Kildare County Council

R445 Newhall Junction Improvement Scheme

REPORT OF PARTICULARS OF PROPOSED SCHEME TO BE MADE AVAILABLE FOR PUBLIC DISPLAY

(In accordance with Section 179 3(b) of the Planning and Development Acts, 2000 – 2017 and Part 8 of the Planning and Development Regulations 2001 – 2017)

Kildare County Council **Aras an Chontae** **Devoy Park** **Naas W91 X77F**	KILGALLEN & PARTNERS CONSULTING ENGINEERS	**Kilgallen & Partners** **Consulting Engineers** **Well Road, Portlaoise** **Co. Laois**
	19041 C-R-P8 **Issue 01**	

REVISION HISTORY

Client	Kildare County Council
Scheme	R445 Newhall Junction Improvement Scheme
Title	Report of Particulars of Proposed Scheme to be made available for Public Display

Date	Details of issue	Issue No.	Origin	Checked	Approved
08/04/21	Part 8	01	PB	MK	MK

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1. INTRODUCTION

In accordance with Part XI, Section 179 of the Planning and Development Act 2000 as amended, and Part VIII, Article 80 & 81 of the Planning and Development Regulations 2001 as amended, Kildare County Council has given notice of its intention to carry out development ['the Proposed Scheme'] comprising improvement works to a cross-roads junction known as Newhall Crossroads and located on the R445 Regional Road between Naas and Newbridge ['the Site'].

This report is prepared for inclusion with the Plans and Particulars being made available for public inspection in accordance with the above Act and Regulations. It describes the need for and objectives of the Proposed Scheme and provide a detailed description of it.

This report is to be read in conjunction with the following drawings which show details of the Proposed Scheme and which, along with this Report, will also be made available for public inspection:

Drawing No	Title
Drawing No. 19041-C-DR-101	Cover Site Location
Drawing No. 19041-C-DR-102	General Layout
Drawing No. 19041-C-DR-103	Typical Sections
Drawing No. 19041-C-DR-104	Longitudinal Sections though Proposed Roads
Drawing No. 19041-C-DR-501	Drainage and Services

Table 1-1 Documents Made Available for Inspection

2. NEED FOR SCHEME

2.1 Description of existing Newhall Crossroads

Newhall Crossroads is located within an 80 km/h speed limit zone on the R445 Regional Road, a dual carriageway between Naas and Newbridge. It is a junction of three roads: the R445 Regional Road between Naas and Newbridge, the L2031 local road which runs north from the R445 towards Carragh [also referred to as Carragh Road] and the L6064 local road which runs south of the R445 to Ladytown [hereafter referred to as Ladytown Road]. The Site is located in the townlands of Newhall and Ladytown. Figure 2-1 shows Newhall Crossroads in relation to nearby junctions on the R445.

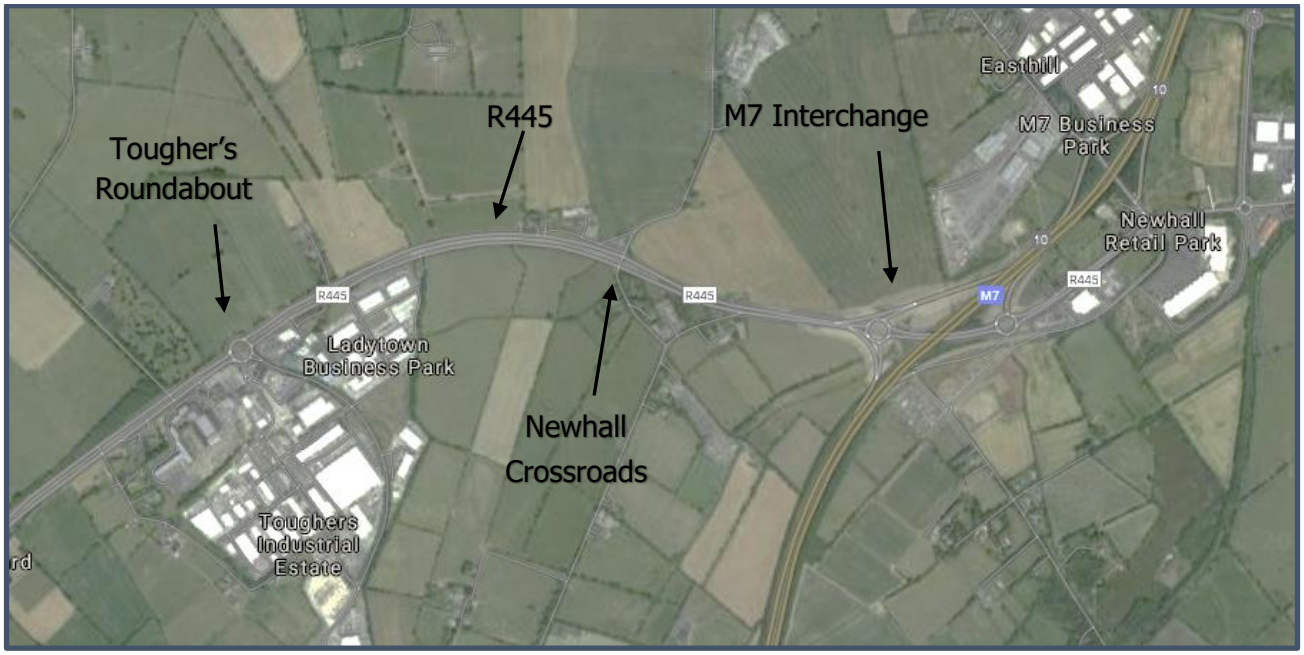


Figure 2-1 Newhall Crossroads – Context

The existing junction at Newhall Crossroads is considered unsafe as it is a cross-roads junction on a busy dual carriageway which includes a median gap that allows the following manoeuvres:

- local road traffic to cross both sides of the dual carriageway to get to the opposing local road;
- local road traffic to cross the near side of the dual carriageway to turn right on to the far side of the dual carriageway;
- R445 traffic to turn right across the opposing R445 carriageway to get to a local road;
- R445 traffic to complete U-turns.

On both R445 approaches, the pavement widens to provide auxiliary diverge lanes for traffic turning left and right, resulting in four lane approaches to the junction for the R445.

The Design Manual for Roads and Bridges (TII Publications) published by Transport Infrastructure Ireland [TII] is the appropriate design standard for the R445 at this location. This standard does not permit median openings on new or upgraded dual carriageways. Furthermore, TII is currently taking action to remove junctions of this type on national roads.

The horizontal alignments of both Carragh Road and Ladytown Road include sharp horizontal curves that restrict approach visibility to Newhall Crossroads.

A short local access road serving six houses and a farmyard runs parallel to the R445 immediately west of Newhall Crossroads. The access road has a left-in / left-out junction with the R445 240m west of Newhall Crossroads and a junction with Carragh Road within 15m of the crossroads.

360m east of Newhall Crossroads, there is a left-in / left-out junction on the southern side of the R445. This junction serves a short local road known as Lady's Cross Road. The geometry of this junction is not appropriate for a busy dual carriageway. Lady's Cross Road runs in a southwest direction from the R445 to form a priority junction with Ladytown Road at a point where Ladytown Road is on a very sharp horizontal bend (radius approximately 25m).

Although there are currently no facilities for pedestrians / cyclists on the R445, the Greater Dublin Area Cycle Network Plan envisages cycle facilities on the entire length of the R445 between Newbridge and Naas. No timeframe has been set for implementation of this plan.

Figure 2-2 shows the layout of the existing junction with the deficiencies described above marked thereon. The image in Figure 2-3 shows an example of the undesirable turning movements that occur at the junction.

In 2013 Kildare County Council carried out a Part 8 process for development at the existing junction comprising closure of the median and changing of the Carragh Road and Ladytown Road junctions to left-in / left-out only. The members of Kildare County Council voted not to proceed with this development.

Figure 2-2 Newhall Crossroads - Layout

Figure 2-3 Undesirable Turning Movement at Existing Junction

2.2 Collision History

There have been 35 recorded accidents at this junction from 1996 – 2014, including 1 fatality, 3 serious injuries and 31 minor injuries. More recently there is local knowledge of a very serious collision in November 2017 between a car and a truck. The driver of the car was badly injured and the car was overturned and crushed in the collision. The map in Figure 2-4 shows the collision information for the junction on the RSA website. The map does not include either the fatal collision or the recent serious collision referred to above.

A 2013 report by Kildare County Council found the collision rate for the crossroads to be 380 collisions per 10 million vehicle kms; this is over 500% higher than the RSA average collision rate for County Kildare, which is 70 collisions per 10 million vehicle kms.

A high-level of angle-turn collisions points to the layout of the junction being a causative factor.

2.3 Garda Traffic Division

The Garda Traffic division have written to Kildare County Council on three occasions, in 2003, 2012 and 2018, to state their concern about the safety of the junction.

