

1.0 INTRODUCTION

1.1 Preparation of Report

This Constraints Study Report of the N81 Hollywood Cross to Tallaght, Road Improvement Scheme has been prepared in accordance with the National Road Authority's (NRA's) National Project Management Guidelines (Version 1.1, dated March 2000). This report describes the constraints which will affect the choice and development of a preferred route for the improvement scheme, and has been compiled based on desk studies, site survey work (windscreen survey) and consultation with concerned parties. The constraints described in the report cover physical, procedural, legal and environmental issues, in both a local and a national context.

Kildare National Roads Design Office has been appointed, under a Section 85 Agreement, to carry out this constraints study on behalf of Kildare, South Dublin and Wicklow County Councils.

Kildare National Roads Design Office has prepared this Constraints Study Report under a Multiple Framework Contract which incorporates specialist studies undertaken by sub-consultants as follows;

- White Young Green Environmental Consultants: Soils, Geology, Hydrology & Hydrogeology
- Natura Environmental Consultants: Ecology
- Headland Archaeology Consultants: Archaeology, Architectural & Cultural Heritage
- Philip Farrelly & Co. Agricultural Consultants: Agricultural
- Nationwide Data Collection Traffic Consultants: Origin Destination Survey

1.2 The Constraints Study and Scheme Progression

The National Roads Project Management Guidelines outline the phased approach which should be followed in developing a major road scheme.

Phase 2 of the guidelines outline the requirements of the Constraints Study. The objective of this report is to gather information on the project and identify the key constraints. This report presents the findings of the study and identifies the local and national issues which must be taken into account.

Phase 3 of the guidelines, the Route Selection Phase, involves the development of route options within the study area based on the information gathered during the Constraints Study and further studies undertaken. This phase will culminate in the production of a Route Selection Report.

Following on from the Route Selection Phase, the scheme will progress to Phase 4 which will involve Preliminary Design/Land Acquisition Procedures. This comprises Preliminary Design, Environmental Impact Reports/Statement, Land Acquisition Mapping and the Statutory Process. The Environmental Impact Reports/Statement will be prepared in accordance with European Union and Irish Legislation. Phase 5 will involve the Construction Documents Preparation/Tender/Award. Phase 6 will be the Scheme Construction.

1.3 Location of Scheme and Need for Upgrade

The N81 runs from the junction with the N80 in Co. Carlow and terminates in Dublin City and is approximately 85km in length. The section currently under consideration in this report runs from Hollywood Cross in Co. Wicklow to Tallaght in Dublin 24 and is approximately 29km in length. Blessington is the only town located directly along the N81 and is connected to Dublin by road only. The N81 also passes through the village of Brittas. Blessington is approximately 30km from Dublin City and is located adjacent to the Pollaphuca reservoir.

A need to upgrade the N81 between Tallaght and Blessington has been identified both directly and indirectly in the following documentation.

- National Development Plan 2000 - 2006
- National Development Plan 2007 – 2013
- Transport 21
- National Roads Needs Study 1998
- National Spatial Strategy for Ireland 2002 – 2020
- Wicklow County Development Plan 2004 – 2010
- Kildare County Development Plan 2005-2011
- South Dublin County Development Plan 2004 – 2010
- Strategic Planning Guidelines for the Greater Dublin Area 1999
- Regional Planning Guidelines for the Greater Dublin Area 2004 – 2016

As part of the NRA's continued assessment of the roads needs in Ireland, the scheme boundaries have been extended as far as Hollywood Cross.

1.4 Description of the Study Area

The length of N81 that lies within the study area is approximately 29km from Hollywood Cross to the junction of the Outer Ring Road on the N81 in Tallaght.

The study area is shown in Figures 1.3.1 and 1.3.2. Its selection was based on a number of factors. The surrounding topography and natural features offered considerable constraint to this selection, taking into account the adjacent national road network and other transportation schemes in the vicinity. The existing developed and populated areas within and surrounding the study area were also assessed. Work was carried out by South Dublin County Council on the Tallaght Bypass Extension scheme, bringing it to Preliminary Design Stage. The NRA has since requested that this scheme be incorporated by the Kildare National Roads Design Office into the study area for the N81 Hollywood Cross to Tallaght Road Improvement Scheme. The resulting study area was identified upon assessment of all these factors.

1.5 Adjacent Schemes

The following are a list of schemes in proximity to the study area and are illustrated in Figure 1.5.1;

Blessington Inner Relief Road

This consisted of the construction of 2km of roads by-passing Blessington Main Street and providing access to a number of site developments and new town centre.

Embankment Road Extension – City West to Belgard Road

This proposes the construction of approximately 370m of 9m wide carriageway between City West and the Proposed Outer Ring Road – Phase 3 and the construction of approximately 2250m of 13m wide carriageway between the proposed Outer Ring Road Phase 3 and the Old Belgard Road. Detailed design is presently being prepared.

Killinarden Link Road

Involved the construction of approximately 355m of single carriageway 9m in width with 1.5m wide on-road cycle track, together with footpath and grass verge on one side. The road was completed and opened to traffic in August 2003.

M50 Upgrade

The M50 motorway around Dublin is currently being upgraded to improve traffic flow. Phase 1 is nearing completion this year; Phase 3, from the Toll Plaza to the N3, is substantially completed. Phase 2 is underway, having commenced in January 2008. It is anticipated that the Upgrade Scheme will be completed in 2010.

N7 Naas Road Widening and Interchange Scheme

This scheme involved the extension of the Naas-Dublin dual carriageway to three lane dual carriageway in both directions. This project included the widening of 14km of dual carriageway and the construction of four new interchanges, two pedestrian footbridges and a new local road linking Castlewarden to Kill and Johnstown to Naas. The scheme was opened to traffic on 15th August 2006.

N81 Wicklow Bends

This scheme is part of an investigation into the possible realignment of two bends along the N81 between Hollywood Cross Roads and Baltinglass. A study area has been drawn up at an area known as Deering's Bend, Knockroe and the scheme is currently at the Project Appraisal Stage.

Outer Ring Road - Phase 1

This scheme involved the construction of 6.2km of dual carriageway from Adamstown, Lucan to Naas Road/N7 (Kingswood) including a grade separated interchange at Kingswood. It was opened to traffic on the 26th January 2005.

Outer Ring Road - Phase 3

This scheme provides a link road connecting the Naas Road/N7 (Kingswood Interchange) to the N81 (Tallaght By-Pass). It contains a new single carriageway road link plus Bus and Cycle lanes. It was opened to traffic on

16th July 2008.

Tallaght By-Pass Extension

Work has previously been carried out by South Dublin County Council on the Tallaght By-Pass Extension bringing it to Preliminary Design Stage. An area of land has been identified for this scheme in the South Dublin County Council Development Plan. It is hoped that these lands can be incorporated into the design of the Hollywood Cross to Tallaght Road Improvement Scheme where possible.

1.6 Mapping

The following mapping has been used for the work undertaken on the Constraints Study:

- 1:50,000 Ordnance Survey Ireland (OSi) Discovery Series
- 1:2500 OSi Vector Mapping

In addition to this, colour OSi aerial photography flown in 2003 have been used to provide further information on existing ground features.

1.7 Windscreen Survey

A windscreen survey was undertaken within the study area in October 2008 to supplement existing mapping and aerial photography and in particular to identify;

- Existing properties not shown on mapping
- Commercial / Industrial business locations
- Community Facilities
- Location of property accesses (not shown on OSi plans)
- Junction layout and visibility
- Variations on carriageway widths, speed restrictions and location of hard shoulders
- Sections with sub-standard forward visibility
- Location of bus stops, footpaths and pedestrian crossings

The data obtained from the windscreen survey is included in the Constraints Figures.

2.0 FIRST PUBLIC CONSULTATION

2.1 Background

The first Non-Statutory Public Consultation for the N81 Hollywood Cross to Tallaght Road Improvement Scheme was conducted during September and October 2008. Initially an information brochure was produced and was delivered to all properties in the postal delivery zones within the study area (Refer to Appendix A for list of postal zones). A total of 32,800 brochures were delivered using An Post's publicity post service.

Appendix A shows the brochure produced. The brochure outlined for members of the public the extent of the study area, the information being gathered for the constraints report and invited them to send submissions to the Kildare National Roads Design Office by post or to the special project email created for the scheme (n81project@kildarenrdo.com).

In addition, Kildare National Roads Design Office organised three days of Public Consultation exhibitions, one in each county involved. The brochure informed the public of the locations and times of these exhibitions and invited them to attend to discuss the scheme and to raise any issues they had. The times and locations of these exhibitions were also advertised in the local newspapers circulating in the area.

The locations of these exhibitions were;

Tuesday 7 th October 2008, 1.00pm - 8.00pm	Ardenode Hotel, Ballymore Eustace, Co. Kildare
Wednesday 8 th October 2008, 1.00pm - 8.00pm	Avon Rí, Burgage, Blessington, Co. Wicklow
Thursday 9 th October 2008, 1.00pm - 8.00pm	The Plaza Hotel, Tallaght, Dublin 24

A questionnaire was handed out at the public exhibitions together with freepost envelopes and those who attended were encouraged to complete the questionnaire, and to submit any further queries, observations or information considered relevant (See Appendix A).

In total over two hundred people attended the Public Consultation meetings over the three days.

2.2 Issues raised

The majority of queries made by those attending the public exhibitions were in relation to possible locations of the proposed routes. The majority of people attending advised their support of the scheme. The main issue highlighted was traffic delays experienced by users who were driving to Tallaght from the Baltinglass and Blessington direction. In addition to concerns over traffic delays, submissions were also made in relation to access and egress to and from the existing N81. Information was also provided by attendees about land ownership and concerns expressed regarding severance of land by any potential road improvement.

Some additional relevant constraints were identified. These have been registered and acknowledged by Kildare National Roads Design Office. Following the distribution of brochures and the Public Consultation meetings,

48 questionnaires and 6 submissions were received. The information provided within each questionnaire was recorded.

From these questionnaires and submissions;

- 30% (16) of the questionnaires received were in favour of the scheme
- 11% (6) of the questionnaires received were not supportive of the scheme
- The remainder of questionnaires received did not express any opinion in favour of or against the scheme
- Of those in favour of the scheme, 25% would prefer an online improvement of the existing N81 road

Information was submitted highlighting archaeological / architectural and ecological sites. As part of the route selection stage, detailed archaeological and ecological investigations will be carried out. Sites which are not included in the Constraints Report Sections 4.6 to 4.9 will be dealt with in the course of these investigations.

3.0 HIGHWAYS AND TRAFFIC ISSUES

3.1 Existing Standards

The existing N81 runs from the junction with the N80 in Co. Carlow and terminates in Dublin City and is approximately 85km in length. The section under consideration runs from Hollywood Cross in Co. Wicklow to the junction of the Outer Ring Road on the N81 in Tallaght, Dublin 24 and is approximately 29km in length. Blessington is the only town located directly along the N81 and is connected to Dublin by road only. The N81 also passes through the village of Brittas.

The National Roads Needs Study 1998 states that “*this route only requires upgrading on the section between Blessington and Tallaght where a ‘standard two lane’ road is necessary during Phase 1 needs between Blessington and the N82 junction. A dual carriageway is required during the Backlog Phase needs to link the existing Tallaght By-Pass with the N82 from Saggart*”

The majority of the N81 consists of a single carriageway with approximately 0.5km of dual carriageway at the edge of the study area towards Tallaght.

The single-lane carriageway has a number of sections without any hard-strip or hard-shoulders. Please refer to Figures 3.1.1 - 3.1.3 indicating these areas.

The cross-sections range in width from 6.3 metres to 13.3 metres along the single carriageway section and approximately 23.4 metres to 27.5 metres at the dual carriageway sections.

The speed limit on the N81 is 100kph, reducing to 50kph and 60kph in the settlements of Blessington and Brittas respectively.

According to the National Roads Needs Study 1998, Level of Service (LOS) is a term used to summarise the relative ease of travel on a segment of a road. The target of the National Roads Needs Study was to ensure that no section of the National Road Network falls below Level of Service “D” (LOS D). LOS D specifies that the average inter-urban travel speed of this section of road should be 80kph. The stretch of the N81 within the study area currently falls below this. A Journey Time Assessment from Tallaght to Hollywood Cross showed that the current N81 provides an average travel speed of 62kph. A key element of achieving the LOS D is to “*eliminate urban bottlenecks by constructing by-passes*”. By constructing a by-pass of Blessington and upgrading the road, eliminating the speed restricted sections, free-flow conditions would be achieved which would save an average of 10 minutes per journey.

The existing alignment of the N81 is poor, leading to a high number of accidents. This is discussed in Section 3.4. At present, there are several junctions along the N81 which require improvement by either widening of the road or improving the sightlines. Donegal National Roads Design Office compiled a safety review of 27 junctions on this stretch of the N81, highlighting the junctions needing improvement. Table 3.4.1 in section 3.4 shows a list of these junctions and recommendations as to how they can be improved. This is also illustrated in Figures 3.2.1 - 3.2.3.

As well as these junctions, there are approximately 212 private access-ways / driveways or commercial properties with direct access onto the N81. There are also a number of locations where pedestrian movements occur on the N81. These range from pedestrian crossings on the N81 within the town of Blessington and the Tallaght area to footpaths along some sections of the N81. These are shown in Figures 3.1.1 - 3.1.3.

3.2 Traffic

Kildare National Roads Design Office received traffic volume information from the National Roads Authority RT Series of documents for the years 2000-2004 and this is summarised below in Table 3.2.1.

Section	RT590 2000 AADT	RT600 2001 AADT	RT610 2002 AADT	RT620 2003 AADT	RT630 2004 AADT
Brittas	8619 23% HGV	9144 17.3% HGV	9503 17.25% HGV	9067 19.60% HGV	9520 17.30% HGV
Kilbride	9143 26% HGV	9699 19.50% HGV	10079 19.50% HGV	11061 19.50% HGV	11646 19.50% HGV
Blessington	12318 9% HGV	13070 6.80% HGV	13581 6.75% HGV	14904 6.80% HGV	15692 6.80% HGV
Hollywood	4545 13% HGV	4824 9.80% HGV	5009 9.75% HGV	3544 10.60% HGV	3723 9.80% HGV

Table 3.2.1: NRA Traffic Volumes for N81 between Tallaght & Hollywood Cross

In the RT Series of documents mentioned above, a number of years may have elapsed since the reference count was taken. Therefore in order to obtain more accurate estimates of traffic flow, additional traffic counts were carried out within the study area and provided the more recent AADT (Average Annual Daily Traffic) figures which are mentioned below. These are forecast to increase significantly during the next 20 years, according to growth figures contained in the National Roads Study. The recorded AADT traffic levels are shown in Figures 3.2.1 – 3.2.3.

- 2007 AADT traffic flows varied between 5744 on the N81 South of Hollywood Cross and 19767 on the N81 South of Tallaght. Traffic flows on the N81 at these locations are forecast to increase to between 7893 and 27127 by 2024, respectively.
- In 2007, the percentage of heavy commercial vehicles varied between 7.80 % and 20.16 % along the N81.
- The number of heavy commercial vehicles is expected to increase to between approximately 1028 and 3467 heavy commercial vehicles per day by 2024.
- Pedestrian traffic within the Study Area is generally restricted to dedicated pedestrian footpaths within the towns/villages (pedestrian movements are concentrated within the towns / villages). However, there have been a small number of accidents recorded in rural areas, where there are no footpaths on the N81. There are a large number of bus stops located along the route without ancillary provision of footpaths. This is shown in Figures 3.1.1 - 3.1.3.

3.3 Origin-Destination Survey

An Origin and Destination Survey and Junction Turning Count was carried out by Nationwide Data Collection on behalf of Kildare National Roads Design Office in and around Blessington Village. The survey was carried out on Thursday 18th September 2008 using telescopically mounted video cameras, recording traffic movements between the hours of 7.00am and 7.00pm.

The junction of N81/R410 (road to Naas) was named as Site 1. The following observations were made at this junction:

- The total count of vehicles exiting the R410 to the N81 at this location was 1842 (1526 turned towards Dublin while 316 vehicles turned towards Baltinglass)
- A total of 5269 vehicles approached the junction from the south. Of these, 395 turned onto the R410 while 4874 continued on the N81 into Blessington.
- A total of 5883 vehicles approached the junction from the north, with 1192 vehicles turning onto the R410 while 4691 vehicles continued on the N81 towards Baltinglass

The junction of N81/Local Road to Blessington Lake was called Site 2. The following observations were made at this junction:

- A total of 5385 vehicles approached this junction from the northern side. Of these, 520 were recorded as turning off the N81 onto the local road to Blessington Lake, while 4865 vehicles remained on the N81 road.
- A total of 6333 vehicles approached the junction from the southern side. Of these, 898 vehicles turned onto the local road to Blessington Lake, while 5435 vehicles continued on the N81 road.
- The total number of vehicles approaching the N81 road from the local road (ex Blessington Lake) was 1534. Of these, 1029 were recorded as turning onto the N81 towards Baltinglass while 505 turned onto the N81 towards Dublin.

The junction of the N81/Blessington Inner Relief Road was called Site 3. There is an entrance to a petrol station opposite this junction and vehicle movements into and out of this entrance were also recorded. The following observations were made at this junction:

- The total number of vehicles recorded approaching the N81 road from the Blessington Inner Relief Road was 1431. Of these, 928 turned onto the N81 in the Dublin direction while 403 turned onto the N81 in the direction of Blessington Village centre. 100 vehicles were recorded crossing the N81 from the Inner Relief Road and entering the petrol station.
- The total number of vehicles recorded approaching this junction on the N81 road from the north was 5115. Of these, 825 turned onto the Blessington Inner Relief Road, 3965 continued on the N81 into Blessington Village and 325 entered the petrol station.
- A total of 5132 approached the junction from Blessington Village. Of these, 596 turned onto the Blessington Inner Relief Road, 4398 continued on the N81 towards Dublin and 138 entered the petrol station.

In summary, it can be seen from the traffic survey that a significant volume of traffic enters Blessington on the N81 route from both sides of the village, with higher volumes approaching from Dublin. It can also be seen that relatively few vehicles turn off the N81 road onto the Blessington Inner Relief Road.

Data compiled from the traffic study and the Origin and Destination Survey will be used in more detail at the Route Selection Stage of the Scheme.

3.4 Safety

This section of the Constraints Study Report focuses on two aspects. Firstly, based on a safety check which was carried out by Donegal National Roads Design Office on 10th May 2007, 27 junctions along the route were assessed and reviewed for sightlines and approaches from a driver's perspective. Secondly, the report details the accident data relating to the section of the N81 contained in the study area from the period January 1996 to December 2008.

As part of the European Road Assessment Programme (EuroRAP), the section of the N81 within the study area has been classed as "*medium to high risk*". This is based on the accidents per vehicle km travelled.

Junctions

Bearing in mind that junctions tend to be accident cluster locations, all the junctions along the section were examined and checked for safety with particular attention paid to sightlines, traffic turning movements, forward visibility and relative gradients of the minor and major roads. Not all junctions indicated as being "OK" necessarily have the sightlines required according to design guidelines, but in the opinion of the audit team (Donegal NRDO), the sightlines are adequate for the approach speeds assuming drivers are of average ability and fitness. 27 junctions were reviewed in total. The check was performed in daytime with clear bright conditions and scattered showers. Table 3.4.1 shows the different junctions along the route which were identified as being in need of improvement in order to reduce the number of accidents (See Figures 3.2.1 - 3.2.3). The table highlights the need for widening of the road together as the need to improve sightlines at various locations.

Junction	Location	Junction Type	Approach from Main Rd.	Approach from Minor Rd.	Sight Line to Right	Sight Line to Left	Suggested Improvements
A	R411	Cross Roads	OK	Ramps on N81 after bend approaching the N81	Fair but limited by vegetation	Fair but limited by vegetation	Provide advance signs for ramps. Clear vegetation from the sightlines.
B	Minor road facing R411	Cross Roads	OK	Sharp bend before junction	Poor	Poor	Clear Both sightlines.
C	Tulfarris Junction	T Junction	On a bend	OK	Good	Fair, 100m	Consider widening to provide a Right Turn Lane
D	Bishopsland Junction	T Junction	OK	OK	Good	Bad	Clear sightline to the left.
E	Russborough Junction	T Junction	OK	OK	Bad		Clear sightline to the left and move pole in the sight line.
F	Glashina Junction	T Junction	OK	OK	Fair but obstructed by vegetation	Good	Clear vegetation from the sightline.
G	Vallymount Junction	T Junction	OK	OK	Good	Blocked by Junction Definition Post	Move Junction Definition Post
H	Glebe Junction	Cross Roads	OK	OK	Good	Vegetation blocking sightline	Clear vegetation from sightline.
I	Glebe Minor Rd		OK	OK	Good	Vegetation blocking sightline	Clear vegetation from sightline.
J	Minor road at Newpaddocks	Y Junction	OK	Uphill and angled	Good	Good	Square up and flatten junction mouth
K	Dillonsdown Quarry	T Junction	OK	Ramps have few warning signs	OK	OK	Improve warning signs to ramps on minor road.
L	Rathmore Junction	T Junction	OK	OK	Good	Poor	Clean back the sightline boundary wall
M	Kilteel Junction	T Junction	OK	OK	OK	OK	Review the STOP line position.
N	R114 to Bohernabreena	Complex Junction	OK	OK	OK	OK	Has a double junction to N81. Consider capping western link and use space to provide a Right Turn Lane to the R114
O	Minor Rd to Glenaraneen beside public house	T Junction	Bad	Bad	Bad	Bad	Difficult to improve this. No sightlines in any direction & difficult to identify the junction on approach along main road. Close if possible.
P	Minor Rd to Glenaraneen	T Junction @ 303,142 222,277	OK	OK	Good	Bad	Clear the sightline to the left of the junction
Q	Minor Rd to Saggart	Y Junction	OK	Sharp Y Junction	Good	Obstructed by vegetation & signs	Clear the left hand sightlines
R	Minor Rd to Raheen	T Junction @ 303,434 223,954	Poor	Downhill around a bend	OK	OK	Either provide "NO RIGHT TURN" signs or provide nearside flaring to enable Dublin bound drivers pass on the inside of turning vehicles
S	Verchoyles Hill	T Junction	Junction is between 2 bends	Gradient down to junction from the hill	OK	Bad	Improve the sightline to the left
T	Minor link road to the old N82	Y Junction	OK	Uphill gradient to the N81	OK	Bad	Flatten the top of the junction to ease access to the main road. Improve sightline to the left.

