

N25 Waterford Bypass Scheme

transport21
progress in motion

Officially opened on

19th October 2009

by

Mr. Martin Cullen T.D.,
Minister for Arts, Sport & Tourism

In the presence of

Mr. Peter Malone,
Chairman
National Roads Authority

Cllr. John Halligan,
Mayor of Waterford City

Cllr. Michael O'Brien,
Cathaoirleach
Kilkenny County Council

Cllr. Nora Flynn,
Mayor of County Waterford

Message from the Minister



This new gateway to Waterford heralds a new beginning for our home city. The new Cable Stayed Bridge and Waterford City Bypass together with the Waterford to Dublin Motorway will revolutionise travel in the whole region resulting in shorter journey times and safer road conditions. Upon opening, approximately 14,000 vehicles per day will use the Waterford Bypass. This will reduce traffic volumes currently using Rice Bridge by about 30%, having the effect of removing some 10,000 to 12,000 vehicles per day from the city quays. This will have the added benefit of allowing us to rejuvenate our city along the quays to the maximum commercial advantage.

Our new, iconic Cable Stayed Bridge over the River Suir, the longest in the State, (475m) encapsulates how far our national road network has come in a few short years under the Government's *Transport 21* Plan.

The N25 forms part of the North/South Corridor that runs from Belfast, via Dublin and Rosslare to Cork. Linking the three largest centres of population on the island, it also provides access to key commercial seaports on the eastern and southern seaboard. It is also key to accessing services to and from Waterford Airport, an important economic driver, which underpins Waterford's continued accessibility to Europe and beyond. There is more good news, the €1bn Waterford to Dublin Motorway, which will totally transform connection to and from our region, is on schedule to be fully completed early next year.

The Bridge and City Bypass are projects of enormous scale and I congratulate all who have been involved in bringing them to early completion.

Martin Cullen TD,
Minister for Arts, Sport & Tourism



Mr. Peter Malone, Chairman, NRA

"Today will be firmly etched in Waterford's history as the day in which the single most significant piece of infrastructure opened to traffic and years of waiting came to an end. The N25 Waterford Bypass will breathe new life into the city and the region as a whole, allowing business and industry to operate more efficiently. Local people, visitors and tourists will enjoy a more pleasant, healthier and safer environment.

The new river crossing at Grannagh is the longest cable-stayed bridge in the State and was designed to compliment the local environment. An impressive structure, I am sure it will become a focal point for the people of Waterford.

The early completion of this Public Private Partnership scheme clearly demonstrates the benefits brought by the private sector in accelerating the delivery of the national roads programme.

Congratulations to all involved in completing this outstanding piece of infrastructure ahead of schedule. It will have a positive impact not just on Waterford but the entire region for generations to come".



As Mayor of Waterford City and on behalf of the City Council, I am delighted to be associated with the opening of the Waterford City Bypass and the magnificent and iconic new River Suir Bridge.

The opening of the Bypass not alone marks the completion of the largest ever infrastructural project in the South East but it also represents a landmark day in the history of Waterford and the culmination of over 40 years of campaigning for a second river crossing.

The Waterford City Bypass will transform our City, improve access and facilitate growth in business and tourism. It is a fitting entrance to the Gateway City of the South East.

My congratulations to all those who have been involved in the project.

*Cllr. John Halligan
Mayor of Waterford City*



On behalf of Waterford County Council, I welcome the completion of the N25 Waterford City Bypass. This undertaking further enhances the accessibility of County Waterford and the South East Region and increases its attractiveness as a location for inward investment. In addition, the reduction in traffic numbers on the existing road network through Kilmeaden and Butlerstown will have a significant road safety benefit for the residents of the area.

Gabhaim fíor bhuíochas do gach uile duine a raibh páirteach le haghaidh an scéim a chur ar fail

*Cllr. Nora Flynn
Mayor of County Waterford*



As Cathaoirleach of Kilkenny County Council I am delighted to witness the official opening of the new Waterford City By Pass scheme which will contribute positively to traffic management and environmental improvement in South Kilkenny and in the environs of Waterford City. There will also be significant benefits in reduced costs and travel time savings to businesses and members of our wider communities on both sides of the River Suir.