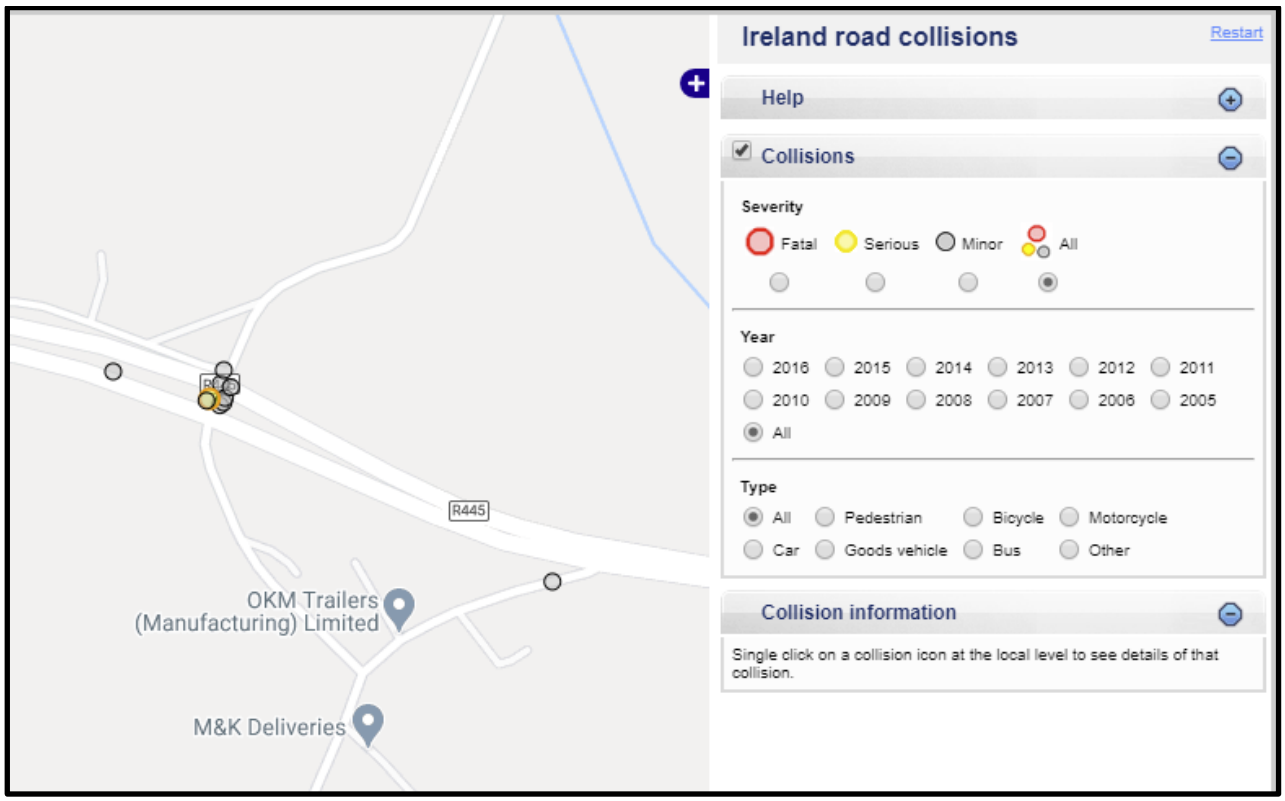


Figure 2-4 RSA Collision Records

2.4 Traffic Survey

An automated survey of traffic movements at the junction was carried out in September 2019. The results of this survey in terms of daily turning movements are presented in Table 2-1 and shown graphically in Figure 2-5.

The survey revealed a significant number of turning movements in all directions between the R445 and the local roads; in particular a large number of vehicles were recorded making the hazardous right turns from the R445 on to Carragh Road and from Carragh Road on to the R445.

Furthermore, the recently completed M7 interchange appears to be generating an increase in the number of vehicles making the unsafe movements between Carragh Road and the R445 east of Newhall Crossroads.

		To			
		Carragh Road	R445 Westbound	Ladytown Road	R445 Eastbound
From	Carragh Road	1	1,111	135	1,025
	R445 Westbound	716	121	73	9,865
	Ladytown Road	134	232	0	206
	R445 Eastbound	1,226	10,124	180	27

Table 2-1 Traffic Movements at Newhall Crossroads (2019 PCU)

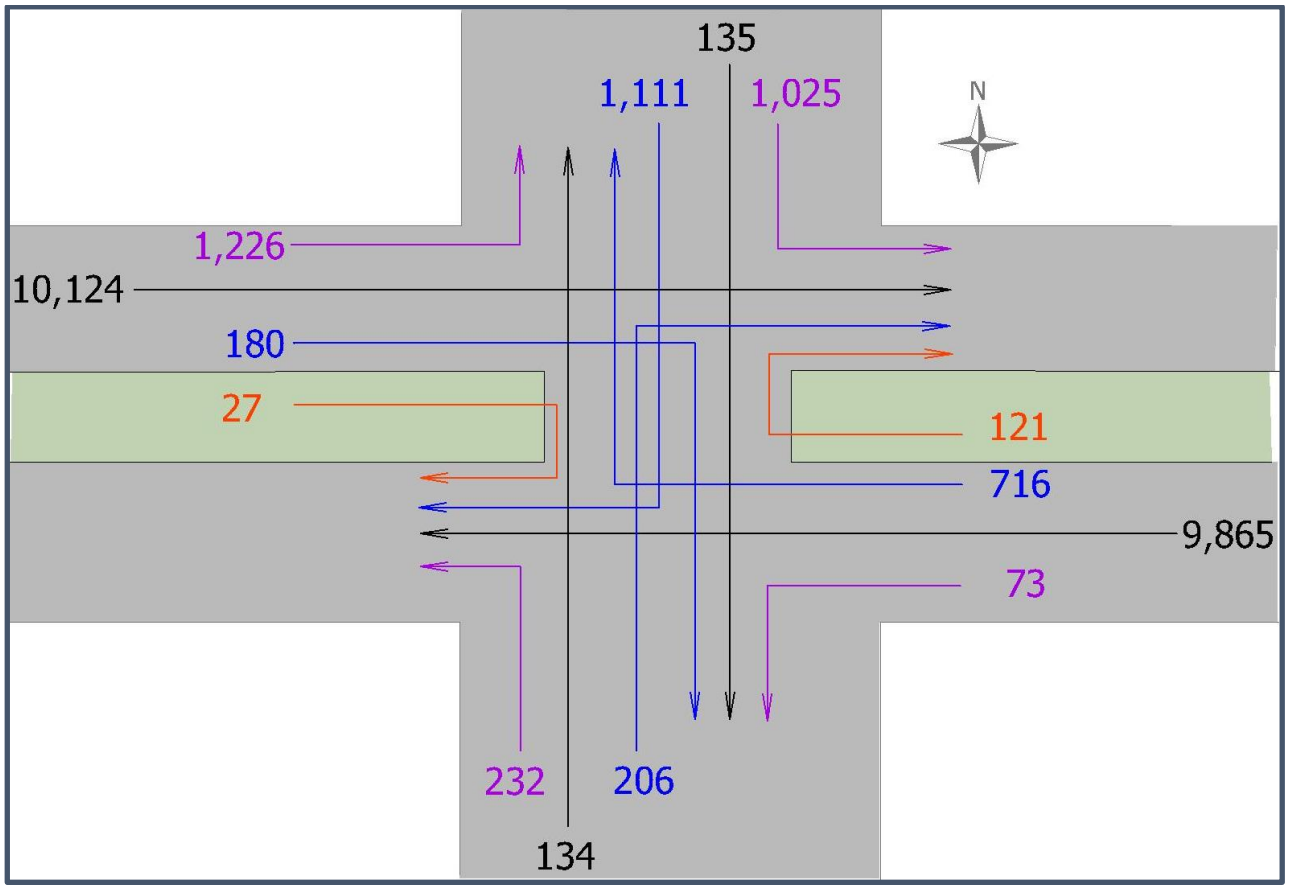


Figure 2-5 Traffic Movements at Newhall Crossroads (2019 PCU)

3. PLANNING CONTEXT

Development in Kildare must be carried out in accordance with the Kildare County Development Plan (CDP) 2017 – 2023.

The County Development Plan sets out the following general policies and objectives in regard to the road network:

RS1 Ensure ongoing competitiveness and the efficient movement of people and goods in the county through the improvement and expansion of the road and street network within the county to support economic development and provide access to existing communities, new communities, employment areas and development.

RS2 Improve safety on the road and street network and manage congestion

The County Development Plan sets out the following policies and objectives specific to Regional Roads:

RR 1 Maintain and improve the capacity, safety and function of the regional road network (as finance becomes available) and to ensure that it is planned for and managed to enable the sustainable economic development of the county and wider area while encouraging a shift towards more sustainable travel and transport in accordance the Core Strategy, the Spatial Planning and National Roads Guidelines (2012) and the Transport Strategy for the Greater Dublin Area 2016-2035

RR 4 Improve and re-align where necessary and as funds allow, the regional roads.

RRO 2 Seek to progress for improvement, subject to funding, the R445 Regional Road from Naas to the county boundary at Killinure via Newbridge, Kildare & Monasterevin

The Proposed Scheme thus complies with the policies and objectives of the County Development Plan.

Newhall Crossroads is located approximately 500m west of the western boundary of the recently published Draft Naas Local Area Plan 2021 – 2027.

4. SCHEME OBJECTIVES AND DESIGN STANDARD

4.1 Objectives of Proposed Scheme

Objectives have been developed to reflect the identified need for the Proposed Scheme. These are defined in Table 4-1.