Table 3.4.1: N81 Safety Review of Junctions

Accident Data

A review of the collision incidents for the portion of the N81 route contained within the study area was compiled as indicated in the NRA's Accident Database of Injury Crashes for the period from January 1996 to December 2007. Table 3.4.2 below shows the breakdown of the 330 accidents recorded as having occurred on this section of the N81. They are illustrated in Figures 3.2.1 - 3.2.3. A full list of recorded accidents is listed in Appendix B.

Type	Number	Percentage
Fatal	18	5.5%
Serious	59	17.9%
Minor	253	76.6%

Table 3.4.2: Accident Data

In addition to this information, accident data for 2008 was also collected in consultation with An Garda Síochána. However, exact locations are yet to be confirmed. A summary of the accident data for 2008 shows that 4 fatal, 1 serious and 22 minor accidents occurred along the N81 within the study area.

Several trends develop when the accident data provided is analysed. The accidents on the road generally occur in dry weather and good visibility. Reported road conditions are divided almost equally between wet and dry conditions. All of these trends are consistent with data for national routes throughout Ireland.

The principal collision types for the N81 are single vehicle accidents, head on collisions, rear end shunts and accidents involving pedestrians. Throughout the analysis of the N81 Hollywood Cross to Tallaght route, the number of these types of accidents recorded is much higher than the national figures. This would appear to be a result of a number of factors which include the poor vertical and horizontal alignment of the N81. In many cases, the accidents occur on straight sections of the carriageway; in fact many of the straight sections of the N81 contain hollows or dips in the road which obscure oncoming traffic from view.

There are a number of junctions on the N81. The presence of these junctions increases vulnerability of road users who are turning right to rear end shunts. This problem is exacerbated by the fact that there is insufficient space to pass on the inside at many of these junctions. In addition, the approach to the main carriageway can be deceptive from the minor road and there appears to be a number of rear end shunts at these junctions.

Apart from the severe effects the loss of life and injury has on the individuals and families involved in accidents, accidents can represent a significant cost to the economy. The elimination of the road hazards and reduced congestion provided by this scheme would significantly reduce the number of accidents on this section of the road.

The analysis of the data clearly shows the existing road alignment is a contributing factor to the number of accidents occurring on the N81. There are many dips and hollows along the route due to the poor vertical alignment of the road. This sub-standard vertical alignment causes the oncoming traffic to be obscured from view giving the appearance of the road ahead being clear for overtaking. This is a major contributing factor to a higher percentage of head-on collisions than the national average.

3.5 Public Transport

Bus

At present, Dublin Bus has a number of services running on this route which would benefit from improvements to the N81. These include routes 50, 65B, 77X and 202 serving City West and route 65 serving Blessington and Ballymore Eustace. As can be seen from Figures 3.1.1 - 3.1.3, there are a large number of bus stops located along the existing N81. Bus Éireann currently has plans to introduce a high frequency (20 minutes) service between Blessington and Tallaght in the near future. This frequency may be increased depending on the level of demand experienced. Timetables of bus services can be seen in Appendix B.

The Quality Bus Network Project Office is currently preparing a preliminary design to introduce bus lanes on the N81 between Old Bridge Road and Cookstown Road junction. This will primarily involve converting the existing hard shoulders on this section into bus lanes. The location of these improvements is shown in Figures 3.1.1 - 3.1.3.

Rail

There are no railway lines within the confines of the study area.

LUAS - Light Rail

Although the LUAS light rail system does not extend into the study area, there are plans for an extension to the existing Red Line adjacent to the Study Area, from Belgard through Citywest and Fortunestown and terminating at Saggart. A Railway Order was made by An Bord Pleanála on the 16th June 2008 which, once enforceable, will provide the Rail Procurement Agency with the powers necessary to construct, operate and maintain the line.

3.6 Structures and Drainage Issues

There are five structures on the existing N81 route within the study area, of which three cross streams/rivers with one pedestrian footway/bicycle path and one providing farm access. These structures range from stone arch to concrete composite construction.

Two of these bridges, both at Pollaphuca, are listed as protected structures and also as National Inventory of Architectural Heritage sites (See Section 4.6). These bridges date as far back as the 1830's and are two of the most distinctive structures of their type in the county of Wicklow.

There are also two culverts located at Blessington and Killinarden. These culverts comprise of reinforced concrete, cast in situ. Figures 3.1.1 - 3.1.3 show the locations of these structures in the study area.

The study area lies within the Eastern River Basin District (ERBD) and is completely contained within the Liffey River Catchment. Further drainage issues are dealt with in Section 4.10.

4.0 ENVIRONMENTAL ISSUES & CONSTRAINTS

4.1 Land Use

4.1.1 Introduction

Figures 4.1.1 - 4.1.3 indicate the land use patterns generally within the study area. The main settlements within the study area are Tallaght, Brittas, Kilbride, Blessington, Ballymore Eustace and Hollywood. Outside these settlements, land use is primarily agricultural, with scattered residential properties together with forestry on the more marginal areas on hill tops and mountain sides. There are also a number of commercial and industrial enterprises. Pollaphuca reservoir and the Wicklow Mountains are situated within the study area offering amenity and recreational opportunities, as well as water supply for the Dublin Area. Agricultural land use is described in section 4.3. Other land uses in the study area are outlined in the following sections.

4.1.2 Housing / Development

With the exception of Tallaght, Brittas, Kilbride, Blessington, Ballymore Eustace and Hollywood, development within the study area is primarily ribbon in nature with the majority of housing being concentrated parallel to and within a short distance of the existing road network, with very little backland development. From an examination of aerial photographs and data gathered from a windscreen survey of the area, over 1600 existing properties have been identified within the study area.

Wicklow County Council have also indicated that they own land adjacent to Pollaphuca Reservoir which they intend to develop. This land may therefore be considered as a constraint. The outline of these lands is shown in Figure 4.1.2.

The planning authorities in South Dublin, Kildare and Wicklow County Councils were consulted in relation to planning applications made within the study area. Applications granted within the study area between the period 2003 - 2008 have been recorded and are illustrated in Figures 4.1.4 - 4.1.6 and are summarised in the table in Appendix C. In total there are 148 such applications within the study area.

4.1.3 Commercial / Industrial

Commercial and industrial enterprises outside the built up areas of Tallaght, Brittas, Kilbride, Blessington, Ballymore Eustace and Hollywood were identified during the windscreen survey. Approximately 63 such enterprises were identified within the study area. The quantity and type of these are shown in Appendix C. From this table, it can be seen that there is a variety of commercial/industrial enterprises including shops, public houses, restaurants, service stations, quarries etc. Please refer to Figures 4.1.1 - 4.1.3 which show the location of these commercial and industrial industries.

4.1.4 Amenity / Tourism

The study area contains many sites of both archaeological and ecological merit which are important from an amenity viewpoint and which are described elsewhere in this report (sections 4.6 and 4.7).

There are a number of tourist attractions within the study area. These include;

- Russborough House; This is a stately house situated near the Blessington Lakes which has housed fine art collections. The Alfred Beit collection of paintings has been returned to Russborough in 2008 and this has increased the volume of visitor traffic to Russborough. There is also a walk in the demesne which is open to the public as well as a substantial Beech Hedge Maze adjoining the house.
- Blessington Town: This is an historic town with interesting architecture and many tourism related businesses within the environs of the town.
- Blessington Lakes; This is a centre of recreational activities on or around the reservoir and is a popular scenic attraction in the district. Fáilte Ireland has indicated that in the coming years it is expected that this facility will provide more opportunities for recreation for visitors and residents alike.
- Avon Rí Blessington Lakeshore Resort; A resort offering self catering holiday homes accommodation, restaurant and outdoor pursuits. It also provides team building and corporate events as well as conference and function facilities.
- There are a number of tourism facilities within the study area including Hotels, Self Catering and B&B properties.
- Golden Falls; Founded in 1959 by the Johnson and Bewley families, Golden Falls is one of Europe's oldest Waterski Clubs.
- Fishing; The Pollaphuca Reservoir has 50 miles of shoreline and with its many inlets and bays, it offers anglers excellent coarse and pike fishing all year round. The lake is controlled and managed by ESB and a permit for all types of fishing is required.
- Wicklow Film Trail; Over the last 85 years, hundreds of films have been made in the county due to the versatility of the scenery. Braveheart Drive is a route which showcases some of the unspoilt rural country side found around Blessington Lakes and Hollywood and also takes in the monastic city of Glendalough, offering one of the best vistas over the mountains and lakes.

There are also a number of public amenities within the study area and these were identified during the windscreen survey, desk study and in consultation with the relevant bodies. These highlight sites of importance to the general public and to local communities. Public amenities identified include;

- Churches and graveyards
- Schools
- Garda Stations
- Community Halls
- Sports Grounds
- Museums and Crafts
- Golf Courses and Pitch and Putt Courses
- Angling
- Equestrian Centres
- Cycling Routes
- Leisure, Health and Fitness centres
- Parks, Recreation Areas and Gardens
- Camping and Caravan Sites

4.1.5 Natural Areas

Natural areas within the study area include lakes, rivers, peat lands and forestry.

Lakes and rivers are described in section 4.8.4. Throughout the study area there are pockets of forestry especially on the more marginal areas such as the hill tops and mountain sides. Coillte have indicated that they own areas of forestry within the study area with the remaining forestry either privately owned or in the ownership of the ESB.

4.2 Land Ownership

Due to the extensive nature of the study area, it is not considered appropriate at this time to identify all existing land holdings at this Constraints Study stage.

The land ownership and land registry search will be looked at in more detail at the Route Selection Stage.

4.3 Agriculture

The objective of this section of the report is to identify the agricultural constraints within the study area such as farm enterprises which may be unusual in terms of production techniques or species/breeds, areas of particularly intensive agriculture and also to identify any stud farms or areas important to the bloodstock industry.

Available data from the Central Statistics Office (CSO) was compiled on farm type, farm size and crop type at a local District Electoral Division (D.E.D.) level. The study area affects eleven D.E.D.'s, in Wicklow, Kildare and Dublin.

4.3.1 Farm Type, Farm Size and Crop Type

Table 4.3.1.1 below outlines the category of farming enterprise within the study area and how they compare with the national averages for each category. This indicates that grass based and livestock enterprises predominate.

There are high percentages of both specialist sheep farms and mixed grazing livestock farms in the affected area when compared with the levels of those farms nationally.

Farm Type / Enterprise Category	No. of Farmers	% of Total Farmers	National % of Farmers
Specialist Dairy	10	2.8	18.6
Specialist Beef Production	80	22.3	51.1
Specialist Sheep Production	140	38.9	8.6
Mixed Grazing Livestock	120	33.3	14.6
Specialist Tillage	10	2.8	3.3
Mixed Crops & Livestock	0	0	2.6
Other	0	0	1.2
Total	360	100	100

Table 4.3.1.1: Farms classified by farm type within affected D.E.D.'s and Nationally

Table 4.3.1.2 below indicates the distribution of farm sizes within the affected D.E.D.'s in comparison with national averages. The figures indicated that in the study area there are a higher percentage of farms in the 50 - 99 hectare categories in these D.E.D.'s when compared with the national average. Therefore, the proposed road improvement scheme may affect a relatively lower number of landowners when compared with a route of similar length elsewhere in Ireland.

Farm Size	No. of Farmers	% of Total Farmers	National %
< 10 hectares	100	25	20.1
10 - 19 hectares	70	17.5	24.2
20 - 29 hectares	60	15	17.7
30 - 49 hectares	60	15	20.9
50 - 99 hectares	80	20	13.8
≥ 100 hectares	30	7.5	3.3
Total	400	100	100

Table 4.3.1.2: Farms classified by farm size within affected D.E.D.'s and Nationally

Table 4.3.1.3 shows the category of crop type in D.E.D.'s within the study area and how they compare with the national percentages for each category. It is evident from Table 4.3.1.3 that grassland farming is more common within the study area than tillage farming. Total pasture accounts for 66.3% of the crop type compared to the National average of 44.9%.

Crop Type	No. of hectares	% of Total Farmers	National %
Total Crops Fruit and Horticulture	409	3.4	9
Total Hay	711	5.8	5.5
Total Pasture	8095	66.3	49.9
Total Silage	1662	13.6	24.2
Rough Grazing	1325	10.9	11.4
Total	12202	100	100

Table 4.3.1.3: Farms classified by crop type within affected D.E.D.'s and Nationally

4.3.2 Rural Environment Protection Scheme (REPS)

This scheme is designed to encourage and reward farmers who protect and conserve the environment, protect and enhance wildlife and produce food in an intensive and environmentally friendly manner. The uptake of the REPS scheme in the counties of Dublin, Kildare and Wicklow is lower than the national average. In 2007, approximately 26.5% of farms in Wicklow participated in the scheme, in Kildare 21.3% and Dublin 9.94%. Nationally 33.5% of farms participated in the REPS scheme.

4.3.3 Soil Type

The most extensive soil type in the study area is Soil Association 8. Soil type 8 occurs predominately throughout the study area. Other soil associations in the study area include Soil Associations 1 and 9.

4.3.3.1 Soil Association 8 (Brown Podzolics 60%, Gleys 20%, Podzols 10%, Blanket Peats 10%)

The soils of this association occupy 0.52% of the country. The topography is mostly rolling to steep and elevations range from 152 to 304m. Due to the elevation and slope, glacial drift cover is limited and the parent material consists of acid igneous (granite) bedrock. The principal soil is moderately deep, well to excessively drained, of coarse and loam texture of low base status.

The soils have a limited use range due to slopes, rockiness and altitude. They are generally unsuitable for tillage except in small pockets and at lower elevations where they merge with the soils of Association 12 and have a similar use. These soils are best suited to sheep and dry stock grazing and their use range is limited mainly to grazing.

4.3.3.2 Soil Association 1 (Peaty Podzols 75%, Lithosols 15%, Blanket Peats 10%)

The profile of the principal soil is characterised by a peaty surface horizon less than 30cm thick. The soil is usually coarse-textured and moderately well to imperfectly drained. The use of these soils is very limited. High elevation, inaccessibility, a peaty surface, together with low lime and nutrient status are the limiting factors. They are not suitable for tillage or intensive grassland but are confined mainly to mountain sheep grazing, amenity and some forestry.

4.3.3.3 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 degrees.

The principal soil is somewhat shallow (< 75cm), well drained Brown Podzolic of mainly loam to clay loam texture and 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 the soil type. Where the slopes are less than 12 degrees 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 good management or the use of lime and fertilisers.

4.3.4 Agricultural lands in the study area

The majority of the lands within the study area can be broadly classified as agricultural land and in general this land is of medium quality. All of the major farm types can be found dispersed throughout the study area. Sheep farming is the most common farm enterprise found within the study area. During the roadside survey a number of dairy farms were identified as well as a number of beef farms. Tillage farming was not found to be common within the study area.

4.3.4.1 Grassland farms

Grassland farming is by far the most prominent agricultural land use in Ireland and includes beef, sheep, horses and mixed grazing farms. Grassland is also the most common land use within the study area and these grassland-based farms are located throughout the entire study area, with sheep farming the most common of the farming mix. A number of beef farms were also identified.

These farms are generally less affected than dairy farms as stock is not moved from field to field as frequently as on a dairy farm. Severance of an area or parcel of land could result in access problems for machinery and/or access to livestock handling facilities.

4.3.4.2 Dairy farms

From the examination of the aerial photography and roadside survey, a number of dairy farms were identified within the study area. Exact locations and numbers of dairy farms will be identified during the Route Selection Stage of the project. Figures 4.1.1 – 4.1.3 show the locations of dairy farms identified during the roadside survey.

Dairy farms are particularly sensitive to the location of a major road. A dairy farm is largely dependent on the land parcel or grazing paddocks adjacent to the farmyard. The location of a major road may cause severance of the land parcel into smaller areas and/or severance of the access from the yard to the grazing paddocks. For these reasons, the locations of dairy farms within the study area may pose a significant farming constraint.

4.3.4.3 Tillage farms

Tillage farming is not a significant component of the farming mix within the study area. The soils in the study area are more suited to grassland farming, however, from the roadside survey, it was evident that small levels of tillage farming is carried out in conjunction with other farming enterprises.

The impact of the location of a major road on a tillage farm is not as significant as the impact on a livestock farm. It may lead to the severance of an area or parcel of land resulting in access problems for machinery etc.

4.3.4.4 Equine Enterprises

One stud farm “Glenaraneen Stud” was identified during the roadside survey and there were a number of farms identified where a number of sport horses and ponies are kept in conjunction with other farm enterprises.

Equine farms have the potential to be severely impacted upon as equine stock can be of a more nervous disposition than other stock types and can be prone to stress caused by irregular noise and moving vehicles. In order to avoid such risks, some individual land parcels may be designated unsuitable for grazing equine stock or for certain types of equine activities. In some cases, fields left in an irregular shape may also be unsuitable for grazing by equine livestock. Figures 4.1.1 – 4.1.3 show the locations of equine farms identified during the roadside survey.

4.3.4.5 Poultry Enterprises

One poultry farm was identified during the preparation of the Constraints Study. Poultry enterprises are generally intensive in nature and are not as dependent on land as other farm enterprises. Poultry stock are generally housed and do not have access to significant areas of agricultural lands, and their feed generally consists of concentrated feed which is imported onto the premises. Poultry farms do however require a certain amount of land to be made available for the disposal of waste depending on the size of the unit. These spreadlands are not necessarily owned by the poultry enterprise and often consist of agreements with local farmers to receive the ‘nutrient rich’ waste. While these lands may not adjoin the poultry enterprise it is more economical to have lands in close proximity.

The proximity of a major road to the farm buildings or curtilage of a poultry farm may have a significant impact on the farm enterprise. The severance of spreadlands from the enterprise may result in additional travel and management costs.

4.3.5 Land based sports enterprises

There are a number of land based sports enterprises within the study area. From a review of the aerial photography and consultation with the Golfing Union of Ireland, there are four golf courses located within the study area. These are Hazelgrove Golf Course, Dublin Mountain Golf Course, South County Golf Course and Tulfarris Golf Course. There is also a number of Pitch and Putt Courses located in the study area.

A number of GAA pitches were identified during the roadside survey including one adjacent to Brittas, Ballymore Eustace GAA pitch, Hollywood GAA pitch and Blessington GAA pitch. These are shown in Figures 4.1.1 - 4.1.3.

4.3.6 Agri-businesses

A number of Agri-businesses could be affected by the location of a road. The location of a new road near such businesses could impact on the accessibility of the businesses to the agricultural and wider community. During the survey it was noted that Blessington Mart is located within the study area.

While not in the immediate study area, a number of agricultural merchants are located in the surrounding area. These businesses would provide a number of services to farming within the study area including supply of inputs such as seeds, feeds and fertilisers and also would provide a market place for farmers to sell their produce. Frequent access for agricultural machinery would often be required by many of these businesses.

4.4 Planning

The study area for the N81 Hollywood Cross to Tallaght Road Improvement Scheme falls within the jurisdiction of three County Councils - Wicklow, Kildare and South Dublin. These are covered by the following Local and Development Plans.

Wicklow	Development Plan	Wicklow County Development Plan 2004 - 2010
	Local Plan	Blessington Local Area Plan
Kildare	Development Plan	Kildare County Development Plan 2005 - 2011
South Dublin	Development Plan	South Dublin County Council Development Plan 2004 - 2010

At the time of writing this report, the Blessington Local Area Plan 2006 – 2012 was not drafted and only the Background Issues Paper has been reviewed. It should also be noted that South Dublin County Council are in the process of carrying out a planning study of Brittas Village.

Following a review the plans listed above, there are a number of issues relevant to the N81 Hollywood Cross to Tallaght Road Improvement Scheme;

4.4.1 Wicklow

Employment and Industry

It is the Council’s vision to encourage and facilitate the expansion of existing industry and the creation of new industry without compromising high environmental standards or the principles of sustainable development, thereby creating an environment that is conducive to employment generation and attractive to potential employers.

Policy EM 15: The Council will facilitate the operations of the extractive aggregate industry where they conform to the principle of sustainability and do not significantly affect residential, environmental or tourism amenities.

Community

It is the Council’s vision to promote the development of sustainable communities on the basis of a high quality where people can live and work and enjoy access to a range of community facilities suitable for all ages and needs.

Infrastructure

It is the Council’s vision to promote the use of sustainable and integrated modes of transport; to protect and enhance the built environment through the provision of a range of high quality water, drainage and waste management facilities; to encourage the use of sustainable and efficient energy resources and to facilitate the provision of widespread telecommunications infrastructure.

The primary objective of policies relating to transport will facilitate the provision of proper road infrastructure in a sustainable manner and the promotion of public and integrated transport networks, in order to ensure the sustainable and economic development of County Wicklow.

Policy T1: The Council will, in line with Government and National Roads Authority (NRA) policies, and in accordance with the “Roads Needs Study”, published by the NRA and the National Development Plan, seek to bring national primary and secondary roads up to the appropriate standards.

Policy T4: The Council will seek to improve the road links between the national road network and the growth centres of County Wicklow in order to cater for anticipated additional traffic flows and to facilitate the economic development of these settlements. The co-operation of the Town Councils will be sought in the implementation of same where necessary.

The Council will provide for road improvements on the National Secondary N81 road at Hempstown to Tinode and preserve alternative road improvement lines and route corridors free of development

It is the Council’s overall aim to protect existing groundwater aquifers, surface waters and coastal waters from pollution. There are two locally important sand and gravel aquifers listed which impact on the study area. These occur at Blessington (including Deerpark) and Hollywood.

Heritage & Landscape Conservation

The Council will seek to conserve, protect and enhance Wicklow’s built and natural heritage and landscape where possible.

County Wicklow has been categorised by landscape. Having regard to vulnerability, assimilative capacity and development pressures, these categories have been organised into development control landscapes. The Council will ensure that the development of Wicklow takes full account of the designated landscape categories and the protection of their amenities and assets. The section of the study area in Wicklow falls under two categories:

- 1 – Area of Outstanding Natural Beauty Zone; The A.O.N.B zone encompasses those areas which are most vulnerable and sensitive, and which are considered to be of greatest scenic value. These areas tend to be

under severe development pressure. The Pollaphuca reservoir area is listed.