The timely delivery of this project was facilitated by the valuable co-operation of the many property and land owners.

*Councillor Michael O'Brien
Cathaoirleach Kilkenny County Council*

“The N25 Waterford Bypass is part of the Government’s Transport 21 programme which is investing in upgrading and improving Ireland’s Transport system by 2015.

This scheme will save motorists at least 20 minutes travel time between Cork and Rosslare and reroute heavy goods vehicles out of Waterford city centre thus easing congestion”





*Scheme construction began
in April 2006
and opened to traffic in
October 2009*



From 1997 to 2001, the three Local Authorities/ NRA/THRDO (Tramore House Regional Design Office) and Mott McDonald moved the project forward from the feasibility study/report through the following milestone events:

- Route Selection
- Partnership Agreement (Waterford City Council, Waterford Co. Co. and Kilkenny Co. Co.)
- Compulsory Purchase Order (No. 1) 2001
- Bridge Order
- Foreshore Licence/Lease
- Environmental Impact Assessment/Statement – 2001
- Toll Scheme
- Compulsory Purchase Order (No. 7) 2006
- Environmental Impact Assessment/Statement 2006



Benefits of the Scheme

- Improved safety levels as a result of the benefits of the bypass and inclusion of grade separated junctions;
- Improved environmental quality through removal of road traffic noise and pollution from Waterford City and surrounding villages
- Reduced travel times;
- The new road will increase logistical efficiency
- It will contribute to improving economic opportunities and competitiveness for the South East;
- Measures to preserve and enhance the environment
- have been incorporated in the design of the scheme.



Tolling

The Toll Plaza is located on the South side of the River Suir Bridge. There are five toll lanes in each direction.

In the National Development Plan (NDP), the Government designated the N25 Waterford Bypass as a PPP Scheme.

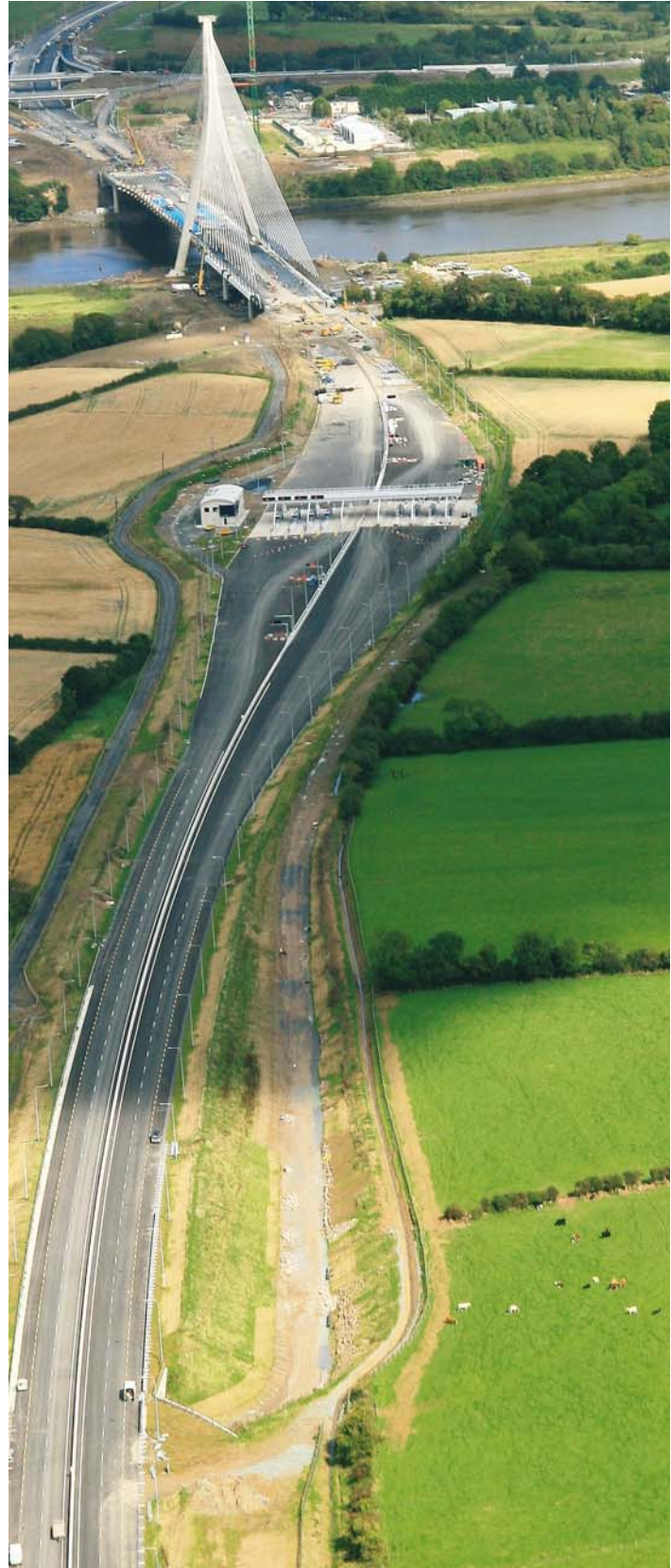
The PPP schemes identified in the NDP, form an integrated coherent strategy of tolling of planned motorways, high quality dual carriageways and major bridge/river crossings.