Objective	Delivery
Economy	Reduce collision costs by providing a safer environment. Improve connectivity between the lands north and south of the R445 and the strategic road network.
Environment	Avoid significant environmental impacts if possible or, where avoidance is not possible, to mitigate the impact by incorporating appropriate mitigation measures into the Scheme design
Accessibility and Social Inclusion	Not impact negatively on accessibility and social inclusion and where possible improve on these measures.
Integration	The connection between the Local Roads north and south of the R445 should not be compromised. The strategic importance of the R445 must not be compromised. The Scheme must not impact on local land-use strategies and must not place constraints on regional development. The Scheme must not compromise, and if possible should facilitate, delivery of the pedestrian / cyclist link between Naas and Newbridge.
Safety	Improve traffic safety and provide a safer environment for all road users.

Table 4-1 Objectives of Proposed Scheme

4.2 Design Standard for Proposed Scheme

The Design Standard for the Proposed Scheme will be the Design Manual for Roads and Bridges (TII Publications).

5. DESCRIPTION OF ALTERNATIVES FOR PROPOSED SCHEME

Five options were developed for the Proposed Scheme and each is described hereunder. Given the pressing need for the Proposed Scheme, it is assumed that Kildare County Council is committed to improvement of the junction. On this basis, Option 1 is the Do-Minimum option.

Option 1 – Newhall Crossroads Changed to Left-in / Left-Out Only (Do Minimum)

Option 1 is shown in Figure 5-1.

The gap in the median at Newhall Crossroads will be closed. The Ladytown Road and Carragh Road junctions with the R445 will be Left-in / Left-out only; these local roads will receive no more than the minimum realignment required for the geometry of the revised junctions.

Carragh Road traffic assigning to the westbound R445 will have to turn left entering the R445 and travel 800m to a roundabout at the M7 interchange, where it can do a full circuit of the roundabout to access the westbound R445. This requires a round trip of 1600m. Traffic on the R445 westbound assigning to Carragh Road will have to travel 1100m beyond the junction to Tougher's Roundabout, where it can do a full circuit of the roundabout to access the eastbound R445. This requires a round trip of 2200m.

A similar scenario will apply for the Ladytown Road, except the roundtrip will be 2200m for Ladytown Road traffic assigning to the eastbound R445 and 1600m for traffic on the eastbound R445 assigning to Ladytown Road.

The following junctions will be closed:

- R445 / Lady's Cross Road east of Newhall Crossroads;
- R445 / Local Access Road west of Newhall Crossroads.

Traffic on the Local Access Road will no longer access the R445 directly and instead will have direct access to Carragh Road only.

Traffic on the Lady's Cross Road will no longer access the R445 directly and instead will have direct access to Ladytown Road only.

Option 2 – Roundabout East of Existing Junction

Option 2 is shown in Figure 5-2.

The following junctions will be closed:

- Newhall Cross Roads, including the median gap;
- R445 / Lady's Cross Road east of Newhall Crossroads;
- R445 / Local Access Road west of Newhall Crossroads.

A roundabout will be constructed on the R445 240m east of Newhall Crossroads. Both Carragh Road and Ladytown Road will be realigned to meet the R445 at the roundabout.

Traffic on the Local Access Road will no longer access the R445 directly and instead will have direct access to Carragh Road only.

Traffic on the Lady's Cross Road will no longer access the R445 directly and instead will have direct access to Ladytown Road only.

Realignment of the Ladytown Road and Carragh Road will remove the sharp horizontal curves on both of these approaches.

Option 2 requires land acquisition on both sides of the R445.

Option 3 – Roundabout at Location of Existing Junction

Option 3 is shown in Figure 5-3.

Option 3 proposes a roundabout on the R445 at the same location as Newhall Crossroads. Carragh Road and Ladytown Road will receive no more than the minimum realignment required for the entry and exit geometry at the roundabout. Significant verge widening will be required on the realigned local roads to provide appropriate forward visibility on the local roads.

The following junctions will be closed:

- R445 / Lady's Cross Road east of Newhall Crossroads;
- R445 / Local Access Road west of Newhall Crossroads.

Traffic on the Local Access Road will no longer access the R445 directly and instead will have direct access to Carragh Road only.

Traffic on the Lady's Cross Road will no longer access the R445 directly and instead will have direct access to Ladytown Road only.

Option 3 requires land acquisition on both sides of the R445.

Option 4 – Signalised Cross Roads

Option 4 is shown in Figure 5-4.

The basic configuration of the junction will remain unchanged. However the crossroads will be signalised. The geometry of the junction and the approach roads will be modified as required for a signalised junction.

The following junctions will be closed:

- R445 / Lady's Cross Road east of Newhall Crossroads;
- R445 / Local Access Road west of Newhall Crossroads.

Traffic on the Local Access Road will no longer access the R445 directly and instead will have direct access to Carragh Road only.

Traffic on the Lady's Cross Road will no longer access the R445 directly and instead will have direct access to Ladytown Road only.

Carragh Road and Ladytown Road will receive no more than the minimum realignment required for the geometry of the signalised junction.

Option 5 – Roundabout at Location of Existing Junction, Local Roads Realigned

Option 5 is shown in Figure 5-5.

Option 5 is the same as Option 3 except Carragh Road and Ladytown Road will be realigned to eliminate sharp curves on approach roads.