- 2 – Access Corridors Zone: The landscape zone covers the main access corridor areas of County Wicklow. The boundaries generally follow what is considered to be the areas upon which the greatest influence is exerted by these access routes. The Western Corridor is focused on the N81 road from Dublin through Blessington and on towards Baltinglass. These corridors are under intense pressure from residential and other sporadic development.

Policy HL4: The Council will ensure that any development proposal in the vicinity of, or affecting in any way a designated area, provides sufficient information to show how its proposals will impact upon the designated area, and will include proposals for appropriate amelioration. In all such cases, the Council shall consult with the National Parks and Wildlife Section of the Department of Environment, Heritage and Local Government.

Policy HL6: It is the policy of the Council to preserve views and prospects as identified to protect the natural beauty of the county. Those identified that occur within the study area are;

- N81 Hollywood: View of Slievecorragh hill
- R756 at Hollywood. Wicklow Gap Drive: View to west over N81 and towards Kildare
- N81 Pollaphuca, south of Blessington: view of River Liffey Ballymore Eustace reservoir
- N81 Burgage Moyle, south of Blessington: View of Pollaphuca reservoir and inlet
- Threecastles, Blessington River valley: View of Pollaphuca reservoir and national Drive No. 491
- R759 Manor Kilbride, Liffey valley drive: View of Brittas river valley
- R758, C356, 364, 365, 374 Lake Drive: Prospect of Pollaphuca reservoir
- N81 at Russborough: Prospect of Russborough House, Russeltown Park and towards Pollaphuca reservoir

The Council will seek to preserve and enhance the amenity and natural beauty of the county by preserving in so far as possible, that part of its appearance attributable to trees, woodlands and hedgerows. The Council will discourage the felling of mature trees to facilitate development, and will encourage tree surgery rather than felling where possible. There are existing tree preservation orders within the study area on Sycamore and Beech trees at Manor Kilbride, Blessington. In addition, there are trees or groups of trees being considered for preservation within the study area. These are; Oaklands in the town of Boystown or Baltyboys Upper, Vallemount, Broadleaf trees at Burgage Mór, Blessington and trees in the grounds of Russborough House, Blessington.

The Council will ensure that features or items of archaeological interest and recognised areas of archaeological potential are protected and preserved from inappropriate development that would adversely effect and/or detract from the interpretation and setting of these sites.

Policy HL28: The Council will have regard to the Areas of Archaeological Potential or Significance when dealing with planning applications for development. Where permission is granted, the Council will require the developer to have the site works supervised by a competent archaeologist.

The Council has proposed an Architectural Conservation Area (ACA) in Blessington. The objective of ACA's is

to preserve the character of places, areas, structures or groups of structures which when grouped together are of high architectural, historical, archaeological, cultural, social, technical or scientific interest, or which contribute to the appreciation or protected structures.

Policy HL44: Within ACA's, all those buildings, spaces, archaeological sites, trees, views and other aspects of the environment which form an essential part of their character, will be protected.

Tourism and Recreation

It is the Council's vision to promote County Wicklow as a tourism destination and to support the development and diversification of the tourism and recreational product in an environmental and sustainable way.

Agriculture, Forestry and Rural Enterprise

It is the Council's vision to promote environmentally sustainable agricultural activity, a vibrant and healthy forestry sector and to encourage the development of rural-based enterprises established on the principles of sustainable development to contribute positively to a vibrant and dynamic rural economy and society.

4.4.2 Kildare

Physical Infrastructure Strategy

It is the goal of the Council to promote all forms of transport in County Kildare and improve access both within the county and to the county by integrating land use planning with an integrated transport system based on sustainability of resources and the development of additional transport infrastructure.

Objectives: (4) To improve the capacity of the road infrastructure within County Kildare in accordance with national/regional policy

As part of the overall National Road Development Programme, it is an objective to carry out a number of specific projects during the plan period: RP 11 To improve the section of the N81 that is contained in County Kildare

It is the policy of the Council: WS 5 To protect groundwater resources having regard to the County Kildare Groundwater Protection Scheme.

Agriculture & Equine Industry

It is the Council's goal to facilitate the maintenance and expansion of an environmentally friendly and competitive agricultural sector in Kildare.

Forestry and Boglands

It is the Council's goal to encourage the development of an environmentally sustainable and well managed forestry sector.

It is the Council's goal to ensure that a balanced approach is taken to the development of the county's peat

resources and the restoration of cutaway bogs, in order to minimise the negative impact on biodiversity and the archaeological and cultural heritage of the county.

Tourism and Recreation

It is the Council's goal to promote, protect, improve, encourage and facilitate the development of tourism and recreational facilities in the county in a manner that is sustainable.

Extractive Industries

It is the goal of the Council to ensure that adequate supplies of aggregates are available to meet the future needs of the county and region, in line with the principles of sustainable development and environmental management.

The East Kildare Uplands is a unique area of high amenity, ranging from 600ft Ordnance Datum to over 1,000ft Ordnance Datum. Continuing on from the commitment made in the 1999 Kildare County Development Plan, lands have been deemed suitable for the extractive industry, however, this will be reviewed in the context of implementing Section 261 of the Planning and Development Act 2000-2004.

Heritage

It is the Council's goal to conserve and protect Kildare's built, natural, archaeological and cultural heritage and to afford identified sites, species, monuments, artefacts and particular areas relevant statutory protection.

The Council will seek to preserve and enhance the amenity and natural beauty of the County by preserving, in so far as possible, trees, woodlands and hedgerows.

Protected Views and Scenic Routes

In the Kildare County Development Plan, there are a number of views of the River Liffey from Bridges. It is the policy of the Council to preserve views and to ensure that further development does not disrupt available vistas or impact on the landscape quality and scenic value of the river. In the study area scenic vistas of the River Liffey are available from Ballymore Bridge (See Figure 4.4.1). The natural vegetation colonises the riverbanks adding complexity and amenity to the available vistas.

It is also the Council's policy to protect views available from designated scenic routes by avoiding any development that could disrupt the vistas or disproportionately impact on the landscape character of the area thereby affecting the scenic and amenity value of the views provided along this route. The following scenic road views have been identified to lie within the study area;

- *No.7 - N81 from Pollaphuca Bridge to County Boundary at Bishopslane:* Open extensive views of Blessington Lake.
- *No. 9 - R411 Liffey Bridge at Ballymore Eustace to Cross Roads Boundary at Silverhill Upper Townland:* Views of River Liffey.
- *No. 12 – Views from Red Bog Area and from Rathmore Cross Roads to Pipershall:* Views West of Kildare and Views towards Caureen. The local road that runs through Rathmore provides scenic vistas of the Kildare plains to the southwest and the undulating lands at the County Boundary to the southeast.
- *No. 13 - R413 from Brannockstown Cross Roads to Ballymore Eustace:* Views of River Liffey.

There are also two scenic hilltop views located within the study area:

- *No. 29 - The local road through Bishopshill Commons:* Expansive open views of the countryside and the Wicklow Mountains to the east.
- *No. 33 – All hilltops on the Eastern boundary of County Kildare:* Long distance vistas of the central plains

The scenic and hilltop viws listed are illustrated in Figures 4.4.1 - 4.4.2

Blessington Environs

The Council has zoned lands as indicated on map 23.6 (of KCC Development Plan) as follows; BNE1; Low Density Residential - This zoning is solely for residential. This zoning shall facilitate future expansion of Blessington in co-operation with Wicklow County Council.

Ballymore Eustace Development Boundary

It is the policy of the Council;

BME 1; To prepare a Local Area Plan for Ballymore Eustace to define future development of the village. Until such time as this has been carried out, the Council has established a development boundary for Ballymore Eustace as indicated on Map 26.1 (of KCC County Development Plan) for the following uses;

R1; Low density development

The zoning objective in this case is to provide solely for low density residential development.

R2; Rural community

The zoning objective is to provide for the development of a rural community

4.4.3 South Dublin

Social Inclusion, Community Facilities and Recreation

It is the aim of the Council to promote social inclusion; to ensure the retention and provision of accessible community and recreational facilities including local/neighbourhood centres, parks and open spaces; and to ensure that these facilities are adequate to meet the needs of the communities they serve, are physically integrated with residential and employment areas, and are provided concurrently with new residential development.

As part of the Traveller Accommodation Programme, both existing and proposed accommodation sites are listed in the development plan. There is one at a specific location within the study area at Killinarden and one at a location in Brittas, the specific site of which has not yet been selected. Both are shown in Figure 4.4.3.

Infrastructure

It is the aim of the Council to promote ease of movement within, and access to, South Dublin, by integrating land use planning with a high quality, sustainable and integrated transport system for people and goods within the county.

The county is strategically located at a number of important gateway corridors into the Capital City – N4, N7 and the N81. These corridors will be examined (especially the N7, and the area adjoining Belgard Road), re-imaged and re-developed to create a new urban landscape and provide high quality designed corridors within the county and gateway corridors to and from the Capital City. Intensifying and densifying the development within the built up area of the County, will also be in the interests of sustainable development.

It is an objective of the Council to initiate works on the roads listed in Table 13.6 (of SDCC Development Plan) as part of a six year programme. Designs have been prepared in respect of some of these proposals

The Council may, at its discretion, introduce roads objectives other than those listed in Table 13.6 (of SDCC Development Plan) at any time within the currency of the Plan.

It is the aim of the Council to develop, improve, protect and enhance the range and accessibility of water and drainage infrastructural services in a manner that promotes sustainable development in the County.

It is an objective of the Council to provide storage reservoirs at Saggart and Kiltalown as part of the Boherboy Water Supply Scheme. (See section 4.10.1). It is also an objective of the Council to provide a sewerage scheme for Brittas which will integrate the village into the Greater Dublin Drainage System.

Archaeological and Architectural Heritage

It is the aim of the Council to protect and conserve buildings, areas, structures, sites and features of special architectural, historical, archaeological, artistic, cultural, scientific, social or technical interest.

Landscape, Natural Heritage and Amenities

It is the aim of the Council to protect the landscape in a way that ensures features of natural heritage are protected, important wildlife habitats are conserved, watercourses are safeguarded from pollution, the beauty of the landscape is maintained and enriched, and recreational use is facilitated in a sensitive manner. To also protect the distinctive characteristics of the rural environment and support the way of life of rural communities of the County through careful land use planning that promotes the objectives of sustainable development.

It is the policy of the Council to protect views and prospects of special amenity value or special interest. Roads or other public areas from which there is a view worthy of protection have been shown in the Council’s plan. There are a number of prospects (the object being viewed) occurring within the study area which it is an objective to protect. These are listed in Table 4.4.3.1.

Viewing Points	Prospects
Blessington Road (In the vicinity of Tallaght)	Killakee Mountain, Cruagh Mountain
Blessington Road (Killinarden Area)	Sliabh na mBanog, Ballymorefinn Hill
Blessington Road (Killarden Area)	Knockannavea, Tallaght Hill

Table 4.4.3.1: South Dublin Views and Prospects within study area

It is the policy of the Council that trees, groups of trees or woodlands, which form a significant feature in the landscape, or are important in setting the character of an area, will be preserved wherever possible. None of the Tree Preservation Orders made by South Dublin County Council occur within the study area. However, certain trees, groups of trees or woodlands have been identified by South Dublin County Council and it is intended that these trees be protected and maintained. These are shown in Figure 4.4.3.

It is the policy of the Council to secure or improve amenity/viewing lay-bys in areas of recreational amenity, at the commencement of rights of way and walking routes and where there are views and prospects of special interest. There are a number of these identified within the study area (See Figure 4.4.3).

Use Zoning Objectives

The purpose of land use zoning is to indicate the planning control objectives of the Council for all lands in its administrative area. In the South Dublin County Council Development Plan, there are twelve such zones. A number of these are present within the study area for this scheme. These are illustrated in Figure 4.4.3 and are listed below:

Objective A: To protect and / or improve Residential amenity

Objective A1: To provide for new Residential Communities in accordance with Approved Area Plans

Objective B: To protect and improve Rural Amenity and to provide for the development of Agriculture

Objective CT: To protect, improve and provide for the future development of the County Town of Tallaght

Objective DC: To protect, provide for and / or improve District Centre facilities

Objective LC: To protect, provide for and / or improve Local Centre facilities

Objective E: To provide for Enterprise, Employment and Related Uses

Objective F: To preserve and provide for Open Space and Recreational Activities

Objective G: To protect and improve High Amenity Areas

Objective GB: To preserve a “Green Belt” between development areas

Objective H: To protect and enhance the outstanding natural character of the Dublin Mountain Area

Specific Local Objectives

The objectives listed in Table 4.4.3.2 are location specific and occur within the study area.

Specific Local Objective	Description
Dublin Mountains - A1 Zoned Lands - Density and Height Restrictions	Restrict the construction of high density, high-rise development on the A1 zoned lands in the vicinity of the Dublin Mountains, and in permitting new housing development have due regard to the high amenity value and close proximity to the Dublin Mountains
Slade Valley - Amenity	Conserve the attractive rural environment of the Slade Valley area: - Recognise the Slade Valley as a place of special interest with an emphasis on its potential for tourism through the promotion of such activities as fishing, walking, pony trekking, art and other appropriate activities – Facilitate the development of a Heritage Trail through Slade Valley from Saggart Village using existing rights of way and in consultation with relevant landowners
Glenaraneen – Forge and House	Ensure that the forge which has historical, cultural and heritage significance in the area of Glenaraneen, Brittas be preserved, and also provide for the retention of one bungalow only plus boiler house, and pump house to be serviced with a new biocycle treatment plant on the said site at Glenaraneen, Brittas, and that the necessary sewage treatment, planting, etc. be implemented. That this site be agreed with the Council
Brittas Village – Planning Study	<p>To carry out a study of the Brittas Village area, in consultation with local residents, local representatives and agencies with an interest in the area, in accordance with the principles of community development, and having regard to the implications of the proposed National Heritage Area designations on the area and of infrastructural provision in the area and in order to ensure the long term viability of the local community.</p> <p>The study to identify existing habitable and derelict housing, to examine the need of local families for additional housing, including the numbers, type of form of such housing, might be accommodated in the study area, in accordance with the principles of sustainable development and also indicate how effluent from new housing development would be treated. The study also to investigate the provision of possible local employment facilities in Brittas. The study is to be completed within a year of the making of the Development Plan</p>
Brittas Village - Development	That Brittas be allowed to develop in the same manner as all other towns and villages in the County. That a reasonable development boundary be established for the study of the Brittas Village area to be carried out under SLO 122 having regard to the necessity for a new treatment plant, the requirements of local applicants from the Brittas area for affordable housing and the ageing population base of Brittas, and that this study be prioritised.

Table 4.4.3.2: SDCC Specific Objectives in study area

4.4.4 Road Policy Guidelines

A need to upgrade the N81 between Tallaght and Blessington has been identified both directly and indirectly in the following documentation.

National Road Needs Study 1998

- *“Each of the routes on the National Secondary Network was examined to establish when the link would fall below level of service D. Similarly, the principal towns on the routes were examined to identify bottle-necks. Economic evaluation was used to ascertain the most attractive capital investment returns and the results were subsequently used to rank the bypass needs on the National Secondary Routes.”*
- *N81; N80 Junction to Tallaght: This route only requires upgrading on the section between Blessington and Tallaght where a “standard two lane” road is necessary during Phase 1 needs between Blessington and the N82 junction. A dual carriageway is required during the Backlog phase needs to link the existing Tallaght By-Pass with the N82 from Saggart”*

Strategic Planning Guidelines for the Greater Dublin Area 1999

- *“Improved Transportation System. The existing transportation system of the Greater Dublin Area, including both public and private transport, is subject to very heavy pressure. It is necessary to implement measures to alleviate the existing difficulties, many of which are in planning or under construction, as well as a range of measures to facilitate future development.”*
- *“Strategy for the Hinterland Area – Key PointsThe existing and potential transportation corridors will be strengthened so as to improve links with the Metropolitan Area.”*
- *“There are no major plans for the N81 (Dublin-Blessington-Baltinglass)”*
- *“Notwithstanding the need to facilitate public transport, it has to be recognised that the private car will continue to play an important role in the future. This is especially so in the Hinterland Area, where the pattern and density of settlement and development limits the potential for public transport. It is also important to recognise the significance of the road system for the transportation of goods.”*
- *“Nevertheless, the towns (in the Hinterland Area) will require to be well linked to Dublin by good road and rail infrastructure.”*
- *“A fundamental function of the transportation system, including both roads and public transport, in the Greater Dublin Area is the linking of the Hinterland and Metropolitan Areas.”*
- *Regional Planning Guidelines for the Greater Dublin Area 2004-2016*
- *“Maintaining the distinction between the city and town components within the Greater Dublin Area as envisaged by the Strategic Planning Guidelines for the area, which focus on the metropolitan area, the hinterland and a number of other strategically placed towns as primary or secondary development centres within the hinterland.”*

National Development Plan 2000-2006

- *“The strategy for national secondary roads will concentrate on routes which are of particular*

importance to economic and regional development, including links to the strategic corridors, roads serving key ports, airports, tourist areas, industry and multipurpose roads.”

- *“Among the routes on which improvements works will be carried out are: Tallaght Blessington (N81)”*

Regional Planning Guidelines for the Greater Dublin Area 2004-2016

- *“Maintaining the distinction between the city and town components within the Greater Dublin Area as envisaged by the Strategic Planning Guidelines for the area, which focus on the metropolitan area, the hinterland and a no. of other strategically placed towns as primary or secondary development centres within the hinterland.”*

Transport 21

- *“Transport 21 sets out to meet the challenges outlined above. The Government has agreed a total investment framework of €34 billion over the period 2006 to 2015. This unprecedented level of capital investment will be used to transform Ireland’s transport system. In particular it will provide funding to: bring about improvements in the rest of the national road network, focusing particularly on the balanced regional development objectives of the National Spatial Strategy and on the needs identified in the National Roads Needs Study”*

National Development Plan 2007- 2013

- *“Investment under the Economic Infrastructure Priority of NDP 2007-2013 is indicatively estimated at €54.7 billion..... The key objectives under this Priority will be: To create a road network, in line with the timetable in Transport 21, that will see the completion of the major inter-urban routes and will upgrade links generally between the National Spatial Strategy Gateway Centres and improve the non-national road network;”*

National Spatial Strategy for Ireland 2002-2020

- *“The National Spatial Strategy supports Dublin’s pivotal role in national economic success. It is essential for balanced regional development that the performance of the Greater Dublin Area (Dublin City, and the surrounding 3 counties Kildare, Meath and Wicklow) be built upon and physically consolidated.”*
- *Towns with populations 1500-5000 –“Towns of this scale in the GDA are also generally located on or near the transportation corridors radiating from Dublin and are relatively close to the larger urban areas. While the primary development centres will be the main focus for responding to future growth in the GDA hinterland, these smaller towns cater for local growth in residential, employment and service functions through enhancing the built environment, water services, public transport links and capacity for development in these centres. Accommodating such additional functions must however be balanced with protecting the character and quality of these towns.*

4.5 Local Economy and Tourism

4.5.1 Introduction

This section of the report outlines the local economy and tourism aspects within each county as identified within each County Development Plan.

4.5.2 South Dublin County

South Dublin County has a vibrant economy with a variety of employment types. Large employment centres include sixteen major industrial parks at Grange Castle and Citywest. The National Digital Park is situated in the Citywest Campus. There are estimated to be over 3,500 businesses located in the county. The growth sectors in the county are chemical industries, biotechnology, information technology, communications, electronics, hospitality transport, internationally traded services and food preparation. Retailing centres in the county are major sources of employment.

In 1996, the unemployment rate for the county was approximately 15%. Since then, the unemployment rate has declined significantly. Despite the reductions in levels of unemployment, higher concentrations of unemployment still exist in the districts of West Tallaght and North Clondalkin.

The county has many natural advantages for recreation, leisure and tourism activities. With the demand for recreation and leisure facilities growing, South Dublin County Council intends to facilitate and support the growth of leisure and tourism and many of the policies and objectives in the South Dublin County Council Development Plan 2004 – 2010 are directed towards the protection of the natural amenities which are central to the promotion of tourism in the County.

4.5.3 Wicklow County

Wicklow is one of the most rapidly growing counties in Ireland today. Inward migration has resulted from Wicklow’s proximity to Dublin within the Greater Dublin Area, together with the amenities it offers, including its coastline, mountains and scenic rural areas. With the exception of agriculture, forestry and fishing, employment is forecast to increase in all sectors, with the largest absolute increases in commercial, business and professional services.

The percentage of the county’s population unemployed or seeking a first job continues to decrease in line with the national average. Whilst job losses are scattered evenly across the county, job gains in manufacturing and services are concentrated in urban centres resulting in rapid urbanisation of the population. The total service sector in Wicklow accounts for over 50% of the workforce. It is also the most rapidly growing sector with gains among those employed in commerce, insurance, and finance and also in the number employed in professional services. Many of these service jobs are located outside the county in the Dublin region.

The 1991 Census of population showed that 9.7% of people at work were employed in agriculture, forestry and

fishing. Many of the smaller holdings are incapable of providing a livelihood for a family. As a result, there has been an increase in the practice of part-time farming and the selling of land to non-farmers. The role of alternative farm enterprises is likely to become more significant as a means of maintaining a rural population. A sizeable proportion of the forestry estate in Co. Wicklow consists of the remains of old demesne planting. In addition to being a forestry resource, these are also of significant amenity value.

The labour force in the county is divided into a number of sectors. The Wicklow County Development Board found 57% of the labour force employed in the services sector, 16% employed in international services, 17.5% employed in the manufacturing sector and 8.5% employed in agriculture, forestry and fishing. The vast majority of companies were either micro (1-10 workers) or small (11-50 workers) companies.

Wicklow has compelling advantages as a destination and centre for tourism and recreational activities. With its close proximity to the Dublin Region, it is ideally located to benefit economically from the day-tripper and the stay-over visitor market.

4.5.4 Kildare County

Kildare has wide ranging and diverse areas of economic activity within its boundaries. Across the three broad sectors of economic activity, Agriculture, Industry and Services, there has been a marked change in the sectoral employment shares over the past four decades.

Similar to the other counties in the study area, the decline in agricultural employment is matched by the rise in employment in the services sector, and this trend is likely to continue in the future. In Kildare, over a six year period, the percentage share of total employment in agriculture has dropped from 7% to 4.16% and by 3.7% in manufacturing industry. The share of employment growth in Commerce Finance and Business Services (52% of the employment growth) is significant, in that one in every two additional jobs created in the period was in this sector. The labour force participation rate in Kildare is 48.31% which is slightly below the national average.