Public Private Partnership

A Public Private Partnership, or PPP, is an agreement between the public and private sectors. Its purpose is to deliver a project or service traditionally provided by the Public sector. The Government's National Development Plan, or NDP, identifies PPPs as a necessary component in delivering the essential projects included in the Plan.

In addition to our national roads, the NDP has identified a role for PPPs in public transport, water services, waste management and education.



CONSTRUCTION: SCHEME REQUIREMENTS

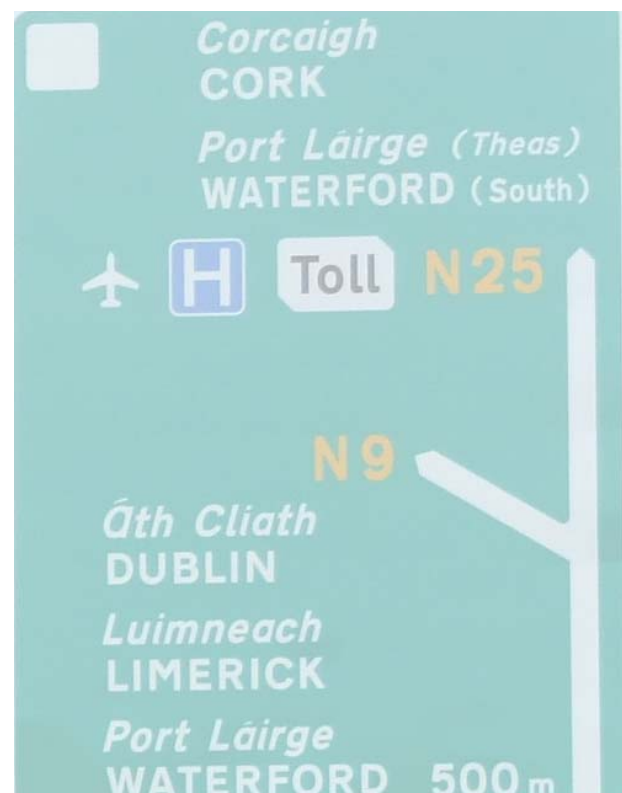
The Construction Requirements set down particular design and construction requirements for the scheme:

- 16.3 km Dual Carriageway (Mainline) between Kilmeaden Co Waterford (to the West) and Luffany Co Kilkenny (to the East).
- 2.8 km Dual Carriageway including Quarry Link, N9 Link and Slieverue Link providing connection between Mainline and the N24 (Limerick), N9 (Dublin) and the N29 (Waterford Port).
- 3.5 km of Urban Dual Carriageway including the Western Link 1 and the Newrath Links 1 & 2, Quarry Link and the N9 Link providing connection from Mainline to Waterford City.
- 3.2 km of Std Single Carriageway forming tie-ins between the existing N25 N24 and N29.
- Five "At Grade" Junctions, at Carrick Road, Luffany and Slieverue form connections between the Mainline and the existing N25 and N29, at Quarry Roundabout forming a connection with the M9, and a connection to the WIT campus on the Western Link.
- Two Grade Separated Junctions, at Knockhouse Upper (Western Link Jnct) and at Grannagh (Grannagh Jnct), connect the mainline to the Western Link south of the river and to the N24, the N9 (M9) and the Newrath Link north of the River Suir.
- 13 km of local road connections.
- The construction of in excess of 60 principal Structures including 5 viaduct structures, 10 overbridges, 5 road underbridges, 3 railway underbridges, 3 river underbridges and 8 accommodation underpasses
- The construction of a 465m long Cable Stayed bridge with a main span of 230 carrying the Mainline across the River Suir.
- Toll Plaza comprising Administration Building, Toll Plaza Canopy & Tunnel and associated Toll Collection System, located in Gracedieu.
- Diversion of various Services, Landscaping, Accommodation Works and the relocation of a section of the Waterford & Suir Valley Tourist Rail line.



Aerial view of Grannagh Junction & River Suir Bridge under construction

This new crossing over the River Suir will reduce traffic on the existing Rice Bridge which is currently used by approximately 40,000 vehicles each day



N25 Waterford Bypass - Scheme Description

In 1996, a Steering Committee, which included representation from Waterford City Council, Waterford County Council, Kilkenny County Council and the National Roads Authority was set up to examine the proposal to provide a second river crossing for Waterford.

The need for, and economic justification of, an additional river crossing was clearly established. A road network was recommended to tie-in to the proposed river crossing (between Gracedieu (Waterford) and Grannagh (Kilkenny)). This road network included a comprehensive set of approach roads (N9, N24, N25) as well as the Outer Ring Road (from Waterford Regional Hospital to Knockhouse Lower) which was completed in 2007

The bypass forms part of the North/South Strategic Corridor which runs from Belfast via Dublin and Rosslare to Cork, linking the three most populated cities in Ireland and provides access to the key commercial seaports in the east and south.