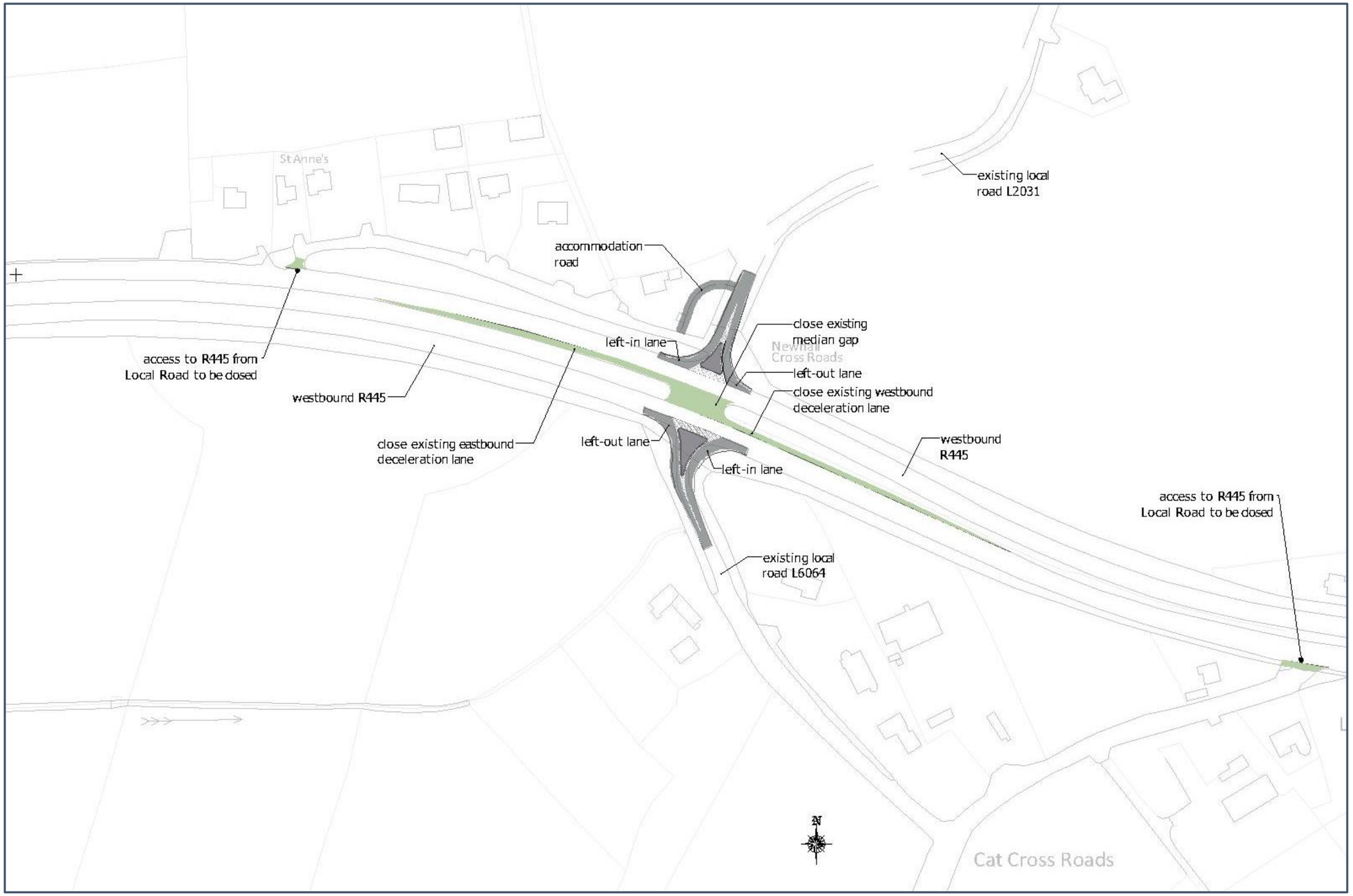


Figure 5-1 Option 1

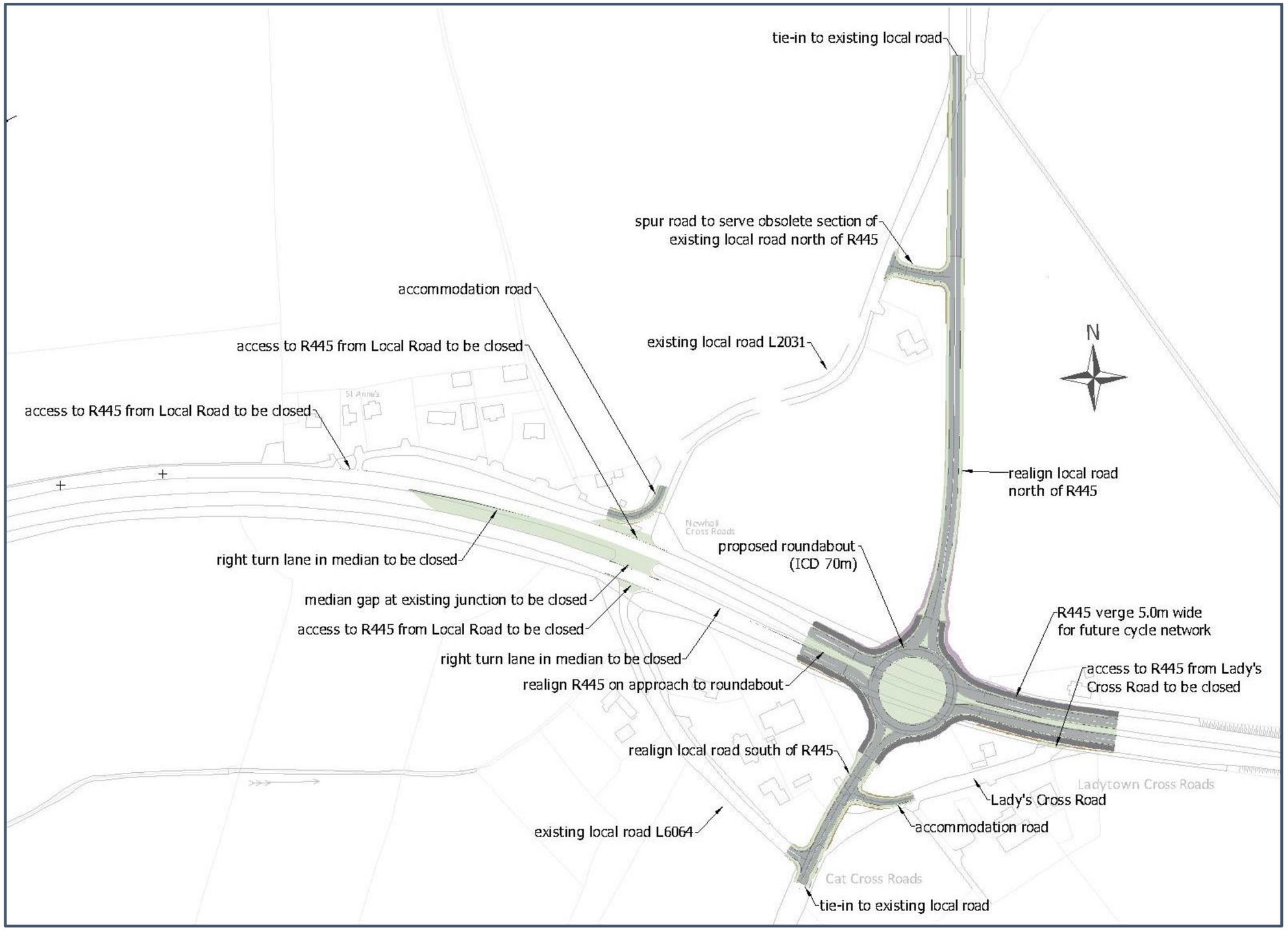


Figure 5-2 Option 2

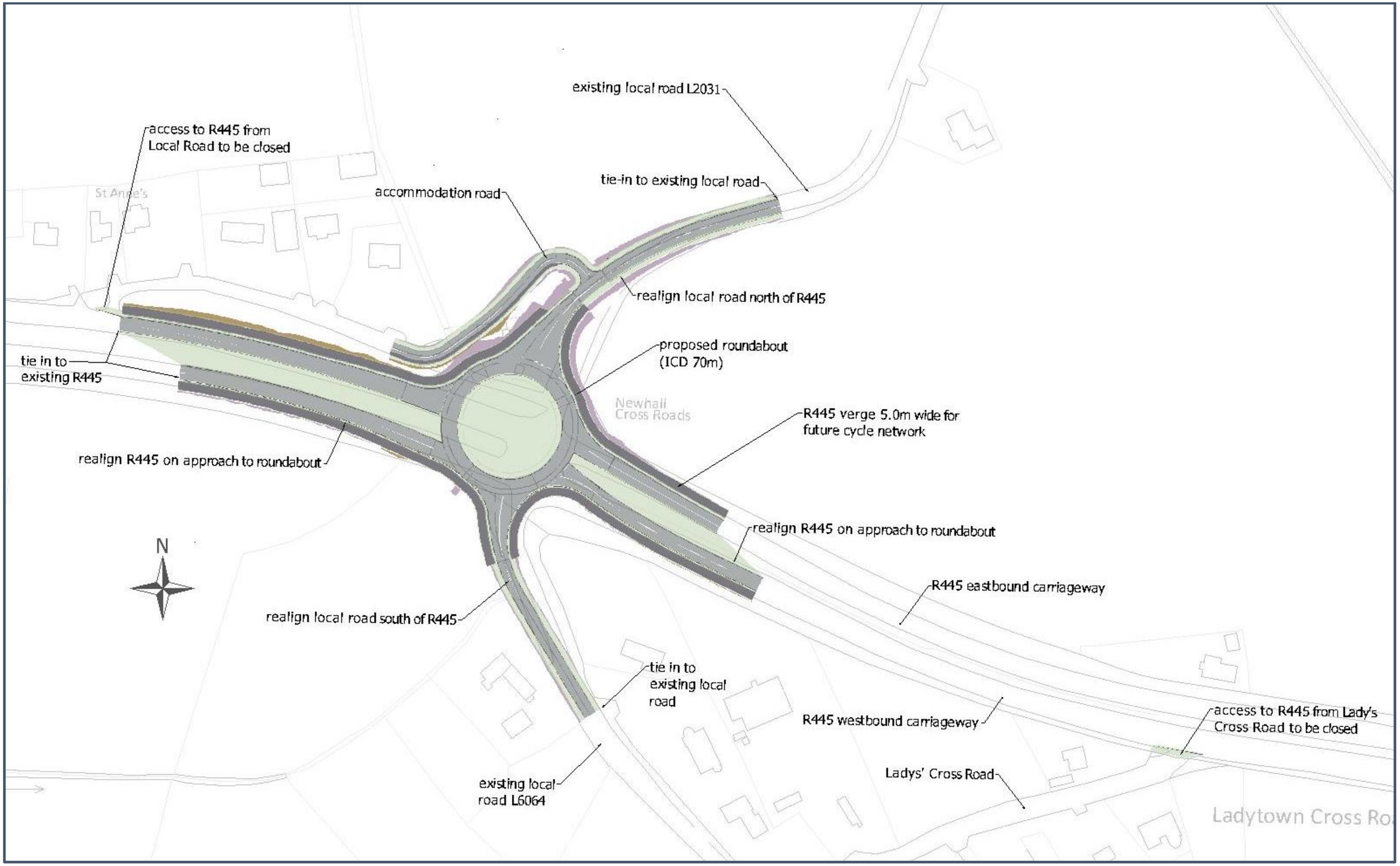


Figure 5-3 Option 3

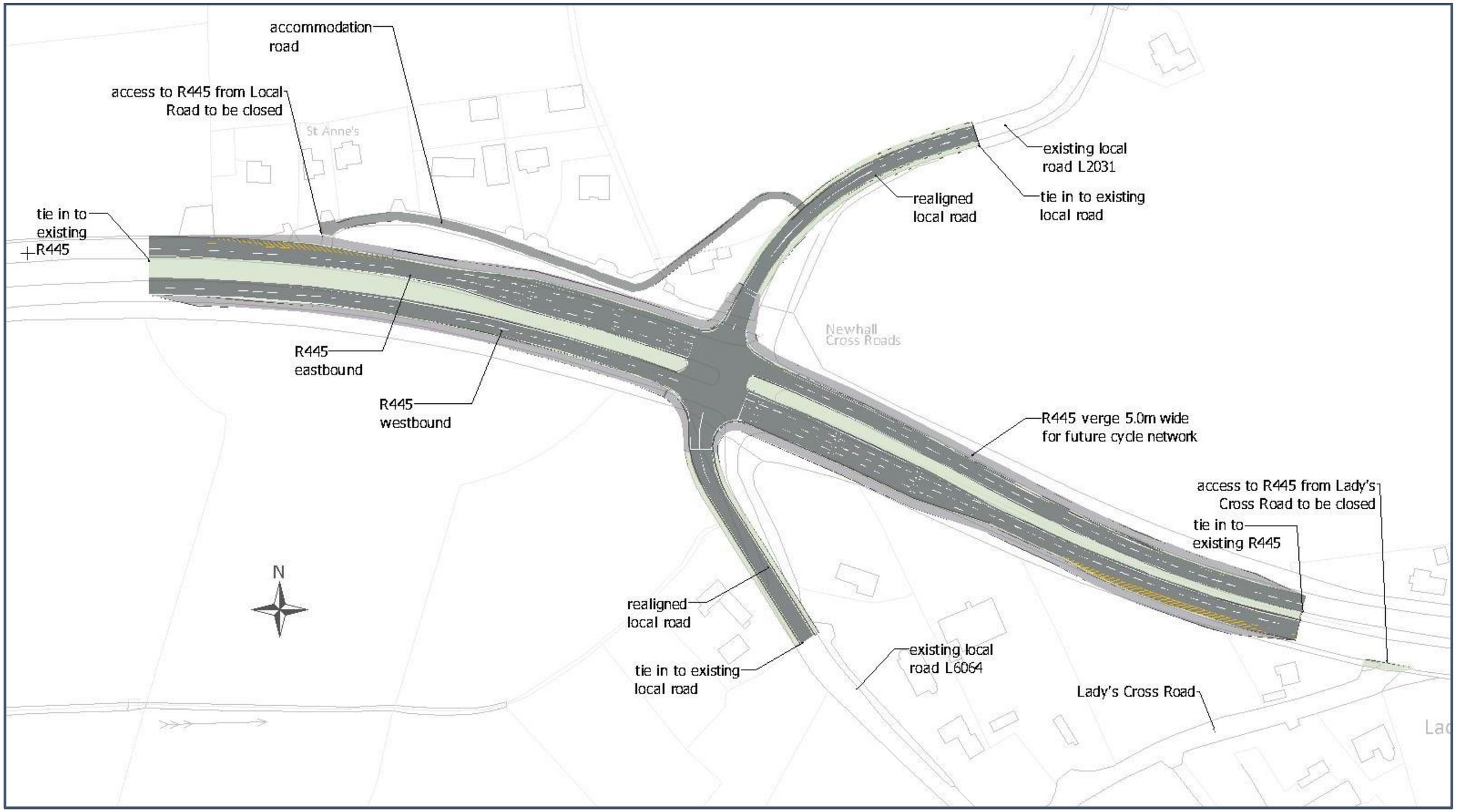


Figure 5-4 Option 4

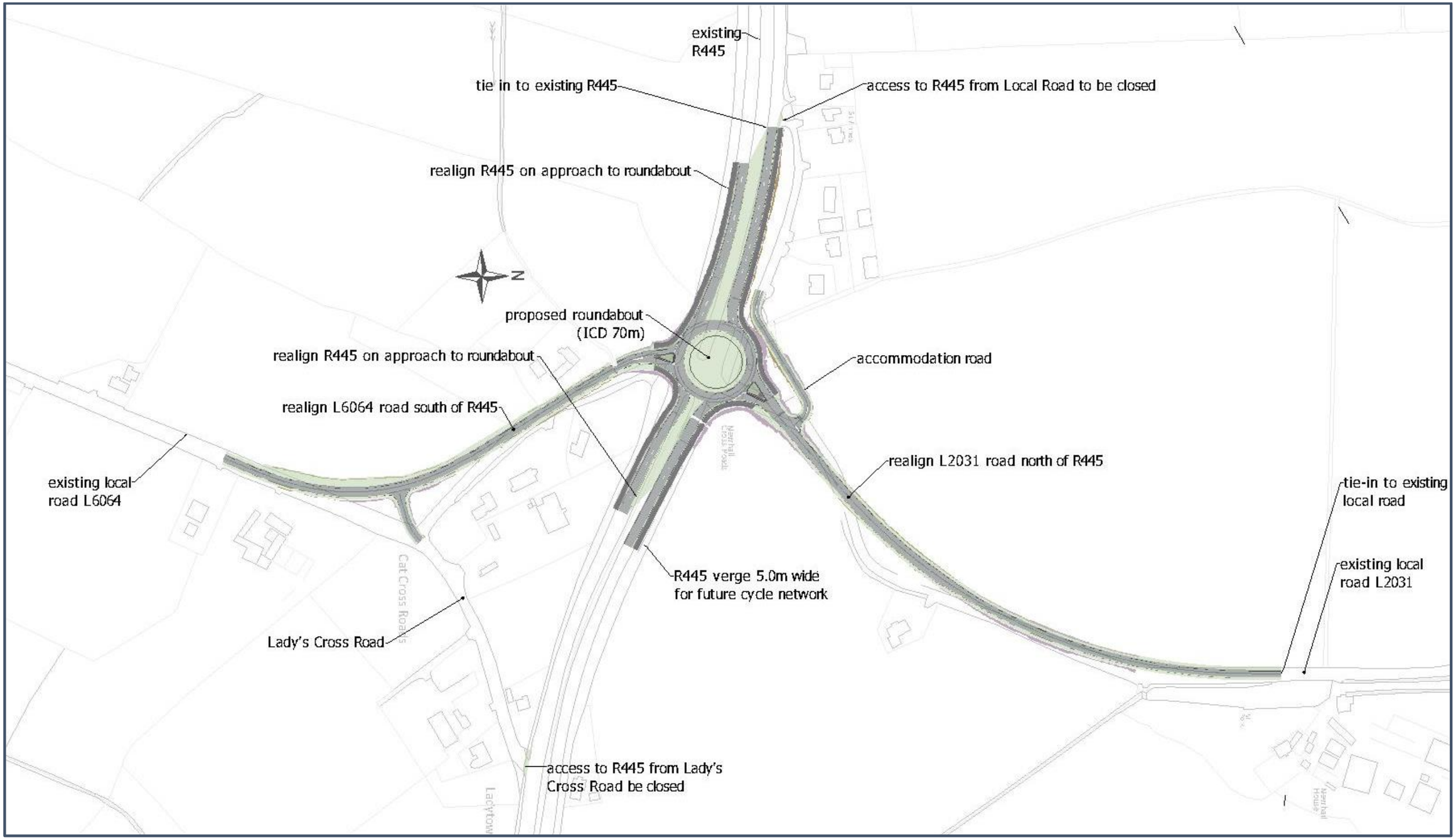


Figure 5-5 Option 5

6. CONSIDERATION OF ALTERNATIVES

6.1 General Description of Options

Option 1
Option 1 (the Do-Minimum option) has the benefit of the least amount of works and disruption being required and only minimal land acquisition. Consequently its estimated cost is considerably lower than for other Options.

Option 1 addresses a fundamental safety concern at the junction by eliminating crossing of the median. However, in doing so it requires local road traffic to make significant round trips to access the far-side R445 carriageway. This is undesirable in itself and also increases traffic flows at the nearest roundabouts that will be used to carry out the U-turns.

In 2013 Kildare County Council carried out a Part 8 process for development comprising improvement works at the existing junction similar to those shown for Option 1. The proposal met with significant opposition from local road users and residents and the members of Kildare County Council voted not to proceed with this development.

Option 2
Option 2 provides a roundabout on the R445 east of the existing junction and substantial realignment of the Ladytown and Carragh Roads. This junction type and size is consistent with the other major junctions on this section of the R445. Option 2 requires significant land acquisition, including from residential and commercial properties. The acquisition will result in severance of agricultural land to the north of the R445 and of a commercial property to the south of the R445 (OKM Trailers Ltd.). Consequently it is estimated that Option 2 would be the most expensive of all options.

The proposed roundabout will be only 800m from the nearest roundabout on the R445 at the M7 interchange.

Option 3
Option 3 provides a roundabout at the same location as the existing junction. This junction type and size is consistent with the other major junctions on this section of the R445. The local roads will be realigned to suit the geometry of the proposed roundabout and to provide forward visibility to it. Land acquisition will be required although it is significantly less than that required for Option 2.

Option 4
Option 4 provides a junction of appropriate standard on the R445 and, similar to Option 1, has the benefit of relatively little works and disruption being required and only minimal land acquisition. Consequently its estimated cost is lower than that for all other options except Option 1.