Tourism is one of the growth sectors in the county's economy. Kildare is rich in natural beauty, cultural heritage and archaeology; however it faces many challenges at present due to development pressure. It is recognised by Kildare County Council that tourism development can make an important contribution to the economy of the county. In particular, it is recognised that tourism provides jobs and investment in parts of the county that might not otherwise benefit from economic development. The highly attractive nature of Kildare's natural and physical environment, the richness of its cultural heritage and archaeology and its highly accessible location close to the Dublin Metropolitan area, make tourism in Kildare very appealing.

4.6 Archaeology

An objective of the Constraints Study was to identify all recorded archaeological monuments within the study area including the legal status, if any, of these features. The study collated the information from readily available sources that will be used to inform the later stages of the planning process, i.e. the Route Corridor Selection and the EIS reports. The study was carried out in consultation with the NRA Archaeologist for the scheme and in accordance with the published *Guidelines for the Assessment of Archaeological Heritage Impacts of National Road Schemes*, (NRA 2005).

There are a number of archaeological constraints within the study area. These are outlined in the sections below and illustrated in Figures 4.6.1 - 4.6.4.

4.6.1 Record of Monuments & Places (RMP)

The Sites and Monuments Record (SMR) consists of Ordnance Survey 6 inch maps with annotated known and suspected archaeological sites that generally pre-date AD 1700. The SMR was collated from documentary sources; various editions of Ordnance Survey maps, aerial photography, historical and archaeological literature, seventeenth century Down Survey and Civil Survey map, eighteenth century estate maps and folklore/oral traditions.

The National Monuments Act (1994) made provision for a Record of Monuments & Places (RMP). The RMP is a revised set of SMR maps, on which newly-discovered sites have been added and locations which proved not to be of antiquity have been delisted by the National Monuments service.

Table 4.6.1.1 overleaf, lists all recorded archaeological monuments within the study area.

Map Reference No./ RMP No.	Legal Status	Townland	Monument Type	NGR	Information Source
A1/WI015-012	Recorded Monument	Scalp	Ringfort (Rath/Cashel)	29383 20427	Record of Monuments and Places/ Wicklow Archaeological Inventory
A2/WI009-011	Recorded Monument	Newtown (LO. TA. BY)	Ringfort (Rath/Cashel)	29208 20585	Record of Monuments and Places/ Wicklow Archaeological Inventory
A3/WI009-031	Recorded Monument	Knockroe (LO. TA. BY)	Miscellaneous	29389 20523	Record of Monuments and Places/ Wicklow Archaeological Inventory
A4/WI009-017001	Recorded Monument/Protected Structure	Knockroe (LO. TA. BY)	Castle - Motte & Bailey	29402 20534	Record of Monuments and Places/Wicklow County Development Plan
A5/WI009-03201	Recorded Monument	Dragoonhill	Miscellaneous	29400 20513	Record of Monuments and Places/ Wicklow Archaeological Inventory
A6/WI009-03202	Recorded Monument	Dragoonhill	Miscellaneous	29399 20513	Record of Monuments and Places/ Wicklow Archaeological Inventory
A7/WI009-017	Recorded Monument/Monument in Wicklow County Council Ownership (Ref. No. 09)	Knockroe (LO. AT. BY.) / Hollywood Upper/ Dragoonhill	Town	29398 20548	Record of Monuments and Places/ Wicklow Archaeological Inventory/ Wicklow Graveyard Survey
A7A/WI009-017002	Recorded Monument	Dragoonhill	Church	29412 20538	Record of Monuments and Places
A7B/WI009-017003	Recorded Monument	Dragoonhill	Graveyard	29412 20539	Record of Monuments and Places/Wicklow Graveyard Survey
A7C/WI009-017004	Recorded Monument	Dragoonhill	Graveslab (17th Century)	29409 20539	Record of Monuments and Places
A7D/WI009-017005	Recorded Monument	Dragoonhill	Cross (17th Century)	29409 20539	Record of Monuments and Places
A9/WI009-016	Recorded Monument	Hollywood Upper	Enclosure site	29396 20582	Record of Monuments and Places/ Wicklow Archaeological Inventory
A10/WI009-018	Recorded Monument	Hollywood Upper	Ringfort (Rath/Cashel)	29439 20572	Record of Monuments and Places/ Wicklow Archaeological Inventory
A11/KD029-032	Recorded Monument	Whiteleas	Stone Circle site	29271 20675	Record of Monuments and Places
A12/WI009-001	Recorded Monument	Hollywood Lower	Earthwork possible	29313 20690	Record of Monuments and Places/ Wicklow Archaeological Inventory
A13/WI009-006	Recorded Monument	Hollywood Demesne	Ringfort (Rath/Cashel)	29452 20656	Record of Monuments and Places/ Wicklow Archaeological Inventory
A14/KD029-023	Recorded Monument/ Preservation Order/ Protected Structure	Broadleas Commons	Stone Circle	29299 20757	Record of Monuments and Places/ List of monuments covered by Preservation Orders (Ref. 93)/ Kildare County Development Plan (Ref. B29-02)
A15/KD029-01401	Recorded Monument/ Preservation Order/ Protected Structure	Broadleas Commons	Standing Stone	29243 20848	Record of Monuments and Places/ List of monuments covered by Preservation Orders (Ref. 93)/ Kildare County Development Plan (Ref. B29-01)
A16/KD029-01402	Recorded Monument	Broadless Commons	Barrow possible site	29244 20848	Record of Monuments and Places
A17/KD029-033	Recorded Monument	Broadleas Commons	Ringfort (Rath/Cashel) possible	29280 20864	Record of Monuments and Places
A18/KD029-024	Recorded Monument	Broadleas Commons	Earthwork site	29345 20806	Record of Monuments and Places
A19/KD029-025	Recorded Monument	Broadleas Commons	Earthwork	29347 20797	Record of Monuments and Places
A20/WI009-00701	Recorded Monument/ Preservation Order	Ballysize Lower	Graveyard	29471 20722	Record of Monuments and Places/ Wicklow Archaeological Inventory/ Listed in Monuments covered by Preservation Orders (Ref. 104)
A21/WI009-00702	Recorded Monument/ Preservation Order	Ballysize Lower	Cross	29472 20723	Record of Monuments and Places/ Wicklow Archaeological Inventory/ Listed in Monuments covered by Preservation Orders (Ref. 104)
A22/WI009-028	Recorded Monument	Blakestown Upper	Cairn	29550 20712	Record of Monuments and Places/ Wicklow Archaeological Inventory
A23/WI009-008	Recorded Monument	Lughnagroagh	Cairn	29567 20735	Record of Monuments and Places/ Wicklow Archaeological Inventory
A24/KD029-012	Recorded Monument	Bishopstown (Ballymore Eustace Ed)	Enclosure	29326 20927	Record of Monuments and Places
A25/KD029-039	Recorded Monument	Bishopsland (Ballymore Eustace Ed)/ Coghlanstown East/ Coghlanstown West	Linear Earthwork	29363 20944	Record of Monuments and Places
A26/KD029-01	Recorded Monument/ Preservation Order (Medieval Settlement)	Ballymore Eustace East (B'More Eust. Ed)/ Ballymore Eustace West/ Bishopsland (Ballymore Eustace Ed)/ Bishopsland (D.P) (Ballymore Eustace Ed)/ Broadleas Commons	Town	29334 20984	Record of Monuments and Places/ List of monuments covered by Preservation Orders (Ref. 1/99)
A27/WI010-038	Recorded Monument	Tulfarris	Unprotected inhumation	29632 20929	Record of Monuments and Places/ Wicklow Archaeological Inventory
A28/WI010-002	Recorded Monument	Tulfarris	Enclosure	29666 20949	Record of Monuments and Places/ Wicklow Archaeological Inventory

Table 4.6.1.1: RMP Sites within study area

Map Reference No./ RMP No.	Legal Status	Townland	Monument Type	NGR	Information Source
A29/KD025-012	Recorded Monument	Barrettstown (Oldconnell Ed)	Potential Site - Map	29494 21180	Record of Monuments and Places
A30/WI005A/001	Recorded Monument	Russborough	Enclosure Circular	29558 21136	Record of Monuments and Places
A32/WI010-00301	Recorded Monument	Boystown/ Baltyboys Upper	Ringfort (Rath/Cashel)	29768 20980	Record of Monuments and Places/ Wicklow Archaeological Inventory
A33/WI010-00302	Recorded Monument	Boystown/ Baltyboys Upper	Burial Ground	29768 20980	Record of Monuments and Places/ Wicklow Archaeological Inventory
A34/WI010-00303	Recorded Monument	Boystown/ Baltyboys Upper	Hut site possible site	29768 20981	Record of Monuments and Places/ Wicklow Archaeological Inventory
A36/WI005-044	Recorded Monument	Glashina	Enclosure possible site	29650 21249	Record of Monuments and Places/ Wicklow Archaeological Inventory
A37/WI005-074	Recorded Monument	Boystown/ Baltyboys Lower	Enclosure possible site	29835 21145	Record of Monuments and Places/ Wicklow Archaeological Inventory
A38/KD025-009	Recorded Monument	Kilmalum	Graveyard site	29582 21355	Record of Monuments and Places
A39/KD025-011	Recorded Monument	Kilmalum	Rectangular Enclosure	29580 21384	Record of Monuments and Places
A40/WI005-045	Recorded Monument	Burgage More	Enclosure site	29696 21300	Record of Monuments and Places/ Wicklow Archaeological Inventory
A41/WI005-046	Recorded Monument	Burgage More	Earthwork site	29734 21321	Record of Monuments and Places/ Wicklow Archaeological Inventory
A43/WI005-048	Recorded Monument	Burgage More	Ringfort (Rath/Cashel)	29739 21263	Record of Monuments and Places/ Wicklow Archaeological Inventory
A44/WI005-086	Recorded Monument	Sroughan	Hut Site	29971 21154	Record of Monuments and Places/ Wicklow Archaeological Inventory
A45/KD025-008	Recorded Monument	Newtownpark	Ring-ditch	29568 21518	Record of Monuments and Places
A46/WI005-013	Recorded Monument	Blessington Demesne	Cemetery Mound	29695 21455	Record of Monuments and Places
A47/WI005-014	Recorded Monument	Blessington Demesne	Stone Circle possible site	29703 21456	Record of Monuments and Places/ Wicklow Archaeological Inventory
A48/WI005-079	Recorded Monument	Carrig	Wedge Tomb	29943 21218	Record of Monuments and Places/ Wicklow Archaeological Inventory
A49/WI005-080	Recorded Monument/ Preservation Order	Sroughan	Enclosure	29960 21220	Record of Monuments and Places/ Wicklow Archaeological Inventory/ Listed in Monuments covered by Preservation Orders (TPO)
A50/WI005-081	Recorded Monument	Carrig	Cairn	29969 21224	Record of Monuments and Places/ Wicklow Archaeological Inventory
A51/WI005-084	Recorded Monument	Carrig	Cemetery Cairn	29984 21221	Record of Monuments and Places/ Wicklow Archaeological Inventory
A52/WI005-083	Recorded Monument	Carrig	Cairn	29982 21227	Record of Monuments and Places/ Wicklow Archaeological Inventory
A53/WI005-053	Recorded Monument	Carrig	Ringfort (Rath/Cashel)	29968 21284	Record of Monuments and Places/ Wicklow Archaeological Inventory
A53B/WI005-051	Recorded Monument	Knockieran Lower	Standing Stone	29920 21360	Record of Monuments and Places/ Wicklow Archaeological Inventory
A54/WI005-054	Recorded Monument	Rathnabo	Ringfort (Rath/Cashel)	30037 21287	Record of Monuments and Places/ Wicklow Archaeological Inventory
A55/WI005-04701	National Monument in State Ownership/ Recorded Monument	Burgage More	High Cross - Present Location	29763 21329	Recorded National Monument List (Ref. No. 662)/ Record of Monuments and Places/ Wicklow Archaeological Inventory
A56/WI005-04702	Recorded Monument	Burgage More	High Cross - Present Location	29763 21329	Record of Monuments and Places/ Wicklow Archaeological Inventory
A59/KD025-010	Recorded Monument	Athgarrett	Hearth possible site	25969 21577	Record of Monuments and Places
A60/WI005-012	National Monument in State Ownership/ Recorded Monument	Deerpark (LO. TA. BY.)	Ringfort (Rath/Cashel)	29648 21525	Recorded National Monument List (Ref. No. 280)/ Record of Monuments and Places/ Wicklow Archaeological Inventory
A61/WI005-011	Recorded Monument	Deerpark (LO. TA. BY.)	Enclosure	29655 21556	Record of Monuments and Places
A62/WI005-016	Recorded Monument	Blessington Demesne	Landscape Feature	29757 21470	Record of Monuments and Places
A63/WI005-018	Recorded Monument	Blessington Demesne	House Site	29783 21473	Record of Monuments and Places/ Wicklow Archaeological Inventory
A64/WI005-019	Recorded Monument	Blessington Demesne	Landscape Feature	29813 21472	Record of Monuments and Places
A65/WI005-020	Recorded Monument	Blessington Demesne	Landscape Feature	29818 21476	Record of Monuments and Places
A66/WI005-021	Recorded Monument	Blessington Demesne	Landscape Feature	29839 21482	Record of Monuments and Places
A67/WI005-026	Recorded Monument	Blessington	Holy well site	29866 21432	Record of Monuments and Places/ Wicklow Archaeological Inventory

Table 4.6.1.1: RMP Sites within study area (contd.)

Map Reference No./ RMP No.	Legal Status	Townland	Monument Type	NGR	Information Source
A68/WI005-106	Recorded Monument	Blessington Demesne	Graveyard	29824 21433	Record of Monuments and Places
A69/KD025-007	Recorded Monument	Athgarrett	Burial Site	29640 21659	Record of Monuments and Places
A70/WI005-001	Recorded Monument	Dillonsdown	Cist	29820 21639	Record of Monuments and Places/ Wicklow Archaeological Inventory
A71/WI005-023	Recorded Monument	Newpaddocks	Enclosure site	29821 21529	Record of Monuments and Places/ Wicklow Archaeological Inventory
A72/WI005-052	Recorded Monument/ Preservation Order	Butterhill	Mound	30008 21386	Record of Monuments and Places/ Wicklow Archaeological Inventory/ Listed in Monuments covered by Preservation Orders (Ref. 108)
A73/WI005-055	Recorded Monument/ Registered Monument	Blackrock (LO. TA. BY)	Ringfort (Rath/Cashel)	30074 21344	Record of Monuments and Places/ Wicklow Archaeological Inventory/ Register of Historic Monuments
A74/WI005-056	Recorded Monument	Blackrock (LO. TA. BY)	Wedge Tomb	30097 21334	Record of Monuments and Places/ Wicklow Archaeological Inventory
A75/WI005-025	Recorded Monument	Haylands	Cemetery Cairn	29875 21491	Record of Monuments and Places/ Wicklow Archaeological Inventory
A76/WI005-024	Recorded Monument	Glencap Commons Upper	Holy Well	29882 21534	Record of Monuments and Places
A77/WI005-027	Recorded Monument/ Monument in Wicklow County Council Ownership (Ref. No. 58)	Crosscoolharbour	Graveyard	30006 21516	Record of Monuments and Places/ Wicklow Archaeological Inventory/ Wicklow Graveyard Survey
A78/WI005-029	Recorded Monument	Crosscoolharbour	Enclosure site	30031 21545	Record of Monuments and Places/ Wicklow Archaeological Inventory
A79/WI005-030	Recorded Monument	Crosscoolharbour	Enclosure possible site	30066 21569	Record of Monuments and Places/ Wicklow Archaeological Inventory
A80/WI005-031	National Monument in State Ownership / Recorded Monument	Threecastles	Tower House	30118 21562	Record of Monuments and Places/ Wicklow Archaeological Inventory
A81/WI005-032	Recorded Monument	Threecastles	Castle possible site	30150 21565	Record of Monuments and Places/ Wicklow Archaeological Inventory
A82/KD020-01501	Recorded Monument	Hempstown Commons	Cist site	29992 21792	Record of Monuments and Places
A83/KD020-1502	Recorded Monument	Hempstown Commons	Rock Scribbing/Art Site	29991 21791	Record of Monuments and Places
A84/WI001-017	Recorded Monument	Tinode	Enclosure possible site	30052 21847	Record of Monuments and Places/ Wicklow Archaeological Inventory
A85/WI001-016	Recorded Monument	Tinode	Enclosure possible site	30048 21857	Record of Monuments and Places/ Wicklow Archaeological Inventory
A86/WI001-018	Recorded Monument/ Preservation Order	Goldenhill	Ringfort (Rath/Cashel)	30164 21743	Record of Monuments and Places/ Wicklow Archaeological Inventory/ Listed in Monuments covered by Preservation Orders (Ref. 124)
A87/WI001-039	Recorded Monument	Goldenhill	Mound possible	30172 21752	Record of Monuments and Places/ Wicklow Archaeological Inventory
A88/WI005-002	Recorded Monument	Goldenhill	Cairn	30159 21735	Record of Monuments and Places/ Wicklow Archaeological Inventory
A89/WI001-019	Recorded Monument	Kilbride (LO. TA. BY.)	Cairn	30178 21742	Record of Monuments and Places/ Wicklow Archaeological Inventory
A91/WI001-022	Recorded Monument	Kilbride	Church site and Graveyard	30270 21753	Record of Monuments and Places/ Wicklow Archaeological Inventory
A92/WI001-021	Recorded Monument	Kilbride (LO. TA. BY.)	Holy Well site	30233 21783	Record of Monuments and Places/ Wicklow Archaeological Inventory
A93/WI001-020	Recorded Monument	Kilbride (LO. TA. BY.)	Holy Well	30215 21780	Record of Monuments and Places/ Wicklow Archaeological Inventory
A94/WI001-02001	Recorded Monument	Kilbride (LO. TA. BY.)	Holy Well	30217 21779	Record of Monuments and Places
A95/WI001-038	Recorded Monument	Tinode	Standing Stone	30095 21965	Record of Monuments and Places/ Wicklow Archaeological Inventory
A96/WI001-003	Recorded Monument	Tinode	Enclosure	30116 21972	Record of Monuments and Places/ Wicklow Archaeological Inventory
A97/WI001-037	Recorded Monument	Tinode	Standing Stone	30123 21972	Record of Monuments and Places/ Wicklow Archaeological Inventory
A98/WI001-023	Recorded Monument	Kilbride (LO. TA. BY.)	Enclosure possible site	30262 21864	Record of Monuments and Places
A99/WI001-024	Recorded Monument	Carrignagower	Settlement Deserted	30306 21882	Record of Monuments and Places
A100/WI001-025	Recorded Monument	Carrignagower	Cairn possible site	30317 21891	Record of Monuments and Places
A101/WI001-008	Recorded Monument	Kilbride (LO. TA. BY.)	Enclosure site	30298 21902	Record of Monuments and Places/ Wicklow Archaeological Inventory
A102/WI001-006	Listed in the RMP	Lisheens	Enclosure possible site	30302 21911	Record of Monuments and Places
A103/WI001-043	Recorded Monument	Moanaspick	Watermill - Horizontal possible	30254 21982	Record of Monuments and Places/ Wicklow Archaeological Inventory
A104/WI001-004	Recorded Monument	Tinode	Rectangular Enclosure possible site	30187 21976	Record of Monuments and Places/ Wicklow Archaeological Inventory
A105/WI001-001	Recorded Monument	Tinode	Rectangular Enclosure possible site	30160 22061	Record of Monuments and Places/ Wicklow Archaeological Inventory
A106/DU024-036	Recorded Monument	Glenaraneen	Crannóg	30325 22242	Record of Monuments and Places

Table 4.6.1.1: RMP Sites within study area (contd.)

