation Orders and Temporary Preservation Orders. All registered monuments are included in the Record of Monuments and Places.

Preservation Orders and Temporary Preservation Orders

Sites deemed to be in danger of injury or destruction can be allocated Preservation Orders under the 1930 Act. Preservation Orders make any interference with the site illegal. Temporary Preservation Orders can be attached under the 1954 Act. These perform the same function as a Preservation Order but have a time limit of six months, after which the situation must be reviewed. Work may only be undertaken on or in the vicinity of sites under Preservation Orders with the written consent, and at the discretion, of the Minister.

Record of Monuments and Places

Section 12(1) of the 1994 Act requires the Minister for Arts, Heritage, Gaeltacht and the Islands (now the Minister for the Environment, Heritage and Local Government) to establish and maintain a record of monuments and places where the Minister believes that such monuments exist. The record comprises a list of monuments and relevant places and a map/s showing each monument and relevant place in respect of each county in the state. All sites recorded on the Record of Monuments and Places receive statutory protection under the National Monuments Act 1994. All recorded monuments on the proposed development site are represented on the accompanying maps.

Section 12(3) of the 1994 Act provides that 'where the owner or occupier (other than the Minister for Arts, Heritage, Gaeltacht and the Islands) of a monument or place included in the Record, or any other person, proposes to carry out, or to cause or permit the carrying out of, any work at or in relation to such a monument or place, he or she shall give notice in writing to the Minister of Arts, Heritage, Gaeltacht and the Islands to carry out work and shall not, except in the case of urgent necessity and with the consent of the Minister, commence the work until two months after the giving of notice'.

Under the National Monuments (Amendment) Act 2004, anyone who demolishes or in any way interferes with a recorded site is liable to a fine not exceeding €3,000 or imprisonment for up to 6 months. On summary conviction and on conviction of

indictment, a fine not exceeding €10,000 or imprisonment for up to 5 years is the penalty. In addition they are liable for costs for the repair of the damage caused.

In addition to this, under the *European Communities (Environmental Impact Assessment) Regulations 1989*, Environmental Impact Statements (EIS) are required for various classes and sizes of development project to assess the impact the proposed development will have on the existing environment, which includes the cultural, archaeological and built heritage resources. These document's recommendations are typically incorporated into the conditions under which the proposed development must proceed, and thus offer an additional layer of protection for monuments which have not been listed on the RMP.

The Planning and Development Act 2000

Under planning legislation, each local authority is obliged to draw up a Development Plan setting out their aims and policies with regard to the growth of the area over a five-year period. They cover a range of issues including archaeology and built heritage, setting out their policies and objectives with regard to the protection and enhancement of both. These policies can vary from county to county. The Planning and Development Act 2000 recognises that proper planning and sustainable development includes the protection of the archaeological heritage. Conditions relating to archaeology may be attached to individual planning permissions.

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Appendix 15.7

Legislative Framework Protecting the Architectural Resource

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APPENDIX 15.7: LEGISLATIVE FRAMEWORK PROTECTING THE ARCHITECTURAL RESOURCE

The main laws protecting the built heritage are the *Architectural Heritage (National Inventory) and National Monuments (Miscellaneous Provisions) Act 1999* and the *Local Government (Planning and Development) Acts 1963-1999*, which has now been superseded by the *Planning and Development Act, 2000*. The Architectural Heritage Act requires the Minister to establish a survey to identify, record and assess the architectural heritage of the country. The background to this legislation derives from Article 2 of the 1985 Convention for the Protection of Architectural Heritage (Granada Convention). This states that:

For the purpose of precise identification of the monuments, groups of structures and sites to be protected, each member state will undertake to maintain inventories of that architectural heritage.

The National Inventory of Architectural Heritage (NIAH) was established in 1990 to fulfil Ireland's obligation under the Granada Convention, through the establishment and maintenance of a central record, documenting and evaluating the architecture of Ireland (NIAH Handbook 2005:2). As inclusion in the inventory does not provide statutory protection, the survey information is used in conjunction with the *Architectural Heritage Protection Guidelines for Planning Authorities* to advise local authorities on compilation of a Record of Protected Structures as required by the *Planning and Development Act, 2000*.

The following National and International protective guidelines and legislation were taken into account during the assessment of the architectural heritage identified within the receiving environment of the proposed schemes.

- National Monuments Act, 1930, as amended in 1954, 1987, 1994 and 2004
- Heritage Act, 1995
- The Architectural Heritage (National Inventory) and Historic Monuments (Miscellaneous Provisions) Act, 1999
- Local Government (Planning and Development) Act, 2000
- *Architectural Heritage Protection Guidelines for Planning Authorities* Department of the Environment, Heritage and Local Government (2004)
- Convention for the Protection of World Cultural and National Heritage. (1972)
- *Environmental Impact Assessment of National Road Schemes – A Practical Guide*, (National Roads Authority, 2005)
- Code of Practice on Archaeology and the National Roads Programme between the NRA and the Department of Arts, Heritage, Gaeltacht and the Islands, 2000
- Council of Europe Convention on the Protection of the Architectural Heritage of Europe (the 'Granada Convention 1984') ratified by Ireland in 1997
- European Council Directive on Environmental Impact Assessment (85/337/EEC), 1985 and Amending Directive (97/1 I/EC), 1997
- Charter for the Conservation and Restoration of Monuments and Sites (Venice 1964).
- Action on Architecture 2002-2005 Government Policy on Architecture Advice *Notes on Current Practice, in the Preparation of Environmental Impact Statements*, (Environmental Protection Agency, 2003) *Guidelines on the*

information to be contained in Environmental Impact Statements,
(Environmental Protection Agency, 2002)