Traffic flows on the local roads are not at a level that would justify the delay to R445 traffic that would arise from this option, particularly outside of peak hours. Signalisation is a traffic management issue applied to a road safety problem. There are no signalised junctions elsewhere on this section of the R445 (all other major junctions being roundabouts) and so signalisation would be inconsistent with the surrounding road network.

Option 5
Option 5 is similar to Option 3 but proposes more significant realignment of the local roads north and south of the R445.

6.2 Multi-Criteria Analysis

The options being considered were subject to a multi-criteria analysis. This analysis did not include Scheme costs. The analysis, results of which are summarised in Table 6-1, found Option 3 to be the highest scoring of all of the Options being considered.

Appraisal Criteria	Option 1	Option 2	Option 3	Option 4	Option 5
Economy	6	20	19	18	20
Safety	10	13	13	12	13
Environment	27	23	27	27	26
Accessibility and social inclusion	8	8	8	8	8
Integration	16	21	21	15	21
Physical Activity	4	6	6	6	6
Total	**71**	**91**	**94**	**86**	**94**

Table 6-1 Results of Multi-Criteria Analysis

6.3 Preferred Alternative for Proposed Scheme

Option 3 is the Preferred Option for the following reasons:

- Option 3 meets the objectives of the Proposed Scheme;
- Options 5 scores equally on the multi-criteria analysis but is significantly more expensive. The higher cost of Option 5 arises from the more significant realignment of local roads it proposes. While improvement of local roads is generally desirable, there is no recorded collision history on these roads and so the cost of their realignment is difficult to justify. Furthermore, the local road realignment proposed in Option 5 is not required to achieve the Scheme Objectives.
- Option 2 scores less on the MCA and is significantly more expensive. As with Option 5, the higher cost arises from the more significant realignment of local roads proposed in Option 2. Option 2 also results in significant disruption to commercial and agricultural properties. The local road realignment proposed in Option 2 is not required to achieve the Scheme Objectives.
- The signalisation proposed under Option 4 is not consistent with other junctions on the R445 and is not appropriate to the traffic flows at the junction.
- By eliminating crossing of the median, Option 1 addresses a fundamental safety concern at the junction; however it imposes significant journey times on local road traffic and increases traffic flows at nearby junctions. It does not improve local road approaches. Overall, it is not considered to be as safe a junction as Option 3. It is likely that Option 1 would attract significant opposition from local road users and residents.