Map Reference No./ RMP No.	Legal Status	Townland	Monument Type	NGR	Information Source
A107/DU024-037	Recorded Monument	Raheen (Newcastle Barony)	Cairn site	30371 22292	Record of Monuments and Places
A108/DU024-013	Recorded Monument/ Protected Structure	Raheen (Newcastle Barony)	Standing stone	30385 22342	Record of Monuments and Places/ South Dublin County Development Plan (Ref. 389)
A109/DU024-018	Recorded Monument	Mountseskin	Mound site	30477 22314	Record of Monuments and Places
A110/DU024-017	Recorded Monument	Mountseskin	Dwellings	30453 22303	Record of Monuments and Places
A111/DU024-016	Recorded Monument	Raheen (Newcastle Barony)	Mound	30459 22347	Record of Monuments and Places
A112/DU024-01201	Recorded Monument/ Protected Structure	Crooksling	Holy well site	30374 22384	Record of Monuments and Places/ South Dublin County Development Plan (Ref. 381)
A113/DU024-01202	Recorded Monument	Crooksling	Cross-inscribed stone site	30374 22384	Record of Monuments and Places
A114/DU024-00901	Recorded Monument	Lugg	Enclosure	30316 22387	Record of Monuments and Places
A115/DU024-00902	Recorded Monument	Lugg	Ring-barrow possible	30316 22387	Record of Monuments and Places
A116/DU024-008	Recorded Monument	Lugg	Ring-barrow	30324 22458	Record of Monuments and Places
A117/DU021-047	Recorded Monument	Coolmine (Newcastle Barony)	Cairn	30296 22464	Record of Monuments and Places
A118/DU021-048	Recorded Monument	Lugg/Slade	Bridge	30383 22478	Record of Monuments and Places
A119/DU021-049	Recorded Monument	Crooksling	Cairn site	30389 22477	Record of Monuments and Places
A120/DU024-010	Recorded Monument	Crooksling	Ring-Barrow site	30433 22449	Record of Monuments and Places
A121/DU024-011	Recorded Monument	Crooksling	Ring-Barrow	30459 22438	Record of Monuments and Places
A122/DU024-014	Recorded Monument	Crooksling	Ring-Barrow site	30465 22385	Record of Monuments and Places
A123/DU024-015	Recorded Monument	Crooksling	Barrow	30476 22387	Record of Monuments and Places
A124/DU024-021	Recorded Monument	Mountseskin	Ring-Barrow site	30492 22354	Record of Monuments and Places
A125/DU024-022	Recorded Monument	Mountseskin	Ring-Barrow site	30497 22361	Record of Monuments and Places
A126/DU024-023	Recorded Monument	Mountseskin	Mound site	30508 22356	Record of Monuments and Places
A127/DU024-024	Recorded Monument	Mountseskin	Cairn	30561 22356	Record of Monuments and Places
A128/DU024-019	Recorded Monument	Corbally	Enclosure site	30543 22454	Record of Monuments and Places
A129/DU024-020	Recorded Monument	Lugmore	Ring-ditches possible	30601 22473	Record of Monuments and Places
A130/DU021-052	Recorded Monument	Corbally/Lugmore	Ring-Barrow	30599 22475	Record of Monuments and Places
A131/DU021-054	Recorded Monument/ Registered Monument	Lugmore	Ring-ditches	30603 22478	Record of Monuments and Places/ Register of Historic Monuments
A132/DU021-053	Recorded Monument/ Registered Monument/ Protected Structure	Lugmore	Cist	30599 22485	Record of Monuments and Places/ Register of Historic Monuments/ South Dublin County Development Plan (Ref. 373)
A133/DU021-050	Recorded Monument	Crooksling/Slade	Linear earthwork	30411 22512	Record of Monuments and Places
A134/DU021-043	Recorded Monument	Slade	Holy well	30387 22563	Record of Monuments and Places
A135/DU021-044	Recorded Monument/ Protected Structure	Boherboy	Standing stone - pair	30482 22596	Record of Monuments and Places / South Dublin County Development Plan (Ref. 349)
A136/DU021-045	Recorded Monument	Boherboy	Holy well	30437 22619	Record of Monuments and Places
A137/DU021-051	Recorded Monument	Corbally	Holy well	30582 22570	Record of Monuments and Places
A138/DU021-081	Recorded Monument	Kiltalown	Linear earthwork	30652 22605	Record of Monuments and Places
A139/DU021-090	Recorded Monument	Kiltalown	Standing stone possible	30965 22924	Record of Monuments and Places
A140/DU021-072	Recorded Monument	Kiltalown	Church site	30663 22621	Record of Monuments and Places
A141/DU021-055	Recorded Monument	Kilinardan	Holy Well Site	30727 22572	Record of Monuments and Places
A142/DU021-058	Recorded Monument	Kilinardan	Mound	30724 22541	Record of Monuments and Places
A143/WI005-069	Recorded Monument	Burgage More	Ringfort (Rath/Cashel) Site	29757 21244	Record of Monuments and Places/ Wicklow Archaeological Inventory
A144/WI005-070	Recorded Monument	Burgage More	Settlement Deserted	29768 21241	Record of Monuments and Places/ Wicklow County Development Plan

Table 4.6.1.1: RMP Sites within study area (contd.)

4.6.2 National Monuments

All archaeological sites have the full protection of the National Monuments Legislation (1930-2004)

The term ‘National Monument’ as defined by the National Monuments Act (1930) is:

“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”

Under section 14 of the 1930 Act, it is stated that it shall not be lawful for any person to:

“demolish or remove wholly or in part to disfigure, deface, alter, or in any manner injure or interfere with any such national monument without or otherwise than in accordance with the consent hereinafter mentioned”

Or:

“to excavate, dig, plough or otherwise disturb the ground within, around, or in the proximity to any such national monument without or otherwise in accordance with the consent hereinafter mentioned”

National Monuments may be broken into two categories:

- National Monuments in the ownership or guardianship of the State
- National Monuments in the ownership or guardianship of a Local Authority and/or The Church

4.6.2.1 National Monuments in State Ownership or Guardianship

Section 12 (1) of the 1930 National Monuments Act provides that the Minister for the Environment, Heritage and Local Government shall maintain a national monument in his/her ownership or guardianship.

There are three National Monuments in State Ownership or Guardianship within the study area. These are listed below in Table 4.6.2.1.1 and illustrated in Figures 4.6.1 - 4.6.4.

Map Ref. No. / Nat. Mon. No.	RMP No.	Townland	Description	NGR	STATUS	Information Source
A55/280	WI005-047001	Burgage More, Wicklow	St. Marks Cross	297630 213290	Ownership	Recorded National Monuments List
A60/662	WI005-012	Deerpark, Wicklow	Rath Turtle Moat	296460 215260	Ownership	Recorded National Monuments List
A80/491	WI005-031	Threecastles, Wicklow	Threecastles Castle	301190 215610	Ownership	Recorded National Monuments List

Table 4.6.2.1.1: National Monuments in state Ownership or Guardianship within study area

4.6.2.2 National Monuments in the Ownership or Guardianship of a Local Authority and/or The Church

Section 12 (1) of the 1930 National Monuments Act provides that a local authority shall maintain a national monument of which it is the owner or guardian. Section 14 (2) of the 1930 National Monuments Act provides that, in the case of a national monument of which a Local Authority is the owner or guardian the consent referred to in Section 14 (1) of the Act (i.e. consent to interfere etc. with the national monument), shall be the joint consent in writing of the Minister of the Environment, Heritage and Local Government and the Local Authority.

There are a number of Recorded Monuments in the Guardianship of Local Authorities and/or The Church within the Wicklow region of the study area. These are listed below in Table 4.6.2.2.1 and shown in Figures 4.6.1 - 4.6.4. The source of this information is from a Wicklow Graveyard Survey.

Map Ref. No. / Nat. Mon. No.	RMP No.	RPS No	NIAH No.	Townland	Site Type	NGR	Status
A7/66	WI009-017	09-04	16400908	Dragoon Hill	Graveyard	294147 205417	Ownership of Church of Ireland
A8/72	---	09-05	16400821	Hollywood Upper	Graveyard	293887 205566	Ownership of Roman Catholic Church
A31/36	---		---	Boystown or Baltyboys Lower, Wicklow	Graveyard	297856 209573	Ownership of Wicklow County Council
A57/40	---		---	Burgage More, Wicklow	Graveyard	297635 213334	Ownership of Wicklow County Council
A58/34	---	05-06	---	Blessington, Wicklow	Graveyard	298202 214355	Ownership of Church of Ireland
A77/58	WI005-027		---	Crosscoolharbour	Graveyard	300063 215182	Ownership of Roman Catholic Church
A90/74	---		---	Kilbride (Lower Talbotstown By)	Graveyard	302678 217516	Ownership of Wicklow County Council

Table 4.6.2.2.1: National Monuments in the Guardianship of Local Authorities and/or The Church within study area

4.6.3 Monuments covered by Preservation Orders

The National Monuments Act provides for the making of Preservation Orders and Temporary Preservation Orders in respect of national monuments. Under Section 8 of the National Monument Act 1930 (as amended) the Minister of the Environment, Heritage and Local Government can place a preservation order on a monument if, in the Minister’s, opinion it is a national monument in danger of being, or is actually being, destroyed, injured or removed or is falling into decay through neglect.

The Preservation Order ensures that the monument shall be safeguarded from destruction, alteration, injury, or removal, by any person or persons without the written consent of the Minister. Listed overleaf in Table 4.6.3.1 are the monuments covered by Preservation Orders within the study area.

Map Ref. No. / Preservation Order No.	RMP No.	Address	Site Type	NGR	Information Source
A14/92	KD029-023	Broadleas Commons, Kildare	"Broadleas Circle" (Pipers Stones)	292991 207571	List of monuments covered by Preservation Orders
A15/93	KD029-01401	Broadleas Commons, Kildare	Standing Stones (Long Stone)	292441 208495	List of monuments covered by Preservation Orders
A20 & A21/104	WI009-00701	Ballysize Lower, Wiclow	Reliceen and stone cross	29471 20722 (as in RMP)	List of monuments covered by Preservation Orders
A26/1/99	KD029-01101	Ballymore Eustace, Kildare	Medieval settlement	29334 20984	List of monuments covered by Preservation Orders
A49/TPO	WI005-080	Sroughan, Wicklow	Enclosure	299637 212210	List of monuments covered by Preservation Orders
A72/108	WI005-052	Butterhill, Wicklow	Mound	300077 213870	List of monuments covered by Preservation Orders
A86/124	WI001-018	Goldenhill, Wicklow	Raheen	301634 217441	List of monuments covered by Preservation Orders

Table 4.6.3.1: Monuments covered by Preservation Orders within study area

4.6.4 Sites listed in the Register of Historic Monuments

The term 'historic monument' was defined in the National Monument (Amendment) Act 1987 as:

"a prehistoric monument and any monument associated with the commercial, cultural, economic, industrial, military, religious or social history of the place and is situated or of the country, which predates AD 1700, or such later date as the minister may appoint by regulations".

Under Section 5 of this act, a record of historic monuments known as the 'Register of Historic Monuments' was established. The entering in the Register of the name, location and a brief description of all the historic monuments and archaeological areas in the State which are known to the Minister and which, in the Minister's opinion should be entered, is done under the care of National Monuments Service.

Where the owner or occupier of a historic monument or archaeological area entered in the register, or any other person, proposes to carry out work at or in relation to a monument or area, two months advance notice in writing must be given to the Minister.

Sites in the study area that are listed in the Register of Historic Monuments are shown in Table 4.6.4.1.

Map Ref. No. / Register Ref. No.	RMP No.	Address	Site Type	NGR	Information Source
A73/5:11	WI005-055	Blackrock (LO. TA. BY.), Wicklow	Ringfort (Rath/Cashel)	30074 21344 (as in RMP)	Register of Historic Monuments/ Record of Monuments and Places
A131/21:15	DU021-054	Lugmore, Dublin	Ring-ditches	30603 22478 (as in RMP)	Register of Historic Monuments/ Record of Monuments and Places
A132/21:15	DU021-053	Lugmore, Dublin	Cist	30599 22485 (as in RMP)	Register of Historic Monuments/ Record of Monuments and Places

Table 4.6.4.1: Sites listed in the Register of Historic Monuments within study area

4.6.5 Areas of archaeological importance and potential as highlighted in County Development Plans

In the Wicklow County Development Plan, the townlands of Burgage, Carrig, Sroughan and Hollywood are identified as regions of archaeological significance and potential within this plan. Therefore, these landscapes will need to be considered during the Route Selection Stage.

In the South Dublin and Kildare County Council Development Plans, insofar as they apply to the study area, no areas or zones of archaeological importance or potential are identified other than the already listed Recorded Monuments, National Monuments and Protected Structures.

4.6.6 Areas with a high density of recorded archaeological monuments

A number of areas within the study area contain a high density of archaeological monuments. (See Figures 4.6.1 - 4.6.4). For example, the townland of Burgage More, Co. Wicklow to the south of Blessington contains an enclosure, an earthwork site, two high crosses, two ringforts and a deserted settlement. Similarly, the townland of Mountseskin, Co. Dublin to the north-east of Brittas, comprises dwellings, two mound sites, two ring barrow sites and a cairn.

Areas such as these may be designated as being of high archaeological importance and therefore, avoidance of these regions by the proposed route would be preferable. Also, in such areas, the likelihood of finding new archaeological sites is quite high.

4.6.7 Areas of historical significance

The study area includes many historical structures, or parts thereof, which date from the Early Medieval period and are still visible on today’s landscape and/or have been referred to by various literary sources. These areas form an integral part of the region’s cultural heritage. Accordingly, these regions present themselves as landscapes with historical and archaeological importance and therefore avoidance of these areas by any proposed route is preferable.

There are two principal sites within the area of the constraints study. Blessington Demesne which was an important local estate (WI005-016 - WI005-021) is located west of the N81 beside the village of Blessington. Ballymore Eustace (KD029-011) was an important Medieval Norman Stronghold and Pale Fortress.

The remaining sites of historical importance that are located within the study area are listed below in Table 4.6.7.1. The likelihood of finding associated archaeological features in these regions is relatively high.

Site Type	Townland	Map Ref No.	Detail
Ecclesiastical Sites	Kilmalum	A38/KD025-009	Graveyard
	Blessington Demesne	A68/WI005-106	Graveyard
	Kilbride	A91/WI001-022	Church and graveyard
	Kiltalown	A140/DU021-072	Church Site
Medieval Settlement	Threecastles	A80/WI005-031	Tower House
		A81/WI005-032	Possible Castle
Deserted Settlement Sites	Carrignagower	A99/WI001-024	Settlement deserted
	Burgage More	A144/WI005-070	Settlement deserted
Towns	Knockroe	A7/WI009-017	Town
	Ballymore Eustace	A26/KD029-011	Town
Demesnes	Blessington Demesne	A62/WI005-016	Landscape feature
		A63/WI005-018	House Site
		A64/WI005-019	Landscape feature
		A65/WI005-020	Landscape feature
		A66/WI005-021	Landscape feature

Table 4.6.7.1: Sites of historical importance within the study area

Industrial archaeological sites

Under the National Monuments (Amendment) Act, 1987, the Office of Public Works (OPW) was empowered to use its discretion where sites of national importance dating to post 1700 were regarded as archaeological. In 1994 a further amendment to the National Monuments Act enabled industrial archaeological sites to be added to the Record of Monuments and Places, this affording them a measure of statutory protection. One recorded industrial archaeological site is contained within the study area – a horizontal watermill at Moanaspick, Wicklow (A103/WI001-043). See Table 4.6.1.1.

4.6.8 Areas in which literary sources suggest archaeological features may be present

There are two regions, Garrison Hill and Knockshee, both just south of Ballymore Eustace, which according to various literary sources may constitute landscapes of archaeological potential.

At Garrison Hill, although no above-ground evidence, it is believed that a castle built by the Archbishops of Dublin shortly after the Anglo-Norman invasion of Ireland once stood.

At Knockshee in Broadleas Commons, there is evidence of a pagan sepulchral moat called Knockshee meaning “The Fairy Hill”. This feature is likely to have contained a cist or slab-lined chamber in its centre. In 1902, Fitzgerald referred to little being left of this monument. With the introduction of Christianity, a number of primitive churches were built in close proximity to these pagan monuments. Though there is no trace of a church near the Knockshee moat, sixteenth century sources do refer to a chapel in this area.

4.6.9 Rivers and waterways

Rivers and waterways have been used as sites for human settlement and activity throughout history as a result of their obvious use as a source for water and food and as a means of transport. In addition, flood plains associated with river courses provided a fertile, well irrigated and relatively flat landscape favorable for agricultural practices which were introduced into Ireland c. 4000 BC. Thus it is likely that evidence of archaeological activity may be encountered along such regions.

The ritual deposition of artifacts in water, particularly rivers and lakes, was widespread in Irish prehistory, particularly during the Bronze Age. It is possible that archaeological material may be recovered from rivers within the study area. Waterways within and around the study area include;

King’s River, Little Douglas Stream, River Liffey, Ballyknockan Brook, Troman Brook, Oghill Brook, Fraughan Brook, Ballynastockan Brook, Woodend Brook, Ballyward Brook, Brittas River, Shankill River, Cloghoge Brook, Scurlock’s Brook, Hartwell River, Toor Brook and Ballydonnell Brook.

Each of these waterways and the receiving environments constitute areas of archaeological potential.

4.6.10 Areas under peaty or marshy land

Wetland and peatland areas have in the past yielded high concentrations of archaeological artifacts, especially those of Bronze Age dates such as flat axes, swords and rapiers which are thought to have been ritually deposited. These waterlogged areas have an exceptional ability to preserve organic remains due to their anaerobic conditions. Wooden trackways or *toghers* are features which are typically found in waterlogged environments. In addition, archaeological sites such as *fulachta fadh* are commonly encountered in such areas. These areas should be regarded as having significant archaeological potential.

Examination of the First Edition 6” Ordinance Survey Maps for the study area illustrate that a significant number of townlands contain areas of bog or uncultivated land. These townlands are as follows: Kiltalown, Killinarden,

Raheen, Glenaraneen, Slievethoul, Mountseskin, Gortlum, Brittas, Moanaspick, Tinode, Lisheens, Knockbane, Carrignagower, Kilbride, Goldenhill, Redbog, Threecastles, Slieveroe, Glenmore, Kilmilum, Knockieran Lower, Blackrock, Oldcourt, Sroughan, Carrig, Burgage Mor, Boystown Upper, Tulfarris, Humphrystown, Lugnagroagh, Blakestown Upper, Glebe, Ballysize Lower, Alliganstown, Newtown, Kieran's Hill, Ballysize Upper, Ballintober, Slievecorragh and Dragoonhill.

Each area of wetland within the above townlands is regarded as an area of archaeological potential.

4.7 Architectural Heritage

An objective of the Constraints Study is to identify features of known architectural heritage merit within the study area. The study collates the information from readily available sources that will be used to inform the latter stage of the planning process, i.e. The Route Corridor Section and the EIS Reports. The study was carried out in consultation with the NRA Archaeologist for the scheme and in accordance with the published *Guidelines for the Assessment for Architectural Heritage Impacts of National Roads Schemes* (NRA 2005). The Record of Protected Structures was consulted together with the National Inventory of Architectural Heritage (NIAH) and the Record of Monuments and Places (RMP). The County Development Plans of Counties Wicklow, Kildare and South Dublin were also consulted.

A number of architectural constraints lie within the study area. These are outlined in the sections below and illustrated in Figures 4.6.1 - 4.6.4

4.7.1 Protected Structures

Protected structures are buildings that a planning authority considers to be of special interest from an architectural, historical, archaeological, artistic, cultural, scientific, social and/or technical point of view. These buildings are listed in the relevant County Councils Record of Protected Structures (RPS), the provision for which is set out in Part IV of the Planning & Development Act 2000 which deals with Architectural Heritage and incorporates the provisions of the Local Government (Planning and Development) Act, 1999. Protected structure status does not exclude development or alteration but requires the developer to consult with the relevant planning authority to ensure that elements, which make the structure significant, are not lost during development. The County Development Plans of Counties Wicklow, Kildare and South Dublin were consulted for details of these structures.

See Table 4.7.1.1 for a list of the protected structures within the study area.

Map Ref. No./ Protected Structure No.	Townland	Site Type	NGR	Information Source	Importance/Legal Status
A4/09 06	Knockroe	Motte and Bailey	29402 20534	Wicklow County Development Plan	Recorded Monument / Protected Structure
A14/B29-02	Broadleas Commons	Stone Circle	29299 20757	Kildare County Development Plan	Protected Structure
A15/B29-01	Broadleas Commons	Long Stone	29243 20848	Kildare County Development Plan	Protected Structure
A35/05 09	Burgage More	Tower House	29770 21233	Wicklow County Development Plan	Protected Structure
A108/389	Raheen	Standing Stone (RM)	30385 22342	South Dublin County Development Plan	Recorded Monument / Protected Structure
A112/381	Crooksling	Holy Well 'Site of', Inscribed Stone Cross (RM)	30374 22384	South Dublin County Development Plan	Recorded Monument / Protected Structure
A132/373	Lugmore	Cist	30599 22485	South Dublin County Development Plan	Recorded Monument / Registered Monument / Protected Structure
A135/349	Boherboy	Standing stones (pair) (RM)	30482 22596	South Dublin County Development Plan	Recorded Monument / Protected Structure
F3/09 05	Hollywood Upper	Church	29389 20552	Wicklow County Development Plan	Regional / Protected Structure
F4/09 03	Dragoon Hill	Statue	29443 20556	Wicklow County Development Plan	Protected Structure
F5/09 04	Dragoon Hill	Church	29443 20556	Wicklow County Development Plan	Protected Structure
F15/09 01	Britonstown/ Blakestown Lower	Road Bridge	29463 20842	Wicklow County Development Plan	Protected Structure
F16/09 02	Britonstown/ Blakestown Lower	Road Bridge	29463 20842	Wicklow County Development Plan	Protected Structure
F21/B29-40	Bishopsland, Ballymore Eustace	Country House	29426 20948	Kildare County Development Plan	Protected Structure
F22/09 07	Tulfarris	Country House	29641 20931	Wicklow County Development Plan	Regional / Protected Structure

Table 4.7.1.1: Protected Structures within study area

Map Ref. No./ Protected Structure No.	Townland	Site Type	NGR	Information Source	Importance/Legal Status
F23/09 08	Russborough	Country House	29577 21105	Wicklow County Development Plan	National / Protected Structure
F24/09 09	Russborough	Entrance Arch	29617 21122	Wicklow County Development Plan	National / Protected Structure
F25/05 01	Ballinahown	Country House	29801 21167	Wicklow County Development Plan	Protected Structure
F57/01 02	Kilbride	Country House	30283 21776	Wicklow County Development Plan	Regional / Protected Structure
F58/01 05	Tinode	Hand Pump	30124 21908	Wicklow County Development Plan	Protected Structure
F59/01 03	Tinode	Tram Station	30189 21924	Wicklow County Development Plan	Protected Structure
F61/01 04	Tinode	Country House	30111 21924	Wicklow County Development Plan	Regional / Protected Structure
F62/399	Brittas Big	Detached Three-Bay Two Storey Georgian House	30327 22163	South Dublin County Development Plan	Protected Structure
F63/397	Glenaraneen	Mill Dam/ Pond, Millpond	30330 22257	South Dublin County Development Plan	Protected Structure
F64/393	Glenaraneen	Detached Three-Bay Two Storey House	30331 22257	South Dublin County Development Plan	Protected Structure
F65/05 02	Blessington	House	29824 21425	Wicklow County Development Plan	Protected Structure
F66/05 03	Blessington	Bank, formerly a house	29816 21415	Wicklow County Development Plan	Protected Structure
F67/05 04	Blessington	Hotel	29816 21415	Wicklow County Development Plan	Protected Structure
F68/05 05	Blessington	Former Market House	29821 21422	Wicklow County Development Plan	Protected Structure
F69/05 06	Blessington	Church	29818 21433	Wicklow County Development Plan	Protected Structure
F70/05 07	Blessington	Hall	29828 21437	Wicklow County Development Plan	Protected Structure

Table 4.7.1.1: Protected Structures within study area (contd.)

Map Ref. No./ Protected Structure No.	Townland	Site Type	NGR	Information Source	Importance/Legal Status
F71/05 08	Blessington	House and shop	29799 21407	Wicklow County Development Plan	Protected Structure
F72/370	Lugg/Slade	Stone Bridge of Four Consecutive Arches (RM)	30391 22486	South Dublin County Development Plan	Protected Structure
F79/342	Kiltalown	Country House	30659 22620	South Dublin County Development Plan	Regional / Protected Structure (Ref No. 342)

Table 4.7.1.1: Protected Structures within study area (contd.)