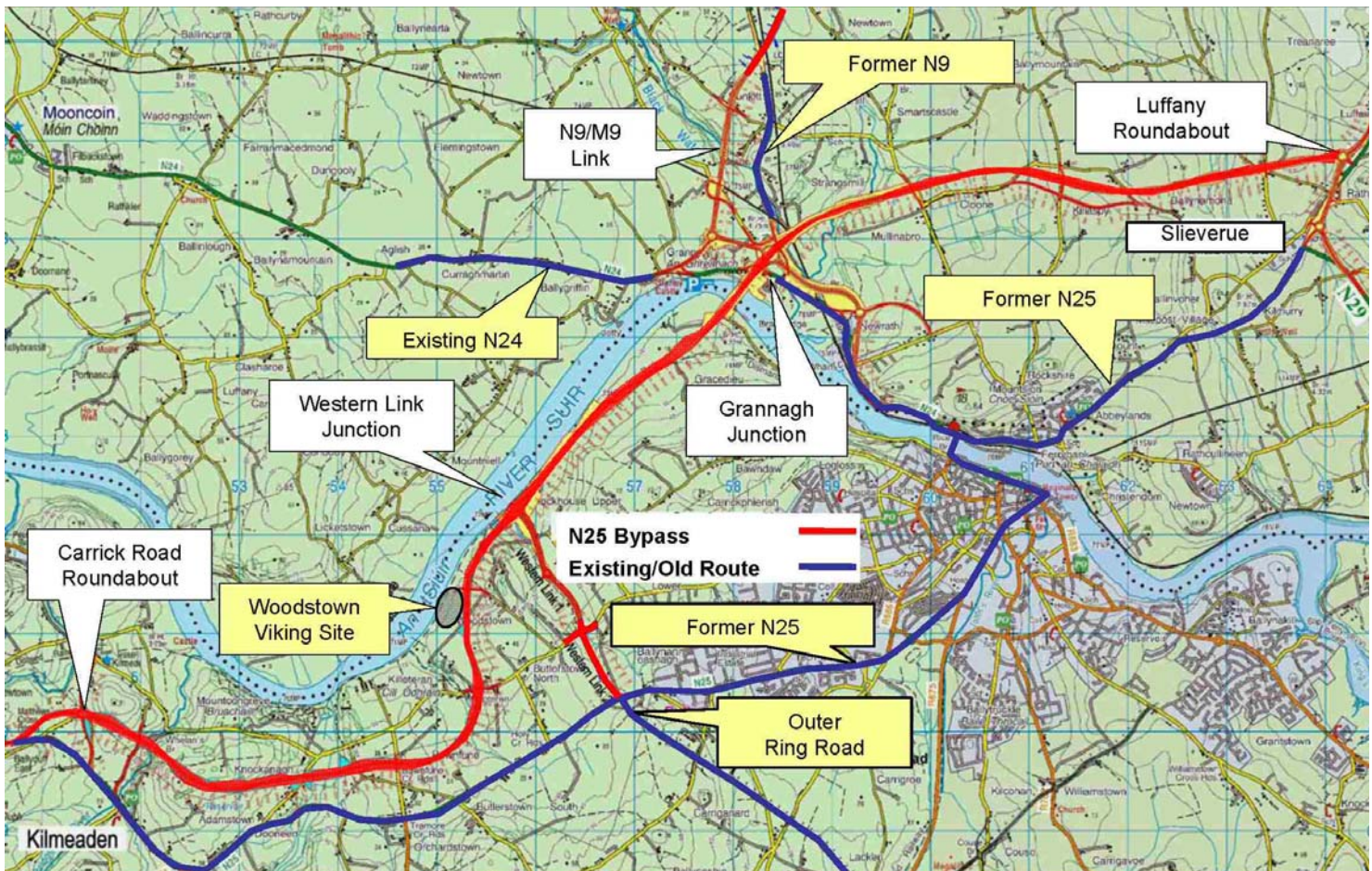
The N25 Waterford Bypass Scheme stretches from west of Kilmeaden to the east of Slieverue.

It also includes a new connection, known as the Western Link, which connects the bypass to the industrial areas to the south-west of Waterford and the N9 and N24 routes to the Grannagh Interchange.



Project Statistics:

- 23.1km Dual Carriageway
- 14km of single carriageway
- 2 Grade Separated Junctions
- 60 structures
- 1 Toll Plaza
- 475m Cable Stayed River Suir Bridge



River Suir Bridge – Symbolic Gateway

A great deal of thought has gone into the design from the point of view of aesthetics. An asymmetrical fan arrangement has been chosen for the cables with a single 'A' frame tower and a twin fan of cables is used to support the deck edges.

The cable-stayed design removes the need for intermediate supports or piers in the river and permits a longer deck. This key factor gives rise to many of the benefits of a cable-stayed bridge. There is little or no construction in the fast flowing and deep river. There is no need even for temporary supports within the river as the deck can be progressively supported on the cables.