6.4 Assessed Against Scheme Objectives

Table 6-2 provides a summary assessment of the Preferred Option when measured against the Scheme Objectives defined in Section 4.

Objective	Delivery	Comment
Economy	Reduce collision costs by providing a safer environment. Improve connectivity between the lands north and south of the R445 and the strategic road network.	The preferred option provides a safe junction to DMRB standards.
Environment	Avoid significant environmental impacts if possible or, where avoidance is not possible, to mitigate the impact by incorporating appropriate mitigation measures into the Scheme design	The preferred option is primarily on or adjacent to existing roads.
Accessibility and Social Inclusion	Not impact negatively on accessibility and social inclusion and where possible improve on these measures.	The preferred option will provide greater connectivity between lands north and south of the R445 and from these lands to the strategic road network.
Integration	The connection between the Local Roads north and south of the R445 should not be compromised. The strategic importance of the R445 must not be compromised. The Scheme must not impact on local land-use strategies and must not place constraints on regional development. The Scheme must not compromise, and if possible should facilitate, delivery of the pedestrian / cyclist link between Naas and Newbridge.	The preferred option will improve links between local roads. The preferred option will not compromise the R445 and will not impact negatively on either local land-use strategies or regional development.
Safety	Improve traffic safety and provide a safer environment for all road users.	The preferred option will remove a significant safety issue on the R445.

Table 6-2 Preferred Option Assessed Against Scheme Objectives

7. DESCRIPTION OF PROPOSED SCHEME

The Proposed Scheme is shown in detail on the drawings made available for public display with this report and listed in Table 1-1.

The Proposed Scheme includes:

- replacement of the existing junction with a 70m diameter roundabout approximately centred at the location of the existing junction;
- realignment of the approach roads as required to facilitate the connection of these roads to the proposed roundabout in accordance with the Design Standard;
- the provision of a cycleway and footway on both sides of the R445 with appropriate crossings of the local road approaches to the proposed roundabout;
- extinguishment of public rights of way between the R445 and Lady's Cross Road, between the R445 and a Local Access Road serving a number of private residences immediately northwest of the existing junction and between the Local Access Road and Carragh Road;
- extinguishment of private rights of way;
- acquisition of lands from agricultural and residential properties;
- relocation of a telecommunications tower.

The surface water drainage system for the Proposed Scheme is designed in accordance with the principles of SUDS described in the Greater Dublin Strategic Drainage Study. In particular, the surface water drainage system will include measures to ensure the Proposed Scheme does not impact on water quality and the flow / flood regimes in receiving streams. Surface water run-off will discharge to an open drain that flows across the R445 from south to north through the Site; the drain is culverted as it crosses the R445. Surface water run-off will be restricted to a rate equivalent to the existing run-off from the Site. A detention basin will be constructed to temporarily store attenuated surface water run-off.

Public lighting will be provided at the junction and approaches thereto.

Grasses areas will be planted with pollinator-friendly grass seed mix in keeping with Objective 1.1.2 of the Newbridge Biodiversity Action Plan 2021 -2025.

The Proposed Scheme will require the removal of trees on Carragh Road and Ladytown Road. A landscape plan will be prepared at detailed design stage and this will include planting of trees in off-line grassed areas to mitigate the loss of existing trees.

8. ENVIRONMENTAL ASSESSMENT

8.1 AA Screening

Screening Report

An Appropriate Assessment Screening Report was prepared to assist the relevant authority (Kildare County Council) in forming an opinion as to whether or not the Proposed Scheme requires a Natura Impact Assessment. The Appropriate Assessment (AA) Screening Report was carried out in accordance with the document 'Assessment of plans and projects significantly affecting Natura 2000 sites: methodological guidance on the provisions of Article 6(3) and 6(4) of the Habitats Directive 92/43/EEC' (Oxford Brooks University, 2001).with the requirements of Article 6 of the EU Habitats Directive (Directive 92/43/EEC). This report and any contributory fieldwork were carried out in accordance with guidelines given by the Department of Environment, Heritage and Local Government (2009, amended 2010). The process is given in Articles 6(3) and 6(4) of the Habitats Directive and is commonly referred to as 'Appropriate Assessments' (which in fact refers to Stage 2 in the sequence under the Habitats Directive Article 6 assessment). Article 6 of the Habitats Directive sets out provisions which govern the conservation and management of Natura 2000 sites. Article 6(3) and 6(4) of the Habitats Directive set out the decision-making tests for plans and projects likely to affect Natura 2000 sites (Annex 1.1). Article 6(3) establishes the requirement for Appropriate Assessment.

The AA Screening Report concluded that no impacts are likely as a result of the Proposed Scheme on the conservation objectives or overall integrity of any Natura 2000 Site and accordingly Appropriate Assessment is not required. A copy of the report is provided in Appendix A.

Opinion of Relevant Authority

It is the opinion of Kildare County Council that the Proposed Scheme does not require a Natura Impact Assessment. A copy of this decision is provided in Appendix A.

8.2 EIA Screening

Screening Report

An EIA Screening Report was prepared to assist the relevant authority (Kildare County Council) in forming an opinion as to whether or not the Proposed Scheme should be subject to Environmental Impact Assessment (EIA) and if so whether an Environmental Impact Assessment Report (EIAR) should be prepared in respect of it.

The screening process included an assessment of the details of the Proposed Scheme with reference to the relevant EIA legislation including the Planning & Development Regulations 2001 (as amended by Planning and Development Regulations 2015), the EIA Directive 2011/92/EU (as amended by Directive 2014/52/EU) and relevant EU Guidance including Interpretation of definitions of project categories of annex I and II of the EIA Directive, EU, 2015 and Environmental Impact Assessment of Projects Guidance on Screening, EU, 2017.

The overall conclusion of the screening exercise was that there should be no specific requirement for a full Environmental Impact Assessment of the Proposed Scheme. A copy of the report is provided in Appendix B.

Opinion of Relevant Authority

It is the opinion of Kildare County Council that the Proposed Scheme does not require Environmental Impact Assessment. A copy of this decision is provided in Appendix B.

8.3 Report on Impact on Ecology

An assessment of the impact of the Proposed Scheme on ecology was carried out and a report on this assessment was prepared which provided a description of potential impacts arising from the Proposed Scheme.

The assessment investigated whether any Annex I habitats (EU Habitats Directive), Annex II species (EU Habitats Directive), Annex I Bird Species (EU Birds Directive) or 'stepping stones/Ecological Corridors' (as covered under Annex 10 of the EU Habitats Directive) or locally important habitats are likely to be impacted as a result of the Proposed Scheme. The assessment was completed in in accordance with TII 'Guidelines for Assessment of Ecological Impacts of National Roads Schemes'.

The assessment concluded :

- that no significant negative impacts on habitats or protected species are predicted arising from the Proposed Scheme;
- impacts of the construction stage will be short-term and negligible to minor adverse.
- construction of the Proposed Scheme will involve losses of hedgerows, verges and improved grassland fields. No habitats, designated areas or protected species were found within or immediately surrounding the proposed site of works;
- the Proposed Scheme, singly or in conjunction with other development in the area will not impact negatively on any site of or species of national or international importance.

A copy of the report is provided in Appendix C.

8.4 Report on Impact on Cultural Heritage

An assessment of the impact of the Proposed Scheme on cultural heritage was carried out and a report on this assessment was prepared which provided a description of potential impacts arising from the Proposed Scheme.

The assessment considered it not likely that the Proposed Scheme would cause any direct impacts to any identified archaeological monuments. However, it noted that in general ground reductions associated with a development of this kind, in areas of previous generally undisturbed ground, have the ability to uncover and disturb hitherto unrecorded subsurface features, deposits, structures and finds of archaeological interest and potential. Without the adoption and implementation of a suitable mitigation strategy, any subsurface archaeological features or artefacts that might be located within the site during the construction phase of the development might not be identified and recorded. Given this, and in order that potential subsurface, and hitherto unidentified and unrecorded, features of archaeological heritage interest that might exist within the subject development/construction corridor can be identified at an early stage, particularly in advance of the construction phase of the development, the following pre-construction mitigation measures are suggested:

- a programme of Archaeological Testing should be undertaken within the greenfield/agricultural lands within the extent of the Construction Corridor, such testing to be under licence from the Department of Housing, Local Government and Heritage;
- following clearance of the undergrowth along the banks of the stream positioned along the west of the L6064, an Archaeological wade and metal-detecting survey should be undertaken, under licence from the Department of Housing, Local Government and Heritage;
- following completion of the Programme of Pre-Development Archaeological Investigations, a report describing the results of such should be prepared. The report to include an impact statement with respect to any subsurface or watercourse-related features of archaeological interest/potential that might have been discovered/identified and include a mitigation strategy for the archaeological resolution of such features (e.g. mitigation by Excavation, Recording and Publication) in advance of the commencement of construction.