4.7.2 National Inventory of Architectural Heritage (NIAH) structures

The National Inventory of Architectural Heritage (NIAH) is a state initiative under the administration of the Department of the Environment, Heritage and Local Government. It was established on a statutory basis under the provisions of the Architectural Heritage (National Inventory) and Historic Monuments (Miscellaneous Provisions) Act 1999. Its purpose is to identify, record and evaluate the post-1700 architectural heritage of Ireland, uniformly and consistently as an aid in the protection and conservation of the built heritage. Sites are rated as being of local, regional and national significance. If sites are rated as being of regional significance, then it is likely that they will be added to the list of Protected Structures for each county.

Section 1 of the above Act defined ‘architectural heritage’ as 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;

The Council of Europe, in Article 2 of the 1985 Convention for the Protection of the Architectural Heritage of Europe (Granada Convention), 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 Granada Convention emphasises the importance of inventories in underpinning conservation policies. The NIAH was established in 1990 to fulfill Ireland’s obligations under the Granada Convention, through the establishment and maintenance of a central record, documenting and evaluating the architectural heritage of Ireland.

Information was obtained on the sites within the study area in Wicklow, Kildare and South Dublin. Table 4.7.2.1 lists all NIAH sites within the study area.

Map Ref No./NIAH No.	Townland	NGR	Site Type	Source	Importance/Legal Status
F1/16400908	Knockroe, Wicklow	294125, 205382	Church	National Inventory of Architectural Heritage/ Wicklow CDP	Regional/ Protected Structure
F2/16400910	Hollywood, Wicklow	293388, 205311	Milestone/ Milepost	National Inventory of Architectural Heritage/ Wicklow CDP	Regional
F3/16400903	Hollywood Demesne, Wicklow	293890, 205516	Church	National Inventory of Architectural Heritage/ Wicklow CDP	Regional/ Protected Structure
F6/16400904	Hollywood Upper, Wicklow	294056, 205549	Hotel	National Inventory of Architectural Heritage	Regional
F7/16400905	Hollywood Upper, Wicklow	294040, 205571	Public House	National Inventory of Architectural Heritage	Regional
F8/16400906	Hollywood Upper, Wicklow	294049, 205600	Forge	National Inventory of Architectural Heritage	Regional
F9/16400909	Hollywood Upper, Wicklow	294044, 205587	House	National Inventory of Architectural Heritage	Regional
F10/16400907	Knockroe, Wicklow	294045, 205501	House	National Inventory of Architectural Heritage	Regional
F12/WI-56-N-934063	Hollywood, Wicklow	934063	House	National Inventory of Architectural Heritage	Not Supplied
F13/16400902	Britonstown, Wicklow	294646, 208313	Bridge	National Inventory of Architectural Heritage	Regional
F14/16400901	Britonstown, Wicklow	294656, 208447	Bridge	National Inventory of Architectural Heritage	Regional
F17/11820002	Bishopsland (Ballymore Eustace Ed), Kildare	292867, 209937	Group of Houses	National Inventory of Architectural Heritage	Regional
F18/11820042	Ballymore Eustace, Kildare	293655, 209334	Water Tower	National Inventory of Architectural Heritage	Regional
F19/11820005	Broadleas Commons, Kildare	293925, 209537	School House	National Inventory of Architectural Heritage	Regional
F20/11902901	Bishopsland, Kildare	294296, 209444	House	National Inventory of Architectural Heritage	Regional

Table 4.7.2.1: NIAH Structures within study area

Map Ref No./NIAH No.	Townland	NGR	Site Type	Source	Importance/Legal Status
F22/16401004	Tulfarris, Wicklow	296412, 209313	House	National Inventory of Architectural Heritage/ Wicklow CDP	Regional/ Protected Structure
F23/16400503	Russborough, Wicklow	295770, 211051	Country House	National Inventory of Architectural Heritage/ Wicklow CDP	National/ Protected Structure
F24/16400504	Russborough, Wicklow	296168, 211222	Gates/ Railings/ Walls	National Inventory of Architectural Heritage/ Wicklow CDP	National/ Protected Structure
F26/16400505	Boystown/ Baltyboys Lower, Wicklow	297980, 211692	House	National Inventory of Architectural Heritage/ Wicklow CDP	Regional/ Protected Structure
F27/16303026	Haylands, Wicklow	298514, 214856	House	National Inventory of Architectural Heritage	Regional
F28/16303021	Blessington Demesne, Wicklow	298359, 214458	School	National Inventory of Architectural Heritage	Regional
F29/16303001	Blessington, Wicklow	298132, 214328	Bank	National Inventory of Architectural Heritage	Regional
F30/16303002	Blessington, Wicklow	298134, 214349	House	National Inventory of Architectural Heritage	Regional
F31/16303003	Blessington, Wicklow	298170, 214391	Bank	National Inventory of Architectural Heritage	Regional
F32/16303004	Blessington, Wicklow	298187, 214377	Monument	National Inventory of Architectural Heritage	Regional
F33/16303005	Blessington, Wicklow	298191, 214412	House	National Inventory of Architectural Heritage	Regional
F34/16303006	Blessington, Wicklow	298219, 214341	Church	National Inventory of Architectural Heritage	Regional
F35/16303007	Blessington, Wicklow	298218, 214427	Public House	National Inventory of Architectural Heritage	Regional
F36/16303008	Blessington, Wicklow	298233, 214443	Shop	National Inventory of Architectural Heritage	Regional
F37/16303009	Blessington, Wicklow	298246, 214460	Shop	National Inventory of Architectural Heritage	Regional
F38/16303010	Blessington, Wicklow	298275, 214498	House	National Inventory of Architectural Heritage	Regional
F40/16303012	Blessington, Wicklow	298277, 214441	Shop	National Inventory of Architectural Heritage	Regional
F41/16303013	Blessington, Wicklow	298188, 214326	Hotel	National Inventory of Architectural Heritage	Regional

Table 4.7.2.1: NIAH Structures within study area (cont.)

Map Ref No./NIAH No.	Townland	NGR	Site Type	Source	Importance/Legal Status
F42/16303014	Blessington, Wicklow	298185, 214322	House	National Inventory of Architectural Heritage	Regional
F43/16303015	Blessington, Wicklow	298167, 214305	Shop	National Inventory of Architectural Heritage	Regional
F44/16303016	Blessington, Wicklow	298171, 214274	School House	National Inventory of Architectural Heritage	Regional
F45/16303017	Blessington, Wicklow	298099, 214284	Garda Station	National Inventory of Architectural Heritage	Regional
F46/16303018	Blessington, Wicklow	298235, 214220	House	National Inventory of Architectural Heritage	Regional
F47/16303019	Blessington, Wicklow	298062, 214227	Shop	National Inventory of Architectural Heritage	Regional
F48/16303020	Blessington, Wicklow	298116, 214250	Gates	National Inventory of Architectural Heritage	Regional
F49/16303022	Blessington, Wicklow	298383, 214479	School	National Inventory of Architectural Heritage	Regional
F50/WI-56-N-987136	Knockieran Cottage, Wicklow	987136	House	National Inventory of Architectural Heritage	Not Supplied
F51/16303027	Blessington, Wicklow	298629, 214235	Bridge	National Inventory of Architectural Heritage	Regional
F52/16303011	Blessington, Wicklow	298378, 214526	Church	National Inventory of Architectural Heritage	Regional
F53/16303023	Blessington, Wicklow	298408, 214645	Toll House	National Inventory of Architectural Heritage	Regional
F54/16303024	Blessington Demesne, Wicklow	298422, 214731	House	National Inventory of Architectural Heritage	Regional
F55/16303025	Blessington Demesne, Wicklow	298393, 214685	House	National Inventory of Architectural Heritage	Regional
F56/16303028	Blessington, Wicklow	297916, 213969	Church	National Inventory of Architectural Heritage	Regional
F57/16400103	Kilbride, Wicklow	302833, 217756	House	National Inventory of Architectural Heritage/ Wicklow CDP	Regional/ Protected Structure
F60/16400102	Moanaspick, Wicklow	301308, 219185	House	National Inventory of Architectural Heritage	Regional
F61/16400101	Moanaspick, Wicklow	301114, 219243	House	National Inventory of Architectural Heritage/ Wicklow CDP	Regional/ Protected Structure

Table 4.7.2.1: NIAH Structures within study area (cont.)

Map Ref No./NIAH No.	Townland	NGR	Site Type	Source	Importance/Legal Status
F62/11223001	Brittas Big, Dublin	303189, 221651	Farmyard Complex	National Inventory of Architectural Heritage/ South Dublin CDP	Regional/ Protected Structure
F73/11214017	Kiltalown, Dublin	306376, 226009	House	National Inventory of Architectural Heritage	Regional
F74/11214018	Kiltalown, Dublin	306366, 226011	House	National Inventory of Architectural Heritage	Regional
F75/11214019	Kiltalown, Dublin	306343, 226014	House	National Inventory of Architectural Heritage	Regional
F76/11214020	Kiltalown, Dublin	306332, 226015	House	National Inventory of Architectural Heritage	Regional
F77/11214021	Kiltalown, Dublin	306308, 226019	House	National Inventory of Architectural Heritage	Regional
F78/11214022	Kiltalown, Dublin	306297, 226021	House	National Inventory of Architectural Heritage	Regional
F79/11214023	Kiltalown	306592, 226200	Country House	National Inventory of Architectural Heritage/ South Dublin Development Plan	Regional/ Protected Structure (Ref. No. 342)
F80/11214016	Clooncora, Dublin	306222, 226072	House	National Inventory of Architectural Heritage	Regional
F63/11218008	Glenaraneen, Dublin	303174, 222727	Dam, Reservoir, Basin	National Inventory of Architectural Heritage/ South Dublin Development Plan	Regional
F81/11218007	Glenaraneen, Dublin	303185, 223240	House	National Inventory of Architectural Heritage	Regional
F82/11218006	Crooksling, Dublin	303628, 224075	House	National Inventory of Architectural Heritage	Local
F83/11223002	Raheen (NE. BY)	303952, 222557	House	National Inventory of Architectural Heritage	Regional
F84/11224002	Raheen (NE. BY)	304015, 222648	Farmyard Complex	National Inventory of Architectural Heritage	Regional

Table 4.7.2.1: NIAH Structures within study area (cont.)

Map Ref No./NIAH No.	Townland	NGR	Site Type	Source	Importance/Legal Status
F85/11219001	Boherboy, Dublin	304455, 225573	Farmyard Complex	National Inventory of Architectural Heritage	Regional
F86/11214010	Boherboy, Dublin	304784, 226067	House	National Inventory of Architectural Heritage	Regional
F87/11214011	Dublin	305052, 226000	Public House	National Inventory of Architectural Heritage	Regional
F88/11214012	Dublin	305239, 226031	House	National Inventory of Architectural Heritage	Regional
F89/11902501	Pipershall, Kildare	299241, 216722	Presbytery/ Parochial/ Curate's House	National Inventory of Architectural Heritage	Regional
F90/11902502	Pipershall, Kildare	299334, 216695	Church/ Chapel	National Inventory of Architectural Heritage	Regional

Table 4.7.2.1: NIAH Structures within study area (cont.)

4.7.3 Areas of Architectural Importance and Potential as Highlighted in County Development Plans

In the Wicklow County Development Plan, Blessington is proposed as an Architectural Conservation Area (ACA). The outline of this area is shown in Figure 4.6.4. The objective of ACA's is to preserve the character of places, areas, structures or groups of structures which when grouped together, are of high architectural, historical, archaeological, cultural, social, technical or scientific interest, or which contribute to the appreciation of Protected Structures.

There are no areas of architectural importance highlighted within the study area either in the Kildare County Development Plan or the Dublin County Development Plan.

4.7.4 Discussion of a Selection of Sites of Architectural Significance within Study Area

There are a number of sites of architectural merit within the area of the Constraints Study. Russborough House (Ref. No. F23/24) is a stately home situated between the towns of Blessington and Ballymore Eustace, and is rated as being of national significance. It is recorded in the list of Protected Structures. It is a spectacular example of Palladian architecture inspired by the designs of the Italian architect Andrea Palladio. The house was built for Joseph Leeson, afterwards 1st Earl of Milltown and designed by Richard Cassels. Construction

of this exquisite building began in 1741, and was completed in 1755. It should be noted that the prospect of Russborough House, Russeltown Park and towards Pollaphuca Reservoir is to be preserved under policy HL6 of the Wicklow County Council Development Plan. The trees in the grounds of Russborough House are also being considered for Preservation, as are those of Manor Kilbride and Blessington.

Baltiboys House (Ref. No. F26) in County Wicklow is rated as being of regional significance in Ireland. It was built in the late eighteenth century and comprised a two-storey late-Georgian house with a five bay front.

Tulfarris House (Ref. No. F22) in County Wicklow is also rated as being of regional significance in Ireland and was constructed in 1760 on the original site of Tulfarris Castle.

4.7.5 Areas of Architectural Significance

The study area comprises of many historical structures, or parts thereof, which date from the Early Medieval period and are still visible on today's landscape and/or have been referred to by various literary sources. These areas form an integral part of the region's cultural heritage. Accordingly, these regions present themselves as landscapes with historical and architectural importance and therefore, avoidance of these areas by the proposed route is preferable.

There are four principal sites within the area of the constraints study; Blessington is proposed in the Wicklow County Development Plan as an Architectural Conservation area (ACA) and has many structures of architectural significance within the village (see Table 4.7.1.1 and 4.7.2.1). Blessington Demesne was an important local estate (WI005-016 - WI005-021) and is located west of the N81 beside the village of Blessington. Ballymore Eustace (KD029-011) was an important Medieval Norman Stronghold and Pale Fortress and Knockroe Hollywood is a deserted Anglo-Norman Borough.

The areas of architectural significance located within the study area are listed below in Table 4.7.5.1.

Site Type	Townland	Map Ref No.	Detail
Towns	Knockroe	A7/WI009-017	Town
	Ballymore Eustace	A26/KD029-011	Town
	Blessington	"Area previously proposed for ACA in Wicklow County Development Plan"	Town
Demesnes	Blessington Demesne	A62/WI005-016	Landscape feature
		A63/WI005-018	House Site
		A64/WI005-019	Landscape feature
		A65/WI005-020	Landscape feature
		A66/WI005-021	Landscape feature

Table 4.7.5.1: Areas of Architectural Significance within study area

4.8 Cultural Heritage

The term ‘Cultural Heritage’ can be seen to reflect the value communities place on tangible features such as structures, monuments, places, artefacts and art, as well as intangible features such as stories, festivals and language. Memory, tradition and folklore can all play an important role in determining the cultural heritage of an area.

The tangible cultural heritage of the constraints study area could include landscape features such as earthen townland, parish and barony boundaries, dry stonewall field boundaries, early road signs and milestones, 20th century roadside memorials, sites with local historical significance (eg. famine graveyards, renowned sports grounds, memorials) or sites associated with well known personages.

The majority of the prospective Cultural Heritage features outlined above can only be identified thoroughly with a comprehensive field survey. Consequently as the Constraints Study Report has primarily been carried out through a desktop study, it is felt that assessment of the impact of Cultural Heritage would be best addressed at a later stage in the road design process.

The only significant features of Cultural Heritage identified at this stage (which are included in previous sections), are listed in the table below.

Map Ref. No./ Protected Structure No.	Townland	Site Type	NGR	Information Source	Importance/Legal Status
F58/01 05	Tinode	Hand Pump	30124 21908	Wicklow County Development Plan	Protected Structure
F2/16400910	Hollywood, Wicklow	Milestone/ Milepost	293388, 205311	National Inventory of Architectural Heritage/ Wicklow CDP	Regional

Table 4.8.1.1: Significant features of Cultural Heritage identified within study area

4.9 Ecology

The ecology assessment was carried out in accordance with the National Roads Authority publication “*Guidelines for Assessment of Ecological Impacts of National Road Schemes*”.

The objective of this section of the Constraints Study is to highlight any issues that must be taken into account for the subsequent stages in the road design process (Route Corridor Selection Study and Environmental Impact Assessment).

The ecological assessment was carried out with the use of aerial photography (2003) to identify sensitive ecological sites within the study area. The National Parks and Wildlife Service (NPWS) database of sites was consulted to identify any designated conservation areas within or close to our study area and to identify any records of rare and protected plant species. The Eastern Regional Fisheries Board (ERFB) were consulted to determine the fisheries value of the rivers in the study area. Finally, a windscreen survey was carried out to obtain an overview of the study area and areas of potential ecological importance.

4.9.1 Designated Conservation Areas

4.9.1.1 Special Areas of Conservation (SAC)

SAC is a statutory designation, which has a legal basis under the EU Habitats Directive (92/43/EEC), as transposed into Irish Law through the European Communities (Natural Habitats) Regulations, 1997. The main implication of this designation is that any project likely to have a significant adverse impact on the integrity of the SAC may only be carried out for “*imperative reasons of overriding public interest, including those of a social or economic nature*”. Candidate Special Areas of Conservation (cSAC) are habitats of international significance that have been identified by NPWS and submitted for designation to the European Union.

4.9.1.2 Special Protection Area (SPA)

SPA is a statutory designation, which has a legal basis under the EU Birds Directive (79/409/EEC). The primary objective of SPA’s is to maintain or enhance the favourable conservation status of the birds for which the SPA’s have been designated.

4.9.1.3 National Heritage Area (NHA)

NHA is a statutory designation according to the Wildlife (Amended) Act, 2000 and requires consultation with NPWS if impacted upon by any development. NHA’s are protected from the date they are formally proposed. Proposed National Heritage Area’s (pNHA’s) are also habitats or sites of interest to wildlife that have been identified by NPWS. These sites become NHA’s once they have been formally advertised and land owners have been notified of their designation.

4.9.1.4 Designated Conservation Areas within Study Area

There are five designated conservation areas for nature conservation within the study area as shown in Table 4.9.1.4.1 below and can be seen in Figures 4.9.1 - 4.9.3.

These include one cSAC, which is also designated as a pNHA, one SPA which is also designated as a pNHA, and three pNHA's.

Site Name	NPWS Code	Status	Features of conservation interest/description
Red Bog, Kildare	00397	cSAC, pNHA	Wetland complex of lake, fen and bog. Selected for the Annex 1 habitat transition mire
Pollaphuca Reservoir	004063/000731	SPA, pNHA	Of international importance for its greylag goose population
Slade of Saggart and Crooksling Glen	00211	pNHA	Wooded river valley and wetland system. Rare plant and invertebrate species
Newtown Marshes	001759	pNHA	Freshwater marsh and ponds within area of calcareous eskers
Lugmore Glen	00001212	pNHA	Woodland glen with good representation of woodland plants. Rare plant recorded

Table 4.9.1.4.1: Designated conservation areas within study area

4.9.1.5 Designated Conservation Areas within 10 km of Study Area

There are thirteen additional designated conservation areas within 10 km of the study area as shown in Table 4.9.1.5.1 below;

Site Name	NPWS Code	Status	Distance from study area
Liffey at Osberstown	001395	pNHA	10km West
Grand Canal	002104	pNHA	7.8km North West
Liffey Valley	000128	pNHA	8.3km North
Dodder Valley	000991	pNHA	1.7km North East
Fitzsimons Wood	001753	pNHA	10km North East
Glenasmole Valley	001209	cSAC, pNHA	1.8km North East
Ballingee Wood	001750	pNHA	9.1km South East
Hollywood Glen	002053	pNHA	0.8km South
Slaney River Valley	000781	cSAC, pNHA	7.6km South
Dunlavin Marshes	001772	pNHA	6.1km South West
Liffey Bank Above Athgarvan	001396	pNHA	10km West
Wicklow Mountains	002122/004040	cSAC, SPA	0.1km West
Liffey Valley Meander Belt	000393	pNHA	1.3km South West
Kilteel Wood	001394	pNHA	3km West

Table 4.9.1.5.1: Designated conservation areas within 10km of study area

4.9.2 Non-Designated Sites of Potential Ecological Value

Areas of semi-natural habitat that are of potential ecological value (and which are not currently designated for conservation) were identified from aerial photography. These are called potential ecological sites as they have been identified from aerial photography only. Therefore, their exact ecological significance is unknown and further studies would be required to clarify this if the areas are likely to be affected by the scheme.

In total, 29 sites of potential ecological value have been identified in the study area. These are listed in Table 4.9.2.1 below and can be seen in Figures 4.9.1 - 4.9.3.

Site Number	Townland name	Site Description/ possible habitats present
01	Dragoon Hill	Blanket bog, heath, semi-natural grassland and scrub
02	Ballintober	Blanket bog, heath and semi-natural grassland
03	Broadleas Commons	Wet grassland complex
04	Ballymore Eustace	Broadleaved woodland, parkland with mature trees and wet grassland
05	Bishopsland	Mature broadleaved woodland and treelines
06	Bishopsland	Broadleaved woodland
07	Baltyboys Upper	Quarry site
08	Carrigeen	Broadleaved woodland and scrub
09	Russborough House	Mature broadleaved woodland and parkland with mature trees, quarry site
10	Baltyboys Upper	Mature broadleaved parkland trees
11	Baltyboys Lower	Mature broadleaved woodland and treelines
12	Deerpark	Broadleaved and conifer woodland
13	Dillonadown/Newpaddocks	Quarry site
14	Haylands	Quarry site and scrub
15	Blackrock	Heath
16	Pipershall	Quarry site
17	Caureen	Quarry site
18	Goldenhill	Wet grassland complex
19	Tinode	Quarry site
20	Tinode	Mature broadleaved woodland and parkland with mature trees
21	Kilbride	Mature broadleaved and conifer woodland and parkland with mature trees
22	Knockbane	Heath and wet grassland complex
23	Moanbreen	Heath and wet grassland complex
24	Crooksling	Mature broadleaved woodland and parkland with mature trees
25	Lug	Heath and scrub complex
26	Slade	Scrub and mature trees along stream
27	Corbally	Scrub, mature trees along stream and wet grassland complex
28	Lugmore	Quarry site with scrub and mature trees
29	Lugmore	Wet grassland complex

Table 4.9.2.1: Identified areas of potential ecological value in study area

4.9.3 Rare and protected Plant and Animal Species

4.9.3.1 Flora

As can be seen in Table 4.9.3.1.1 below, there are five rare plant species within the study area. Four of these are protected under the Flora Protection Order (1999). The fifth, yellow archangel (*Lamiastrum galeobdolon*), is a Red Data Book listed species and has been recorded from the Slade of Saggart and Crooksling Glen pNHA and Lugmore Glen pNHA.