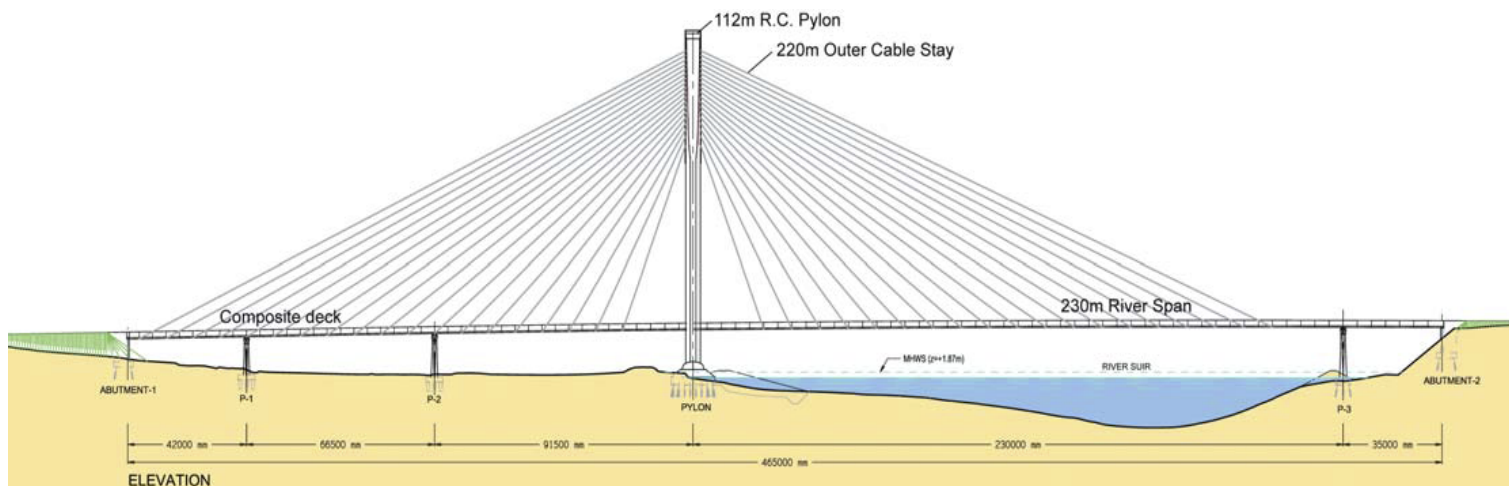
This landmark structure reflecting modern 'high tech' engineering and graceful aesthetics will become a symbol for the southeast, of which the region can be proud.



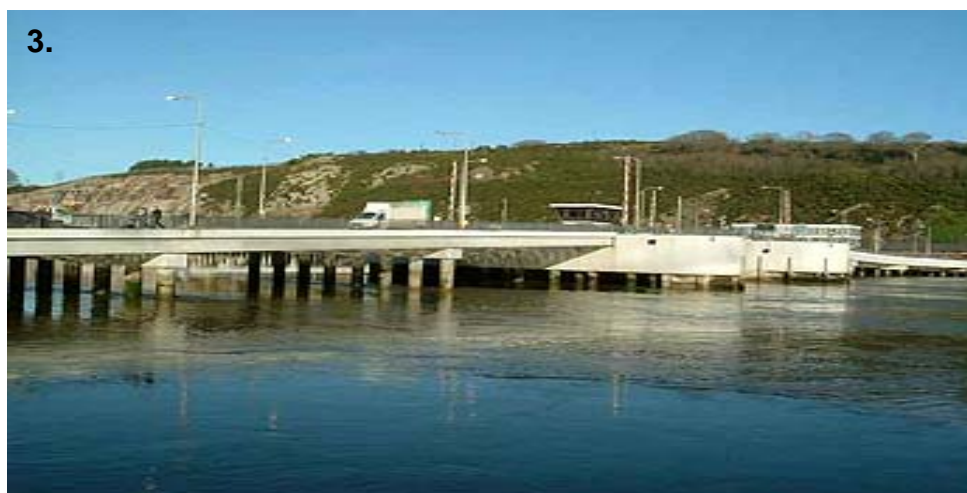
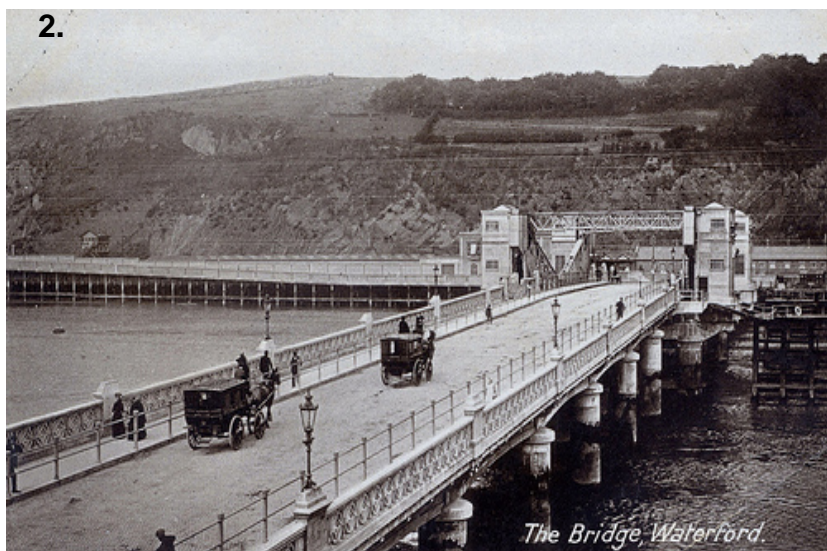
'The inner face of the tower legs will be lit by feature lighting which will have a ghost-like aura when viewed from a distance, whilst drivers will pass under a sharply defined 'A' shape.'