There are no predicted impacts in terms of Cultural Heritage. A copy of the report is provided in Appendix D.

8.5 Flood Risk

The Scheme was the subject of a flood risk assessment in accordance with the Flood Risk Management Guidelines.

Indicators for fluvial, pluvial and ground water flood risk were examined. No indicators of flood risk were identified.

9. LAND ACQUISITION

9.1 Land Acquisition

In keeping with the objectives of the Proposed Scheme, Kildare County Council has sought to minimise the impact of the Proposed Scheme on local residents and landowners in so far as is reasonably practicable.

The Proposed Scheme will require the acquisition of lands from five agricultural holdings, from the curtilage of one private dwelling house and roadbed from several properties fronting on to the Local Access Road. Other than this, only lands within the public road will be required.

The Proposed Scheme will require the relocation of existing field accesses. This relocation will be agreed with affected landowners.

The Proposed Scheme will require the relocation of a telecommunications tower.

Accommodation Works will be carried out to mitigate impacts on private lands.

9.2 Rights of Way

The Proposed Scheme requires the extinguishment of the following public rights of way:

- between the R445 and Lady's Cross Road;
- between the R445 and the Local Access Road serving a number of private residences immediately northwest of the existing junction;
- between the Local Access Road and Carragh Road.

The Proposed Scheme requires the extinguishment of the following private rights of way:

- between an agricultural field and Carragh Road;
- between a private house and the R445 west of the existing junction.

Appendix A

AA Screening

AA Screening Report

FLYNN FURNEY
ENVIRONMENTAL CONSULTANTS

Screening for Appropiate Assessment

R445 Newhall Junction Improvement Project Co. Kildare

Date: September 2020

For: KILGALLEN & PARTNERS CONSULTING ENGINEERS

Contents

1 INTRODUCTION

Works are proposed for the Newhall Junction on the R445 south west of Naas Co. Kildare. The development consists of the construction of a roundabout, local access roads, roadside verges and associated works. The following report has been completed to provide information regarding the ecological status of the proposed site of works. The report includes a general ecological assessment of the site and the surrounding area, including designated sites. This report has also been completed to provide the information necessary to allow the competent authority to conduct an Article 6[3] Appropriate Assessment (AA) Screening of the proposed development. The legislation and methodology for which is detailed in the following sections below.

1.1 Relevant Legislation and Overall Screening Methodology

The methodology for this screening statement is clearly set out in a document prepared for the Environment DG of the European Commission entitled 'Assessment of plans and projects significantly affecting Natura 2000 sites: methodological guidance on the provisions of Article 6(3) and 6(4) of the Habitats Directive 92/43/EEC' (Oxford Brooks University, 2001). This report and any contributory fieldwork were carried out in accordance with guidelines given by the Department of Environment, Heritage and Local Government (2009, amended 2010). The process is given in Articles 6(3) and 6(4) of the Habitats Directive and is commonly referred to as 'Appropriate Assessments' (which in fact refers to Stage 2 in the sequence under the Habitats Directive Article 6 assessment). Article 6 of the Habitats Directive sets out provisions which govern the conservation and management of Natura 2000 sites. Article 6(3) and 6(4) of the Habitats Directive set out the decision-making tests for plans and projects likely to affect Natura 2000 sites (Annex 1.1). Article 6(3) establishes the requirement for Appropriate Assessment.

"Any plan or project not directly connected with or necessary to the management of the (Natura2000) site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subjected to appropriate assessment of its

implications for the site in view of the site's conservation objectives. In light of the conclusions of the assessment of the implication for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public."

Article 6(4) of the same directive states:
"If, in spite of a negative assessment of the implications for the site and in the absence of alternative solutions, a plan or project must nevertheless be carried out for imperative reasons of overriding public interest, including those of social or economic nature, the Member State shall take all compensatory measures necessary to ensure that the overall coherence of the Natura 2000 is protected. It shall inform the Commission of the compensatory measures adopted. Where the site concerned hosts a priority natural habitat type and/or a priority species the only considerations which may be raised are those relating to human health or public safety, to beneficial consequences of primary importance for the environment or, further to an opinion from the Commission, to other imperative reasons of overriding public interest."

It is the responsibility of the proponent of the plan or project to provide the relevant information (ecological surveys, research, analysis etc.) for submission to the 'competent national authority'. Having satisfied itself that the information is complete and objective, the competent authority will use this information to screen the project, i.e. to determine if an AA is required and to carry out the AA, if one is deemed necessary. The competent authority shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned. The appropriate assessment process has four stages. Each stage determines whether a further stage in the process is required. If, for example, the conclusions at the end of Stage One are that there will be no significant impacts on the Natura 2000 site, there is no requirement to proceed further. The four stages are:

1. Screening to determine if an appropriate assessment is required
2. Appropriate assessment
3. Consideration of alternative solutions
4. Imperative Reasons of Overriding Public Interest/Derogation

Stage 1. Screening

This is to determine if an appropriate assessment is required. Screening is the technique applied to determine whether a particular plan would be likely to have significant effects on a Natura 2000 site and would thus warrant an Appropriate Assessment. The key indicator that will determine if an Appropriate Assessment is required is the determination of whether the development is likely to have significant environmental effects on a Natura 2000 site or not.

Stage 2. Appropriate Assessment

This step is required if the screening report indicates that the development is likely to have a significant impact on a Natura 2000 site. Stage 2 assesses the impact of a plan or project on the integrity of the Natura 2000 site, either alone or in combination with other plans or projects, with respect to the site's structure, function and conservation objectives. Where there are adverse impacts, an assessment of the potential mitigation of these impacts is also required.

Stage 3. Assessment of Alternative Solutions

If it is concluded that, subsequent to the implementation of measures, a plan or project will have an adverse impact on the integrity of a Natura 2000 site, it must be objectively concluded that no alternative solutions exist before the plan or project can proceed.

Stage 4. Imperative Reasons of Overriding Public Interest/Derogation

Where no alternative solutions exist and where adverse impacts remain but imperative reasons of overriding public interest (IROPI) exist for the implementation of a plan or project, an assessment of compensatory measures that will effectively offset the damage to the Natura 2000 site will be necessary.

Flynn, Furney Environmental Consultants Ltd has been appointed by Kilgallen & Partners Consulting Engineering to undertake the first stage of the above process: a screening exercise to determine whether the proposed development has the potential to have any significant or indeterminate impacts on the conservation objectives and overall integrity of any Natura 2000 sites. This assessment is based upon desk study and fieldwork carried out by suitably qualified ecologists. Sites within 15km of the proposed development are reviewed for potential impacts or pathways for impacts. Sections 3 of the report comprises the AA Screening that specifically focuses on the potential for impacts on Natura 2000 sites and their conservation objectives.

1.2 The site: Lands at Newhall Junction

The study site is located on the boundary of the townlands of Ladytown and Newhall Co. Kildare. The site is currently a mixture of existing roads including the R445, L2031 and the L6064. Along with brownfield areas, road verges, treelines and greenfield areas. The site is surrounded on all sides by agricultural land predominantly used for crop production. A small cluster of residential developments is found adjacent to the northwest of the site. Further residential developments were recorded to the south east of the R445 east of the L6064 slip road. This consisted of a small cluster of houses along with yards.

1.3 Description of the Proposed Development

The proposed development will take place over a small area of approximately 2.1 ha of existing roadway, roadway verges, fields and hedgerows generally to allow for appropriate access road alignment and the construction of the roundabout for access roads, realignment and associated works.

1.4 Description of the Works

The area under study can be seen in figure 1. Works are likely to involve the removal and stock piling of surface soil and over burden material. The removal, reinstatement and installation of services, filling as required, capping and road surfacing.