Scientific name	Common Name	Location	Date Last Recorded	Protected under Flora Protection Order, 1997	Red Data Book Listed	Status
<i>Acinos arvensis</i>	Basil thyme	Rathmore	1923	Yes	Yes	Vulnerable
<i>Cryptogramma crispa</i>	Parsley fern	Ballyknockan	1932	Yes	Yes	Rare
<i>Hammarbya plaudosa</i>	Bog orchid	10km grid square O00	1995	Yes	Yes	Rare
<i>Cephalanthera longifolia</i>	Narrow-leaved helleborine	10km grid square O02	1929	Yes	Yes	Vulnerable
<i>Lamiastrum galeobdolon</i>	Yellow archangel	Slade of Saggart and Crooksling Glen pNHA / Lugmore Glen pNHA	Unknown/1991	No	Yes	Rare

Table 4.9.3.1.1: Rare plant species records for study area

4.9.3.2 Fauna

There are a number of protected fauna recorded within the study area and have been described by NATURA Environmental Consultants Ltd. These are;

Otter

The Otter (*Lutra lutra*) is a legally protected species under Annex II of the EU Habitats Directive. In Ireland, Otter are widespread, and signs of them are found along most river systems. It is likely to occur along the tributaries of the Liffey and King's Rivers and along the shoreline of Pollaphuca Reservoir. Otter have been recorded on the King's River upstream of the study area.

Bats

All bat species occurring in Ireland are legally protected under Annex II of the EU Habitats Directive. The study area is likely to support a wide range of bat species. The network of hedges, treelines, mature trees, watercourses

and buildings such as older houses, outbuildings and other structures such as bridges are likely to provide habitat for bats as roosting sites and foraging areas.

Lamprey

Lampreys are a primitive group of fish. Three lamprey species occur in Ireland all of which are listed under Annex II of the EU Habitats Directive. The brook lamprey (*Lampetra planeri*) has been recorded in the middle reaches of the River Liffey and occurs in most catchments in Ireland. There are no available records of other lamprey species within the study area.

White-clawed crayfish

Populations of crayfish (*Austropotamobius pallipes*) have been studied in Pollaphuca Reservoir and crayfish have also been recorded in the 5km grid square containing upper sections of the River Liffey and the Brittas River. This species is a legally protected species listed under Annex II and V of the EU Habitats Directive. Information provided by ERFB indicates that this species is present in watercourses throughout the study area.

Freshwater pearl mussel

The freshwater pearl mussel (*Margaritifera margaritifera*) is a legally protected species under Annex II of the EU Habitats Directive. Records exist of the presence of freshwater pearl mussel within the 10km grid square O01, part of which is within the study area. The study area also includes sections of two further grid squares, N90 and N91, which have records of dead pearl mussel shells. (These 10km x 10km grid squares include a large portion of our study area and the Pollaphuca Reservoir in particular)

Other fauna

Badgers (*Meles meles*) would be expected to be widespread throughout the study area, Badgers are common and widespread in Ireland and are found in all lowland habitats where the soil is dry and not subject to flooding.

A number of other mammal species are known from the Wicklow Mountains cSAC including red deer (*Cervus elaphus*), sika deer (*Cervus nippon*), stoat (*Mustela erminea*), pine marten (*Martes martes*) and hare (*Lepus timidus*) (NPWS site synopsis), and these are likely to occur in the study area.

Barn Owl (*Tyto alba*) is a characteristic farmland bird which has undergone a documented decline in its geographical range in recent times. They are a red listed bird of conservation concern in Ireland due to a decline in their population during the past 25 years. They are also listed as a species of European Conservation Concern (SPEC3). Their presence has been identified by local residents during the public consultation meetings.

4.9.3.3 The Aquatic Environment

The study area incorporates the River Liffey catchment including Pollaphuca Reservoir and the significant

channels; Camac, Griffeen, Brittas, Slane, Kill, Hartwell, Morrell and King's Rivers. These are all listed as salmonoid watercourses. The Liffey supports populations of salmon, brown trout and sea trout. The Kill, Hartwell and Morrell rivers support significant populations of salmon and brown trout. Brown trout is present in the Brittas, King's and Slane rivers. Both brown trout and sea trout are present in the Camac and Griffeen rivers. Most of these watercourses support populations of freshwater crayfish.

4.10 Soil, Geology, Hydrology and Hydrogeology

4.10.1 Introduction

This section aims to highlight possible soil, geological, hydrological and hydrogeological constraints which may be encountered as part of the N81 upgrade or improvement works between Hollywood Cross and Tallaght.

4.10.2 Topography

The section of the N81 Route under consideration runs from Hollywood Cross in County Wicklow to Tallaght in County Dublin. To the eastern side of the study area is the Wicklow Mountains, which rise up to a high point of 703m OD at Moanbane. The north-eastern end of the study area falls to a high point of 273m OD at Tallaght Hill. The topography falls from here to the Dublin suburb of Jobstown (120m OD).

The western side of the study area is lower than the eastern side, with the landscape generally falling from east to west. The western boundary's highest point is at Knockadinny (250m OD) in the north. This boundary does not rise above 200m OD again until south of Hollywood where it elevates to 410m OD.

There is a steep slope which falls into a small valley on the western side of the existing N81 route towards the northern end of the study area. The N81 route is bordered by Pollaphuca Reservoir along the eastern side, south of Blessington.

The Pollaphuca Reservoir takes up an area of 20.1 km², and is the main supply of drinking water to Dublin City and provides approximately half of the drinking water to Co. Kildare. The rivers which feed into this reservoir are the River Liffey and the Brittas River (a tributary of the River Liffey).

The topography of the study and surrounding areas can be seen in Figure 1.3.2

4.10.3 Geology

The characteristics of the underlying geology can be very important when considering road construction projects. The depth to bedrock, type of underlying rock and type and thickness of subsoil will all influence the cost of the project. The depth to bedrock is important to determine the vulnerability of the groundwater. The type of rock and subsoil will affect the project's drainage systems and cut/fill amounts. In essence, all these factors contribute to the cost of a proposed road construction project.

The Geological Survey of Ireland (GSI) bedrock map for the constraints study area indicates that there are three generalised rock units in the area. These are Silurian Metasediments to the west of Pollaphuca Reservoir, Granites and other igneous intrusive rocks to the east of Pollaphuca, and Ordovician Metasediments in between these two.

The Bedrock Geology Map can be seen in Figures 4.10.1 - 4.10.3.

4.10.3.1 Silurian Metasediments

The formations identified in this rock group include the Pollaphuca Formation which consists of coarse, grey greywacke sandstones and grits, and dark grey shales. The Glen Ding Formation is composed of dark green-grey feldspathic and chloritic greywacke sandstones and shales. The Tipperkevin Formation lies further to the west. It is composed of generally medium to fine grained, but occasionally coarser, greywacke, sandstones and shales.

4.10.3.2 Granites and Other Intrusive Rocks

The igneous rocks to the east of Pollaphuca consist of granites. The formations are Northern and Upper Liffey Valley Plutons and they consist of pale grey, fine to coarse grained granites. Some granite with microcline phenocrysts can also be found in the southeast of the study area.

4.10.3.3 Ordovician Metasediments

This is located between the igneous rocks and Silurian Metasediments. The two formations are the Butter Mountain Formation (dark slate-schist, quartzite and coticule) and the Aghfarrell Formation (greywacke siltstone, slate and quartzite).

4.10.3.4 Karst Features

Karst features can indicate solubility of the underlying bedrock in rainwater, with possible cavities or defects in the bedrock. There are no limestones present in the study area and therefore karst features are not expected in any of the bedrock formations within the study area.

4.10.3.5 Soils & Subsoils

The study area is underlain by four different subsoil types. These are Granite Till (associated with the igneous bedrock on the eastern side of the study area), Limestone Till (along the western boundary), Blanket Peats (associated with higher elevation to the south east of study area) and Gravel Deposits of varying thicknesses (in the remaining areas of the study area). (See Figures 4.10.4 - 4.10.9)

The glacial tills are generally of low compressibility, but are also susceptible to softening and deterioration in

wet weather due to their low plasticity. Peat soils are generally of high organic content, high compressibility and low shear strength, and therefore can present problems for construction work. The gravel deposits are glacial in origin and derived from limestone parent material. The deposits vary in thickness throughout the study area, with thick deposits encountered in the Blessington and Ballymore Eustace areas. These thick deposits are associated with the gravel aquifers located in these areas.

There are large areas in the centre of upland and lowland areas where rock is mapped as close to the surface. This can increase the possibility of groundwater being contaminated, as there is less soil and subsoil to filter any potential contaminants. On the eastern side of the study area, the dominant group are shallow, lithosolic-podzolic type soils with peaty topsoil. The soils are predominantly shallow and derived from non-calcareous rock or gravels. These soils extend in a south-westerly direction from the eastern edge of the study area towards the Blessington Lakes and end at Hollywood.

To the west of these soils are deep, well drained, acid brown earth podzolics, derived mainly from non-calcareous materials. These soils extend in a northeast-southwest direction from Jobstown to beyond Ballymore Eustace.

Small areas of peaty gleys can be found scattered to the northeast of the study area. These form as a result of impeded drainage in mineral soils. Lithosols and regosols can be found scattered throughout the centre of the study area. They are shallow well drained mineral soils derived from non-calcareous materials.

4.10.3.6 Land Use

The Corine land cover mapping 2000 on the EPA mapping website was used for land cover information. This data indicates that the land to the east of the N81 and the Blessington Lakes in the upland area is classified as Peat Lands. To the west of the N81 and the Blessington Lakes the land use is classified as agricultural pastureland. Along the interface between the two areas and towards the east of the study area are localised areas of coniferous forest.

4.10.3.7 Contaminated Land

There are three active waste licences within the study area which are all landfill sites. Details of these sites are shown in Table 4.10.3.7.1 and illustrated in Figures 4.10.10 – 4.10.12.

There are potential ‘Legacy’ landfill sites located within the study area. These include disused and illegal landfill sites. Information on these sites is becoming increasingly available from Local Authorities. However, this information was not available at the time of writing this report. Any further information available on such sites and shall be included in the Route Selection Report.

Name	Location	Type	Status	Licence Code
Roadstone Dublin Remediation Landfill	Dillonstown, Blessington	Landfill	Active	213.1
Carnegie JW & Co Ltd	Dillonstown, Blessington	Landfill	Active	80.1
Corbally	Blessington Rd, Tallaght, Co Dublin	Landfill	Ceased	88.1
Aghfarrell (Hegarty Demolition Ltd)	Brittas	Landfill	Active	84.1

Table 4.10.3.7.1: Contaminated Land Sites

4.10.3.8 Extraction Industries

There are a number of extraction industries within or in close proximity to the study area. One of these is described as a quarry while the other four are described as pits. Table 4.10.3.8.1 below shows details of all these sites (See Figures 4.10.10 – 4.10.12). The largest quarry is the Roadstone Quarry at Blessington, which covers approximately 2 km².

Further Quarries/Pits, although not listed by GSI were identified from aerial photography and during the windscreen survey. These are shown in Figures 4.10.10 - 4.10.12 identified as ‘Other Quarries’.

Name	Type	Location
Ballyboden Stone Quarry	Quarry	Aughfarrell, Brittas
Hempstown Commons Pit	Pit	Blessington
Carnegie’s Pit	Pit	Blessington
Hudson Brothers Pit	Pit	Blessington
Roadstone Dorans Pit	Pit	Blessington
N/A	Other Quarries	Ballinascorney
De Selby Quarry	Other Quarries	Corbally
N/A	Other Quarries	Ballymore Eustace
N/A	Other Quarries	Bishopsland
N/A	Other Quarries	Broadleas Commons
N/A	Other Quarries	Boystown or Baltyboys Upper/Tulfarris

Table 4.10.3.8.1: Extraction Industries

4.10.3.9 Geological Heritage

Geological Heritage sites are not always a constraint to road construction. However, it is worth recording the locations of any important site for further investigation of the impact the proposed road construction may have. There are a total of 3 Geological Heritage sites located within the study area. Details of these sites are given in Table 4.10.3.9.1 below and are also shown in Figures 4.10.10 – 4.10.12

IGH Code	Name	Type	Comment
IGH4	Slate Quarries	Cambrian-Silurian	Three large working quarries, providing aggregate, prestressed concrete and concrete blocks all work in this townland, named after its long history of working
IGH7	Glen Ding	Quaternary	A dry glacial spillway which has extensive deltaic deposits in surrounding areas. Ice marginal channels
IGH14	Ballymore Eustace - Kilcullen	Fluvial/Lacustrine Geomorphology	Broad floodplain with classic meander formations, some of the finest in Ireland

Table 4.10.3.9.1: Geological Heritage Sites

4.10.4 Hydrology

An assessment of Hydrological and Hydrogeological information available from various sources in relation to the study area was carried out.

4.10.4.1 Surface Water

The study area lies in the Eastern River Basin District and is completely contained within the Liffey River Catchment. In the north of the study area, surface water drains to the Rivers Commock and Dodder. In the northwest of the area the surface water flows into the Rivers Hartwell, Kill, Slane and Griffeen. The Brittas River flows southwards from Brittas village. All of these rivers flow into the River Liffey. The Liffey flows into the Pollaphuca Reservoir at the northern end of the lake, and flows out at the southern end.

Pollaphuca Reservoir is the main surface water feature within the study area. This reservoir is a major source of drinking water for both Dublin City and County Kildare. The reservoir is situated to the east of Blessington and Ballymore Eustace, covers an area of approximately 20.1 km² and lies approximately 600m above sea level. Situated at the southern end of the Pollaphuca Reservoir is the Pollaphuca dam, which the ESB use to generate hydroelectric power. The Pollaphuca Reservoir is classified by the National Parks and Wildlife Services as a Special Protection Area and also as a Natural Heritage Area. The lake is managed and contains stocks of Trout and Coarse fish. The current N81 crosses part of the reservoir in two locations, firstly east of Glebe (1 km south of Blessington) and secondly at Pollaphuca Bridge (2 km southeast of Ballymore Eustace).

There are a number of small lakes located throughout the study area. A small lake is located to the southwest of the Pollaphuca dam approximately 1 km south of Ballymore Eustace. The largest of these lakes is situated north of Brittas. This lake contains a small crannóg.

Surface water quality is monitored by the EPA. The majority of the rivers in the study area are classified as

having a good to high status with only two rivers having moderate status. There are a number of small streams which are considered to be at risk of failing to meet “Good Status” under the Water Framework Directive. This can be seen in Figures 4.10.13 - 4.10.15.

4.10.4.2 Flooding

Information provided by the Office of Public Works (OPW) shows that there are 14 locations in or around the study area which are prone to flooding. Details of each flooding event are shown on Table 4.10.4.2.1 below. See Figures 4.10.13 - 4.10.15 for the locations of these events.

Location	Associated River	Comments	Distant to Current N81
Hollywood Village	Unnamed Tributary of Liffey	Recurring Flood Event	<100m
Silverhill Road	Unnamed Tributary of Liffey	Recurring Flood Event	<100m
Ballysize Bridge, Hollywood	Unnamed Tributary of Liffey	Recurring Flood Event	500m
Ballynabrocky	Unnamed Stream	Recurring Flood Event	3 km
Liffey Upper	Liffey	August 1986 & November 2000	3.5 km
Liffey Downstream (Ballyward Bridge)	Liffey	Recurring Flood Event	4.2 km
Ballyward Bridge	Liffey	August 1986	2.2 km
Ballysmuttan Bridge to Ballyward Bridge	Liffey	Recurring Flood Event	2.2 km
Kilbride Bridge	Brittas River	Recurring Flood Event	2.75 km
Lisheen / Brittas	Brittas River	Recurring Flood Event	3 km
Brittas South Dublin	Brittas River	Recurring Flood Event	1.7 km
Eadestown Cemetery		Recurring Flood Event	300m
Rathmore (New Housing Estate)		Recurring Flood Event	<100m
Jobstown	Unnamed Stream	November 2000	<100m

Table 4.10.4.2.1: Historic Flooding Events

4.10.4.3 Water Supply

The Pollaphuca Reservoir provides most of Dublin City’s water requirements. It also provides approximately half of the drinking water required for the Co. Kildare. This reservoir is located in the south of the study area.

The largest groundwater public supply present in the study area is Blessington Public Water Supply. This has an estimated yield of 830 m³/d. There are Group Water Schemes located at Hollywood, Ballyknockan and Baltyboys in County Wicklow, at Wolfestown, Killeel, Old Mill and Hempstown in County Kildare and at Brittas in Co. Dublin. Details of these water supply locations are shown on Table 4.10.4.3.1 below and illustrated in Figures 4.10.22 - 4.10.24.

Scheme	Local Authority	Source	Comments
Blessington	Wicklow	Borehole	830 m ³ /d
Baltyboys	Wicklow	Borehole	47 domestic, 23 commercial & agricultural
Ballyknockan	Wicklow	Borehole	72 domestic, 5 house & agricultural, 1 commercial
Hollywood	Wicklow	Borehole	190 domestic
Wolfestown	Kildare	Borehole	3 domestic
Killeel	Kildare	Borehole	65 domestic, 15 non domestic
Hempstown	Kildare	Spring Source	140 domestic, 20-30 agricultural
Brittas	South Dublin	Borehole	120 m ³ /d

Table 4.10.4.3.1: Water Supply Locations

4.10.5 Hydrogeology

Road construction may cause a lowering of water tables and as a result could cause dewatering of surrounding areas. It is important to assess the possible ecological impacts which dewatering may cause as a result of road construction. Several mitigation methods are available in order to reduce potential negative impacts on the surrounding hydrogeological and ecological habitats.

No groundwater dependant terrestrial ecosystems have been identified within the study area. Groundwater dependant ecosystems include turloughs, fens and raised bog.

4.10.5.1 Aquifers

An aquifer is an underground layer of water-bearing permeable rock or unconsolidated materials (gravel, sand, silt or clay) from which groundwater can be usefully extracted. An aquifer made up of sand or gravel will have numerous pore spaces that allow it to store large volumes of water. This type of aquifer is likely to be highly productive and would be important to the region. Other areas may contain impermeable material or of low porosity, resulting in a more difficult process for obtaining water, and probably a less productive aquifer.

The Geological Survey of Ireland has produced an aquifer classification scheme based on the value of the groundwater resources and the hydrogeological characteristics of the aquifer. There are three main classifications: Regionally Important, Locally Important and Poor Aquifers. This classification is illustrated in Figures 4.10.16 - 4.10.18.

Regionally Important Aquifers are subdivided according to the main groundwater flow regime within them. This includes Regionally Important Fissured Aquifers (**Rf**) and Regionally Important Karstified Aquifers (**Rk**). Locally Important Aquifers are subdivided into Moderately Productive Aquifers (**Lm**) and Aquifers which are Moderately Productive in Local Zones only (**LI**). Poor Aquifers are classed either generally unproductive except for local zones (**PI**) or generally unproductive (**Pu**). The classification of sand and gravel aquifers is based on the permeability, aerial extent and the thickness of the unsaturated zone. A Regionally Important Sand and Gravel Aquifer (**Rg**) should have an aerial extent in excess of 10 km². Locally important sand and gravel aquifers are denoted **Lg**. This is summarised as follows:

Regionally Important (R) Aquifers

- Karstified bedrock (**Rk**)
- Fissured bedrock (**Rf**)
- Extensive sand & Gravel (**Rg**)

Locally Important (L) Aquifers

- Sand & gravel (**Lg**)
- Bedrock which is Generally Moderately Productive (**Lm**)
- Bedrock which is Moderately Productive only in Local Zones (**LI**)

Poor (P) Aquifers

- Bedrock which is Generally Unproductive except for Local Zones (**PI**)
- Bedrock which is Generally Unproductive (**Pu**)

A further aquifer category (**Lk** – locally important karstified bedrock) was established during the course of the National Aquifer Delineation for the Water Framework Directive. Regionally important karstified bedrock aquifers (**Rk**) may, depending on the degree and nature of the karstification, be further characterised as either **Rkc** (dominated by conduit flow) or **Rkd** (dominated by diffuse flow).

The bedrock aquifer underlying the study area has three different classifications. The bedrock to the east and approximately 2 km to the west of the N81 is classed as a poor aquifer (**PI**). This means the aquifer is generally unproductive except for local zones. It has few fractures, fissures or joints and those present are poorly-

connected creating limited zones of higher permeability.

The bedrock underlying the area to the west of the N81 stretching from the north of the study area along the full extent of the western boundary has been classed as a poor aquifer (**Pu**).

There is bedrock classified as a Locally Important Aquifer (**LI**) situated to the north-eastern corner and stretching in a south-western direction along the N81. Similarly classified bedrock is situated in the southern end of the study area on the south side of the Pollaphuca Reservoir.

There are a number of Locally Important Gravel Aquifers (**Lg**) located in the lowland areas to the west of the study area. The gravel thickness ranges from 10 to 35 m in the deposits around Blessington. Boreholes drilled by the GSI almost 1 km north of Blessington recorded a depth of 74m with water at 22m below ground level. Another borehole encountered gravel to a depth of 104m and did not hit bedrock. Several other smaller gravel deposits are located around the study area but are not classified as locally important aquifers as they do not meet the aerial extent criterion of 10 km².

A large Locally Important Gravel Aquifer underlies Blessington, while another underlies Ballymore Eustace and stretches northwards for approximately 4km. Another Locally Important Gravel Aquifer is located at Eadestown. A considerable portion of the study area is underlain by Locally Important Bedrock Aquifers which have public supplies located within them. There are no Regionally Important Aquifers or large springs recorded within the study area.

4.10.5.2 Groundwater Vulnerability

The vulnerability of groundwater to contamination can vary greatly in different areas, depending on geological conditions. A shallow, unconsolidated sand/gravel aquifer is highly sensitive to contamination. The physical characteristics of the aquifer permit rapid infiltration of recharge. Rapid recharge leaves little time for contaminants to degrade naturally or be adsorbed before reaching the aquifer. Conversely, a deep, confined basalt aquifer has very low sensitivity. Infiltrating recharge could take years to reach the aquifer, allowing time for contaminants to degrade.

The classification guidelines, as published by the GSI, are shown in Table 4.10.5.2.1 overleaf. It shows that the less permeable and thicker the overburden overlying an aquifer is, the lower the vulnerability of the aquifer to contamination.