Protection under the Record of Protected Structures and County Development Plan

Structures of architectural, cultural, social, scientific, historical, technical or archaeological interest can be protected under the Planning and Development Act, 2000, where the conditions relating to the protection of the architectural heritage are set out in Part IV of the act. This act superseded the Local Government (Planning and Development) Act, 1999, and came into force on 1st January 2000.

The act provides for the inclusion of Protected Structures into the planning authorities' development plans and sets out statutory regulations regarding works affecting such structures. Under new legislation, no distinction is made between buildings formerly classified under development plans as List 1 and List 2. Such buildings are now all regarded as 'Protected Structures' and enjoy equal statutory protection. Under the act the entire structure is protected, including a structure's interior, exterior, attendant grounds and also any structures within the attendant grounds.

The act defines a Protected Structure as (a) a structure, or (b) a specified part of a structure which is included in a Record of Protected Structures (RPS), and, where that record so indicates, includes any specified feature which is in the attendant grounds of the structure and which would not otherwise be included in this definition. Protection of the structure, or part thereof, includes conservation, preservation, and improvement compatible with maintaining its character and interest. Part IV of the act deals with architectural heritage, and Section 57 deals specifically with works affecting the character of Protected Structures or proposed Protected Structures and states that no works should materially affect the character of the structure or any element of the structure that contributes to its special architectural, historical, archaeological, artistic, cultural, scientific, social or technical interest. The act does not provide specific criteria for assigning a special interest to a structure. However, the National Inventory of Architectural Heritage (NIAH) offers guidelines to its field workers as to how to designate a building with a special interest, which are not mutually exclusive. This offers guidance by example rather than by definition:

Archaeological

It is to be noted that the NIAH is biased towards post-1700 structures. Structures that have archaeological features may be recorded, providing the archaeological features are incorporated within post-1700 elements. Industrial fabric is considered to have technical significance, and should only be attributed archaeological significance if the structure has pre-1700 features.

Architectural

A structure may be considered of special architectural interest under the following criteria:

- Good quality or well executed architectural design
- The work of a known and distinguished architect, engineer, designer, craftsman
- A structure that makes a positive contribution to a setting, such as a streetscape or rural setting
- Modest or vernacular structures may be considered to be of architectural interest, as they are part of the history of the built heritage of Ireland.
- Well designed decorative features, externally and/or internally

Historical

A structure may be considered of special historical interest under the following criteria:

- A significant historical event associated with the structure
- An association with a significant historical figure
- Has a known interesting and/or unusual change of use, e.g. a former workhouse now in use as a hotel
- A memorial to a historical event.

Technical

A structure may be considered of special technical interest under the following criteria:

- Incorporates building materials of particular interest, i.e. the materials or the technology used for construction
- It is the work of a known or distinguished engineer
- Incorporates innovative engineering design, e.g. bridges, canals or mill weirs
- A structure which has an architectural interest may also merit a technical interest due to the structural techniques used in its construction, e.g. a curvilinear glasshouse, early use of concrete, cast-iron prefabrication.
- Mechanical fixtures relating to a structure may be considered of technical significance.

Cultural

A structure may be considered of special cultural interest under the following criteria:

- An association with a known fictitious character or event, e.g. Sandycove Martello Tower, which featured in Ulysses.
- Other structure that illustrate the development of society, such as early schoolhouses, swimming baths or printworks.

Scientific

A structure may be considered of special scientific interest under the following criteria:

- A structure or place which is considered to be an extraordinary or pioneering scientific or technical achievement in the Irish context, e.g. Mizen Head Bridge, Birr Telescope.

Social

A structure may be considered of special social interest under the following criteria:

- A focal point of spiritual, political, national or other cultural sentiment to a group of people, e.g. a place of worship, a meeting point, assembly rooms.
- Developed or constructed by a community or organisation, e.g. the construction of the railways or the building of a church through the patronage of the local community
- Illustrates a particular lifestyle, philosophy, or social condition of the past, e.g. the hierarchical accommodation in a country house, philanthropic housing, vernacular structures.

Artistic

A structure may be considered of special artistic interest under the following criteria:

- Work of a skilled craftsman or artist, e.g. plasterwork, wrought-iron work, carved elements or details, stained glass, stations of the cross.
- Well designed mass produced structures or elements may also be considered of artistic interest.

(From the NIAH Handbook 2003 & 2005 pages 15-20)

The Local Authority has the power to order conservation and restoration works to be undertaken by the owner of the protected structure if it considers the building to be in need of repair. Similarly, an owner or developer must make a written request to the Local Authority to carry out any works on a protected structure and its environs, which will be reviewed within three months of application. Failure to do so may result in prosecution.