River Suir Bridge Statistics

- Overall width: 30.60m
- Over length: 465m
- Main span length: 230m (Longest span in 26 counties)
- Side span lengths: 42, 66.5, 91.5, (230), 35m
- Clearance over MHWS: 14m above MHWS
- Overall Tower height: 112m (above foundation)
- Height of Tower above road level: 95.6m
- Tower width at base: 53m
- Total Number of cables: 76 No (4 x 19 cables) Modified Fan
- Total length of cable: 11900m (approx)
- Diameter of cables (Outer sheath): Between 355-455mm comprising 26 to 55 strands (Approx 550km of strand)
- Total tonnage of structural steel: Deck = 2500t
- Tower = 300t
- Volume of concrete: Deck = 2700m³ approx.
- Tower/Substructure = 4000m³ Approx.
- Total = 6700m³



Bridges of Waterford – Past & Present



Facts:

1. Timbertoes Bridge

Construction commenced in April 1793 and was completed in January 1794 – 10 months. This was a toll bridge from 1794 to 1906

2. Redmond Bridge

Construction commenced in November 1910 and was completed in February 1913 – 28 months

3. Rice Bridge

Construction commenced in August 1982 and was completed in October 1984 – 27 months

4. River Suir Bridge

Construction commenced in May 2006 and was completed in October 2009 – 42 months



Archaeology ... Preserving Local Heritage



A total of 105 sites covering 43 acres were excavated by three private firms conducting site investigations from 2002 to January 2005 along the original proposed route. The discovery of a Viking settlement on the south bank of the River Suir at Woodstown, which was declared a national monument halted work – this resulted in the project having to progress in what was effectively two phases.

Woodstown is considered to be “a multi-period site with Viking occupation” and “of national importance because of its archaeological and historical significance and is a National Monument within the meaning of the Act, the Act being Section 14A(4)(d) of the National Monuments Act 1930 (as amended)

Early in 2003 test trenching at Woodstown revealed “a large substantial and important archaeological site had been exposed”. The finds indicated Early Christian and Later Viking Age occupation of the site. There was abundant evidence for craft-workings in fine metal (e.g. silver), as well as iron working, stone, glass, bone, antler and amber. Some finds, including copper-alloy stud mounts with gold foil and a copper-alloy book clasp may have been treasure trove from monastic raiding.



Archaeologists “planning” Viking warrior grave with iron sword in situ.

The archaeological evidence indicated that during the middle of the ninth century the site was occupied, and presumably taken over, by Viking raiders. Evidence of Viking metalworking in silver and lead was found, and the site has produced the largest assemblage of lead pan weights outside of Viking Dublin. Exotic finds of possible Norwegian schist whetstones and a fragment of a silver Kufic coin from Byzantium reflect the wider world in which Vikings operated. Ships nails and rivets reflect their maritime basis. A single warrior grave with full battle armour was also discovered, but due to the acid soil no skeleton survived.

The site was abandoned c. AD 1050, for reasons as yet unknown. The site may have been an upriver trading station, 6km from the Viking town of Waterford.