Figures 4.10.19 - 4.10.21 illustrate that there are several different classifications in the study area. The area to the east of Pollaphuca Reservoir is generally characterised as Extreme (E). This corresponds with the igneous rock type in this elevated area which is not protected from infiltration by a thick layer of soil. The thin layer of soil located in this area leaves the groundwater prone to potential contamination.

The area to the west of Pollaphuca Reservoir is generally characterised as having a moderate to high vulnerability. Some areas of extreme vulnerability are situated to the west of Blessington.

Small localised areas characterised as having low vulnerability are situated south of Ballymore Eustace and north of the Blessington Lakes. More detailed site specific vulnerability may be obtained by determining local subsoil thicknesses through the installation of a series of boreholes.

Vulnerability Rating	Hydrogeological Conditions				
	Subsoil Permeability (Type) and Thickness			Unsaturated Zone	Karst Features
	High Permeability (sand/gravel)	Moderate Permeability (e.g. Sandy subsoil)	Low Permeability (e.g. Clayey subsoil, clay, peat)	(Sand/gravel aquifers only)	(<30m radius)
Extreme (E)	0 - 3.0m	0 - 3.0m	0 - 3.0m	0 - 3.0m	-
High (H)	>3.0m	3.0 - 10.0m	3.0 - 5.0m	>3.0m	N/A
Moderate (M)	N/A	>10.0m	5.0 - 10.0m	N/A	N/A
Low (L)	N/A	N/A	>10.0m	N/A	N/A

Notes: (1) N/A - Not Applicable
(2) Precise permeability values cannot be given at present
(3) Release point of contaminants is assumed to be 1-2m below ground surface

Table 4.10.5.2.1: GSI Vulnerability Mapping Guidelines

4.10.5.3 Source Protection Areas

Groundwater Protection Zones are established by the GSI and the relevant Local Authority. The overall aim of the groundwater protection scheme is to preserve the quality of groundwater, particularly for drinking water purposes. Once the groundwater protection zone is defined for an area, the hazards posed by selected human activities can be evaluated to assess the appropriate risk management measures for these activities.

There are two groundwater source protection areas located in the study area. The first is the Kilteel Public Water Scheme which is located approximately 2 km west of Brittas. The second is for the Blessington Public Water Scheme and is located at the town of Blessington (See Figures 4.10.22 - 4.10.24). The inner source protection area is located in the centre of the town while the outer source protection area is located approximately 1 km to the northwest, along the R410 road to Eadestown. There are other public water supplies within the area, although source protection zones have not yet been published for these sites.

4.11 Noise and Air Quality

4.11.1 Noise

Under the NRA Guidelines for the Treatment of Noise & Vibration in National Road Schemes, the Constraints Study should identify any receptors which may be deemed particularly sensitive to noise and/or vibration. A drawing showing areas which may be sensitive to noise and/or vibration has been prepared (Figures 4.11.1 - 4.11.3). Among the areas identified on this drawing are:

- Residential/Built-Up Areas
- Churches & Graveyards
- Schools
- Sports Grounds
- Special Areas of Conservation & Special Protection Areas
- Protected Structures
- Equine Farms
- Hospitals

Noise can be described as unwanted sound. The areas mentioned above are all areas sensitive to excess sound and/or vibration levels and will be addressed in more detail at Route Selection Stage. However, it is important to identify areas sensitive to excess sound and/vibration levels. NRA Guidelines recommend that new national road schemes are designed to maintain $60\text{dB}L_{\text{den}}$ (where L_{den} is the long term average sound values for day, evening and night). It is important to ensure that anticipated noise levels account for the expected increase in traffic volumes for the proposed route.

Examples of receptors which are, or have the potential to be, particularly sensitive to noise and /or vibration are residential areas, schools, hospitals, places of worship, heritage buildings, special habitats, amenity areas in common use and designated quiet areas.

Residential areas, churches, schools and hospitals are sensitive to noise due to possible health implications from excessive and/or prolonged sound levels. Horses may be sensitive to noise and therefore it is important to identify the location of equine farms within the study area. During the development and assessment of possible scheme improvement options, sensitive receptors within 300m of the scheme are identified. Beyond 300m, the effects of any road improvements are likely to be small.

Protected structures and listed buildings are sensitive to excess vibration levels due to their age and potentially delicate structure. It is advisable to ensure that such structures which are potentially sensitive to vibration are identified and avoided where possible.

Special Areas of Conservation (SAC's) are prime wildlife conservation areas in the country and are protected under the EU Habitats Directive as transposed into Irish law in the EU (Natural Habitats) Regulations, 1997 (as amended in 1998 and 2005). Special Protection Areas (SPA's) are areas listed under the EU Birds Directive designated to protect migratory and vulnerable bird species. As previously mentioned in Section 4.9, both SAC's and SPA's have been identified within the study area. These areas have been included in the list of receptors deemed sensitive to noise and/or vibration, since excess sound levels could potentially disturb the wildlife. Figures 4.11.1 – 4.11.3 show areas identified as sensitive receptors.

The location of Pollaphuca Lake will also be taken into consideration during the Route Selection Stage with regards to noise pollution, since sound will travel more easily across a flat surface such as the lake as there are fewer obstructions to the sound waves.

While road traffic will emit a certain level of sound in the form of a line source, other sources of noise should

also be identified within the study area. Examples of potential noise emitters within the study area include quarries and/or rock breaking, hydroelectric power stations among others. Locations of other sources of noise will be taken into consideration at Route Selection Stage. This is important where a proposed route will pass nearby an existing noise emitter. The contribution of the road traffic sound to that from an existing noise emitter may result in an unacceptable level of sound being received, especially in an area which is predominantly rural, since recommended sound levels in rural areas are lower than those of urban areas.

4.11.2 Air Quality

The air quality in Ireland is classed as good. Emissions of pollutants from road traffic are one of the main threats to air quality in Ireland. Air quality is generally better in rural areas, since pollutants from vehicles, industries and domestic fuel burning is higher in urban areas. The most common pollutants are sulphur dioxide, nitrogen dioxide and particulate matter. Current legislation relating to air quality standards in Ireland is brought about from the EU Air Quality Framework Directive and its “daughter” directives. The Clean Air for Europe (CAFE) Directive was published in May 2008 and will replace the above directive when it is brought into Irish law. This will set limits for air quality parameters.

The EPA monitors air quality standards at certain locations around Ireland. While there are no monitoring locations within the proposed study area for this Scheme, air quality standard classification for monitoring stations close to the study area are as follows:

- Tallaght – Current Air Quality is Good
- Bray – Current Air Quality is Good
- Avondale – Current Air Quality is Very Good
- Naas – Current Air Quality is Good

Air quality may deteriorate slightly adjacent to the N81 route. It is also possible that dust and particulate matter may be emitted by quarries. It is also important to note that particulate matter $\text{PM}_{2.5}$ (diameter of particle is less than $2.5\mu\text{m}$) maximum levels are to be listed as part of the CAFE Directive. Only PM_{10} (diameter of particle is less than $10\mu\text{m}$) levels were specified previously.

At the Constraints Stage, the objective is to identify sensitive receptor locations within the study corridor. Residential areas can be identified as both sensitive receptors and emitters since domestic fuel will release air pollution when burned.

Sensitive receptor locations include: areas of residential housing, schools, hospitals, places of worship, sports centres i.e. locations where members of the public are likely to be regularly present. Designated ecology sites are also potentially sensitive receptors.

Road traffic within Ireland contributes approximately 12% of the natural emissions of carbon dioxide (CO_2) and about 41% of national emissions of nitrogen oxides (NO_x). Such emissions can be reduced or limited by facilitating the efficient movement of vehicles through appropriate improvement of the national road network, including the provision of improvement schemes for areas experiencing traffic congestion.

During the development and assessment of possible scheme improvement options, sensitive receptors within 200m of the scheme would be identified. An assessment would also be undertaken at this stage to forecast concentrations of air pollution from road traffic for each option

4.12 Services & Utilities

For a road development which is linear in nature, the locations and nature of existing services must be taken into account and could serve as a constraint during the Route Selection Stage. Future developments of such services should also be examined and incorporated if possible into design proposals.

To identify the services existing within the study area, the major service providers as well as the relevant departments in South Dublin, Wicklow and Kildare County Councils have been contacted. (See to Appendix C for all bodies consulted)

A detailed study of existing services will be carried out during the selection of the preferred route corridor. Such a study would outline proposals for the protection of existing services and for service diversions. The accommodation of future services capacity would also be considered.

All known existing services are shown in Figures 4.12.1 - 4.12.9 and are discussed in the sections below.

4.12.1 Water Supply

The Pollaphuca Reservoir is situated within the study area. This reservoir was developed to provide water for Dublin. The Pollaphuca dam is situated south of Ballymore Eustace. Every day 540 million litres of high quality drinking water is produced and supplied to over 1.4 million customers in the Dublin Region. Just under a half of this comes from the Ballymore Eustace Water Treatment Plant. The Dublin City Council Engineering Department has initiated a scheme to continue and improve the provision of a clean and reliable water supply. As part of this, the water treatment plant in Ballymore Eustace is being expanded with the construction of new filters, sedimentation tanks, reservoir, administration and laboratory facilities. With an investment in the region of €30 million to €50 million the output will increase from 250 Mld to 318 Mld. There are a number of water mains located within the study area and these are shown on the services drawing Figures 4.12.1 - 4.12.3. The most significant of these is a 1.6m diameter pipes (coming from the water treatment plant in Ballymore Eustace).

Kildare National Roads Design Office have identified eight group water schemes located in the vicinity of the study area. These are listed in Table 4.12.1.1 and shown in Figures 4.10.22 - 4.10.24. The largest public supply present in the study area is Blessington PWS which has an estimated yield of 830 m³/d. As the scheme progresses, Kildare National Roads Design Office will continue to liaise with the Local Authorities and residents to identify any possible further group or private water supplies. One such private water supply already identified is located at St. Brigid's Hospital, Crooksling.

Scheme	Local Authority	Source	Comments
Blessington	Wicklow	Borehole	830 m ³ /d
Baltyboys	Wicklow	Borehole	47 domestic, 23 commercial & agricultural
Ballyknockan	Wicklow	Borehole	72 domestic, 5 house & agricultural, 1 commercial
Hollywood	Wicklow	Borehole	190 domestic
Wolfestown	Kildare	Borehole	3 domestic
Kilteel	Kildare	Borehole	65 domestic, 15 non domestic
Hempstown	Kildare	Spring Source	140 domestic, 20-30 agricultural
Brittas	South Dublin	Borehole	120 m ³ /d

Table 4.12.1.1: Group Water Schemes in study area

The Boherboy Water Supply Scheme

This involves a major upgrading and expansion of the water supply network and storage infrastructure in the areas of Saggart, Rathcoole, Brownsbarn, Citywest, the southern parts of Tallaght and areas of Ballycragh, Old Bawn, Knocklyon, Ballyboden and Ballycullen. As can be seen in Figures 4.12.1 - 4.12.3, this scheme starts at Kiltalown and travels West across the study area through Corbally and towards the Saggart direction. This scheme provides for the construction of 41 km of watermain, new reservoirs at Saggart and Kiltalown together with a pumping station in Saggart. Since this scheme will provide consumers with reliable, modern water storage and supply infrastructure, it will facilitate new development in the areas previously mentioned above.

The contract for the works on this scheme was awarded to Pierse Contracting Ltd. on 18th March 2008 and construction has commenced.

A section of the scheme travels along the route of the proposed Tallaght By-Pass extension at Corbally.

South Dublin County Council have indicated that an upgrade of the services supplying the Brittas area may be considered in conjunction with any proposed upgrade of the N81. This could possibly include the installation of two additional pipes from the Embankment to Brittas. One would be a watermain and the other a sewer rising main.

The West Wicklow Water Supply Scheme

Stage 1 of the West Wicklow Scheme will upgrade and improve the water supply infrastructure serving the urban area of Blessington, with the water supply being sourced from Dublin City Council's water treatment plant at Ballymore Eustace. The works also comprise a new reservoir at Glending Wood, a pumping station and some 8 kilometres of water distribution mains. The scheme will improve the reliability of the water supply to Blessington and will cater for current and future residential and commercial development in the area. Construction on this stage is well underway and it should be in operation in 2009.

Stage 2 of the scheme will improve the water supply for the rural areas of Blessington and the towns and villages of Baltinglass, Dunlavin, Hollywood, Stanford and Donard. Wicklow County Council have proposed some possible reservoir locations for this section, however none of these have been chosen to date and it is possible for these to change. Details of this scheme are shown in the services drawings 4.12.1 - 4.12.2.

It should also be noted that Wicklow County Council are progressing plans to connect some of the outlying area around Blessington into the regional supply. Therefore as the scheme progresses, Kildare National Roads Design Office will continue to liaise with Wicklow County Council in relation to the status of these plans.

4.12.2 Sewerage

Kildare County Council has confirmed that there is no sewerage infrastructure operated or maintained by Kildare County Council within the study area.

South Dublin County Council Water Services Department have submitted drawings indicating the locations of surface water sewers and foul sewers. These mainly serve the built up locations around Tallaght and the network of sewerage piping generally follows the pattern of streets and roadways. The sewerage networks are shown in Figures 4.12.1 - 4.12.3. As mentioned in Section 4.4.3, South Dublin County Council have identified in their County Development Plan that it is an objective of the Council to provide a sewerage scheme for Brittas which will integrate the village into the Greater Dublin Drainage System.

Wicklow County Council has also provided drawings showing the locations of the Blessington Sewer Network. Included was information in relation to an application by Wicklow County Council for a Wastewater Discharge License, consisting of a 250mm diameter Pressure Main from Blessington Wastewater Treatment Plant along the N81 to the River Liffey at Goldenfalls. Details of this can also be seen in Figures 4.12.1 - 4.12.3.

Kildare National Roads Design Office will continue to liaise with the relevant local authorities as the scheme progresses in relation to any future upgrades to the sewerage infrastructure in the study area.

4.12.3 Cable Television

There are currently existing NTL/Chorus services within the study area. These occur in the built up area to the north of the study area adjacent Jobstown. Figures 4.12.4 - 4.12.6 illustrates the location of underground ducting. The ducting contains live fibre, transmitting data traffic of a highly sensitive nature.

Ducting capacity for future cabling schemes may be considered during the design stages, once a preferred route has been selected.

4.12.4 Gas

Bord Gáis has supplied Kildare National Roads Design Office with information on the location of their gas network within the study area. This can be seen in Figures 4.12.7 - 4.12.9.

As with the other services and utilities, future upgrades to the distribution network or plans to accommodate gas pipelines will be reviewed again at the Route Selection and/or Design Stage.

4.12.5 Electricity

The ESB has identified an extensive network throughout the study area. This consists of 38kV and higher voltage overhead lines and underground cable routes, medium voltage 10kV/20kV overhead lines, low voltage 400V/230V overhead lines and medium voltage/low voltage underground cable routes. These are all shown in Figures 4.12.7 - 4.12.9.

Also located in the study area is the ESB hydroelectric station at Pollaphuca. This is one of six hydroelectric stations in Ireland operated by the ESB.

4.12.6 Telecommunications

Eircom's network consists of both underground and overground cables located along the public roads within the study area.

The mobile phone companies Vodafone, O2 and Meteor have all indicated that they have infrastructure in the form of masts at a number of locations within the study area. These are shown in Figures 4.12.4 - 4.12.6 in addition to planned locations of masts for the future.

The re-routing of any network cabling may be unavoidable. Local and domestic connections will probably be affected by the preferred route, and will have to be dealt with on a case-by-case basis.

It may be proposed to construct linear ducting, road crossings and draw pits along the proposed route. This would allow for future capacity, or undergrounding of existing services where required. This can be considered further during the design stages, once a preferred route has been selected.

BT Communications Ltd have also indicated that they have utilities within the study area, these can be seen in Figures 4.12.4 - 4.12.6.

4.13 Topographical Survey

Ordnance Survey Ireland have been commissioned to carry out a Lydar survey of the study area. From this information a digital ground model for the majority of the study area will be produced.

This ground model will be used at the next stage of the road design process for route option development.

5.0 CONCLUSIONS & RECOMMENDATIONS

The purpose of this report is to identify any potential constraints that may influence any routes of the proposed N81 Hollywood Cross to Tallaght - Road Improvement Scheme.

During the compilation of this Constraints Study Report, all known constraints were investigated by the Kildare National Roads Design Office.

The investigations were carried out through;

- Safety Review of the existing N81.
- Liaison with statutory and non-statutory bodies.
- Examination of the County Development Plans for South Dublin, Wicklow and Kildare.
- Liaison with the relevant departments within South Dublin, Wicklow and Kildare County Councils, and with the NRA.
- Appointment of consultants to carry out surveys in specialist areas.

All constraints identified have been mapped out in the Constraints Drawings.

The information collected is both wide-ranging and comprehensive and will provide a sound basis for the development of route options. Data collection will continue throughout the Route Selection Stage and beyond, concentrating on the route corridors and on the Preferred Route Corridor when it is identified.

Kildare National Roads Design Office would like to acknowledge with thanks the information provided by all bodies, groups and organizations in the preparation of this report.

6.0 REFERENCES & BIBLIOGRAPHY

- Aerial photographs
- Bird Watch Ireland www.birdwatchireland.ie
- Blessington Local Area Plan 2006-Background Issues Paper
- Bord Fáilte
- Bus Éireann: Timetables www.buseireann.ie
- CIE/Iarnród Éireann: www.cie.ie
- County Wicklow Film Commission www.wicklowfilmcommission.com
- Database of Excavation Reports www.excavations.ie
- Department of the Environment, Heritage & Local Government: Record of Monuments and Places Maps; Dublin (sheets 21, 24); Kildare (Sheets 19, 20, 24, 25, 29); Wicklow (Sheets 1, 5, 6, 9, 10, 15)
- Design Manual for Roads and Bridges
- Donegal National Roads Design Office
- Dublin Bus: Timetables www.dublinbus.ie
- Dublin City Council Website www.dublincity.ie
- Early maps and estate maps
- EuroRAP Report: www.eurorap.org
- First Edition Ordnance Survey 1829-1841, 6 inches: 1 mile: Dublin (Sheets 21, 24); Kildare (Sheets 19, 20, 24, 25, 29); Wicklow (Sheets 1, 5, 6, 9, 10, 15)
- First Edition Ordnance Survey 1843, 6" : 1 mile, Dublin - Sheets 3388, 3389 & 3452
- FitzGerald, Lord Walter (1902); Ballymore Eustace and its neighbouring antiquities, 343-360 *JCKAS* Vol. III, No. 6
- Framework and Principles for the Protection of the Archaeological Heritage, 1999, Department of Arts, Heritage, Gaeltacht and the Islands
- Geological Survey of Ireland: www.gsi.ie
- Headland Archaeology Ltd., *N81 Tallaght to Hollywood Cross Constraints Study*, (Unpublished Report), 2008
- Heritage Act, 1995
- Irish Antiquities Division, National Museum of Ireland Topographic Files
- Irish Water-ski Federation: www.iwsf.ie
- Kildare County Council County Development Plan 2005-2011
- *List of Preservation Orders. National Monuments Division*; The National Monuments Section of the Department of the Environment, Heritage and Local Government
- *List of Monuments in State Ownership or Guardianship*; The National Monuments Section of the Department of the Environment, Heritage and Local Government
- Local archaeological society journals, archives and colloquial material
- Local Government Planning and Development Act, 2000
- National Cultural Institutions Act, 1997
- National Inventory of Architectural Heritage (NIAH)
- National Inventory of Architectural Heritage www.buildingsofireland.ie
- National Monuments Act 1930, Amended 1954, 1987, 1994 and 2004 Roads Act, 1993
- National Parks Wildlife Service www.npws.ie
- Nationwide Data Collection Traffic Consultants
- Natura Environmental Consultants *N81 Tallaght to Hollywood Cross Constraints Report*
- NRA Project Management Guidelines – March 2000
- NRA Publication: *Guidelines for the Assessment of Archaeological Heritage Impacts of National Roads Schemes 2005*
- NRA Publication: *Guidelines for the Assessment of Architectural Heritage Impacts of National Roads Schemes 2005*
- NRA Publication: *Guidelines for the Assessment of Ecological Impacts of National Roads Schemes*
- NRA Publication: *Guidelines for the Treatment of Air Quality during the Planning and Construction of National Road Schemes*
- NRA Publication: *Guidelines for the Treatment of Noise and Vibration in National Road Schemes*
- NRA: Accident Database of Injury Crashes
- NRA: National Roads and Traffic Flow Figures (RT 590 - RT 630)
- O'Donovan, J (1839) *Ordnance Survey Name Books, County Dublin*. Reproduced under the direction of Rev. M. O'Flanagan, 1930, Bray
- O'Donovan at al (1840) *Ordnance Survey Letters for County Dublin*. Reproduced under the direction of Rev. M. O'Flanagan, 1928, Bray
- Ordnance Survey Name books/Letter/Memoirs
- Philip Farrelly & Co. Agricultural Consultants *N81 Tallaght to Hollywood Cross Agricultural Constraints Report*
- Published Wicklow County Archaeological Inventory
- Quality Bus Network Project Office
- Record of Monuments and Places (RMP) www.archaeology.ie
- Records of Monuments and Places Maps, Dublin - Sheets 3388, 3389 & 3452
- Relevant published archaeological corpora
- Second Edition Ordnance Survey 1897-1913, 6 inches: 1 mile; Dublin (Sheets 21, 24); Kildare (Sheets 19, 20, 24, 25, 29); Wicklow (Sheets 1, 5, 6, 9, 10, 15)
- Sites and Monuments Record (SMR) www.archaeology.ie
- South County Dublin, Kildare and Wicklow County Development Plans
- South Dublin County Council Development Plan 2004-2010
- South Dublin County Council Website: www.sdcc.ie
- The Architectural Heritage (National Inventory) and Historic Monuments (Miscellaneous) Provisions Act. 1999
- Third Edition Ordnance Survey 1909, 25" : 1 mile, Dublin - Sheets 3388, 3389 & 3452
- Urban Archaeological Surveys – Dublin, Kildare and Wicklow
- White Young Green Environmental Consultants, *N81 Constraints Study Soils, Geology, Hydrology & Hydrogeology*
- Wicklow County Council Development Plan 2004-2010
- Wicklow County Council Website: www.wicklow.ie
- *Wicklow Graveyards Survey, Architectural Recording and Research*, 2006