Ornate Pan Weight



Vase Urn



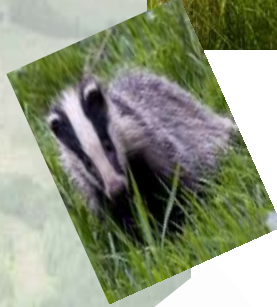
Viking grave during excavation showing sword in-situ

Protecting the Local Environment

An Environmental Impact Statement (EIS) undertook detailed assessments under the following headings:

- Human Environment
- Agriculture
- Ecology
- Hydrogeology
- Water Quality & Fisheries
- Air Quality
- Noise
- Landscape
- Material Assets
- Cultural Heritage
- Climate

*Meadow Barley
(Hordeum Secalinum)*



The environment is a crucial consideration in the design and construction of a scheme of this scale. Prior to any works, ecologists carried out extensive surveys of the proposed route and an area up to 1km or more from the site. The findings of these surveys as well as consultation with other experts were used to create an Ecological Design for the scheme.

The scheme involved work in and around the River Suir which is a Special Area of Conservation, a designation which affords it the highest environmental protection under Irish and European law. The Natural Heritage Area at Grannyferry, another protected area, was also subject to special consideration.

Test trenches at Woodstown Viking Site



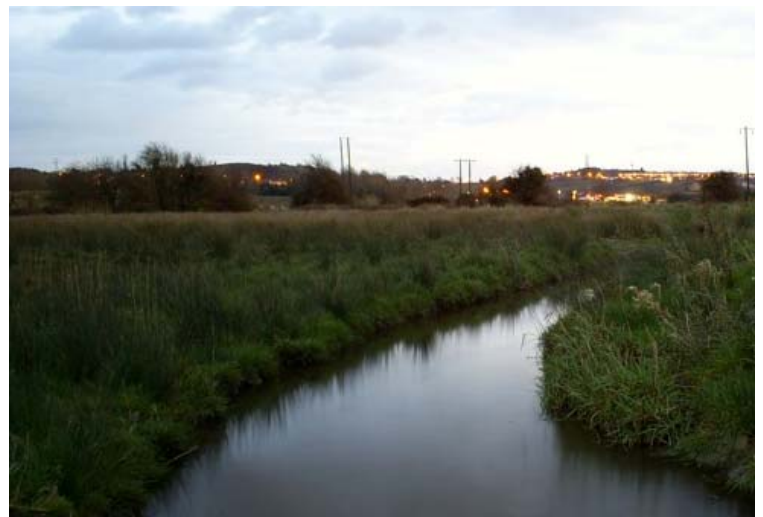
Common Frog



Summer Snowflake

The known habitats of rare and protected species were designated for detailed examination and protection in the environmental works programme on the N25 Waterford Bypass scheme. These included familiar species such as the common frog which is considered to be in decline around much of Ireland. A rare snail of the genus *Mercuria* was translocated by the ecologists to a specially designed compensation site which replaces some of the reed bed areas lost during construction. The ecologists also worked with Ireland's only newt species and several rare plants, thereby ensuring that these would not be impacted upon by the scheme.

A crucial part of the Ecological Design was mapping mammal movements long before any construction works and planning underpasses for badgers. Specially designed badger-proof fencing has been installed where necessary. New habitat areas for bats were designed.



Wetlands Compensation Site



Corcaigh	km
CORK	131
(Áth Cliath	
DUBLIN	158
(Luimneach	
LIMERICK	129
Port Láirge	
WATERFORD	10

The N25 Waterford City Bypass Scheme is funded through private finance raised by the PPP Co. (Celtic Roads Group) and through government funding under the National Development Plan (NDP)



N25 Waterford Bypass Project Team

**Waterford City Council
Waterford County Council
Kilkenny County Council**

National Roads Authority

Tramore House Regional Design Office

**Consulting Engineer
Mott MacDonald Ireland Ltd.**

**PPP Company:
Celtic Roads Group
Royal Bam Group bv/ BAM PPP bv
Dragados Concesiones de Infraestructuras
National Toll Roads (NTR) plc**

**Contractor
Waterford Joint Venture
BAM Civil
Dragados SA.**

**Contractors Detailed Design
Arup, Carlos Fernandez Casado,
WYG, Eptisa, Indra**