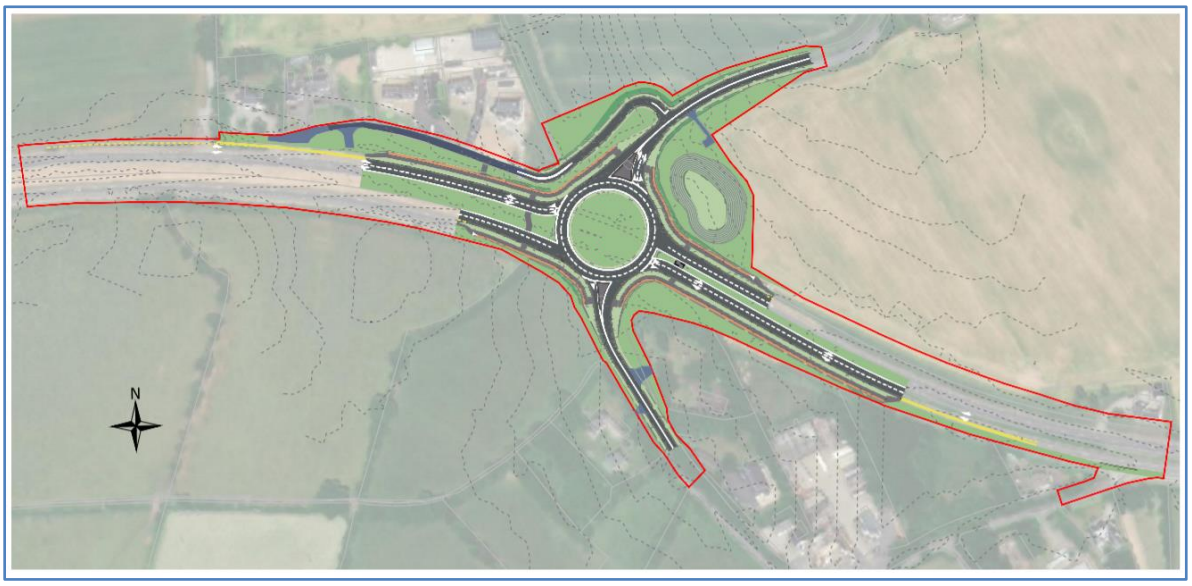
1.5 Stakeholders and Consultation

The consultations carried out to date are summarised below:

Table 1: Summary of Consultations

Stakeholder	Nature of Consultation	Outcome
Kildare County Council	As part of planning application	This report

Figure 1: Works area on the R445 Junction Improvement Scheme



2 ECOLOGICAL ASSESSMENT

2.1 Desktop Study

A desktop study was carried out as part of the screening process. This included a review of available literature on the site and its immediate environs. Sources of information included the National Parks and Wildlife Service and National Biodiversity Data Centre databases on protected sites and species. Additionally, a number of databases on individual protected species and non-native invasive species were consulted.

2.2 Designated Sites

Sites designated for the conservation of nature include Natural Heritage Areas (NHAs) and proposed Natural Heritage Areas (pNHAs) which are designated for the protection of species, habitats and geological interests that are of national importance. Sites designated for protection by the EU are Special Areas of Conservation (SACs) and Special Protection Areas (SPAs). These form the Natura 2000 network of sites. It is these sites that are of relevance to the screening process for Appropriate Assessment.

All designated sites within 15km of the proposed works were considered during the desktop study stage of the screening assessment in order to assess the potential for significant effects upon their Qualifying Interests / Special Conservation Interests and Conservation Objectives. This stage of the process is used to determine whether any of the designated sites may be 'screened out'. That is, that they can be regarded as not being relevant to the process, having no potential to be significantly affected or impacted upon. This may be due to: a) the distance of the designated sites from the site of proposed works, b) the lack of connectivity such as watercourse or habitat area between the designated sites and the site of the proposed works or c) the nature of the qualifying interests of the designated sites.

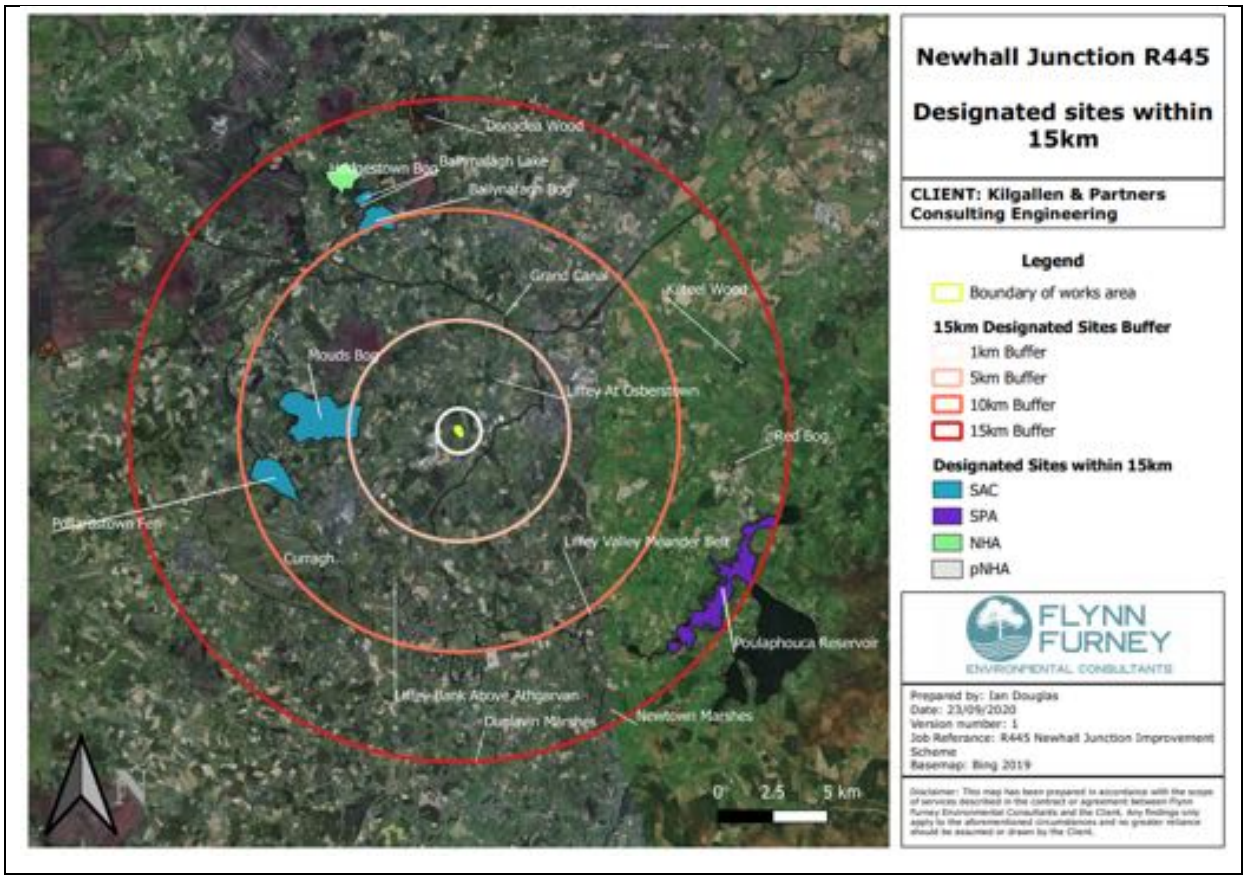
2.3 Designated Sites Within 15km of the Proposed Works

All designated sites as described above within 15km of the proposed works were considered during the screening process for their potential to have significant effects upon their qualifying interests or special qualifying interests or conservation objectives. The site synopses and conservation objectives of the sites (as available) were also examined during this stage of the survey. These sites are given in the table below. The table also gives distance from the proposed site of works and the outcome of the screening.

Table 2: Distances from the proposed developments to the nearest designated sites

Site Code	Site Name	Designation	Distance from designated site	Likelihood of impact
2331	Mouds Bog SAC	SAC	4.2km	None identified
396	Pollardstown Fen SAC	SAC	7.8km	None identified
1387	Ballynafagh Lake SAC	SAC	7.8km	None identified
391	Ballynafagh Bog SAC	SAC	9.2km	None identified
397	Red Bog, Kildare SAC	SAC	12km	None identified
4063	Poulaphouca Reservoir SPA	SPA	13km	None identified
1393	Hodgestown Bog NHA	NHA	12km	None identified
391	Ballynafagh Bog	pNHA	9.7km	None identified
392	Curragh (Kildare)	pNHA	7.7km	None identified
393	Liffey Valley Meander Belt	pNHA	9.8km	None identified
395	Mouds Bog	pNHA	4.2km	None identified
396	Pollardstown Fen	pNHA	7.7km	None identified
397	Red Bog, Kildare	pNHA	12km	None identified
731	Poulaphouca Reservoir	pNHA	13km	None identified
1387	Ballynafagh Lake	pNHA	10.8km	None identified
1391	Donadea Wood	pNHA	13.1km	None identified
1394	Kilteel Wood	pNHA	13km	None identified
1395	Liffey At Osberstown	pNHA	2.4km	None identified
1396	Liffey Bank Above Athgarvan	pNHA	7.1km	None identified
1759	Newtown Marshes	pNHA	13.1km	None identified
1772	Dunlavin Marshes	pNHA	14.7km	None identified
2104	Grand Canal	pNHA	1.3km	None identified

Figure 2: Designated sites within 15km



No risks to the conservation objectives of any other Natura 2000 sites are considered likely due one or more of the following:

- Lack of connectivity between the proposed works areas and the designated area
- Significant buffer between the proposed works area and the designated area
- The nature of the site's conservation objectives
- No impact or change to the management of the designated area or;
- No change to chemical or physiological condition of the designated site as a result of the proposed development.

A number of proposed/ Natural Heritage Areas occur within 15km of the site proposed for works (as seen in figure 2), these are not considered within this screening process methodology as they are not European designated sites. These have however been considered as part of the

Ecological Impact Assessment for this project that has also been completed by the present authors and accompanies this report.

2.4 Field Surveys

Field survey was carried out in September 2020 and baseline ecological conditions were assessed. Habitats were identified, mapped and classified and dominant plant species noted were conducted according to the guidelines given by the JNCC (2010) and Smith et al. (2011). Any signs of mammals seen were recorded as part of these surveys. A dedicated bird survey was not carried out as part of the survey. However, any species observed were noted and recorded. Any presence of or suitable habitat for amphibian and reptile species were recorded. Habitat classification followed Fossitt (2000) and the floral nomenclature used follows Parnell and Curtis (2012) and Scannell and Synnott (1987).

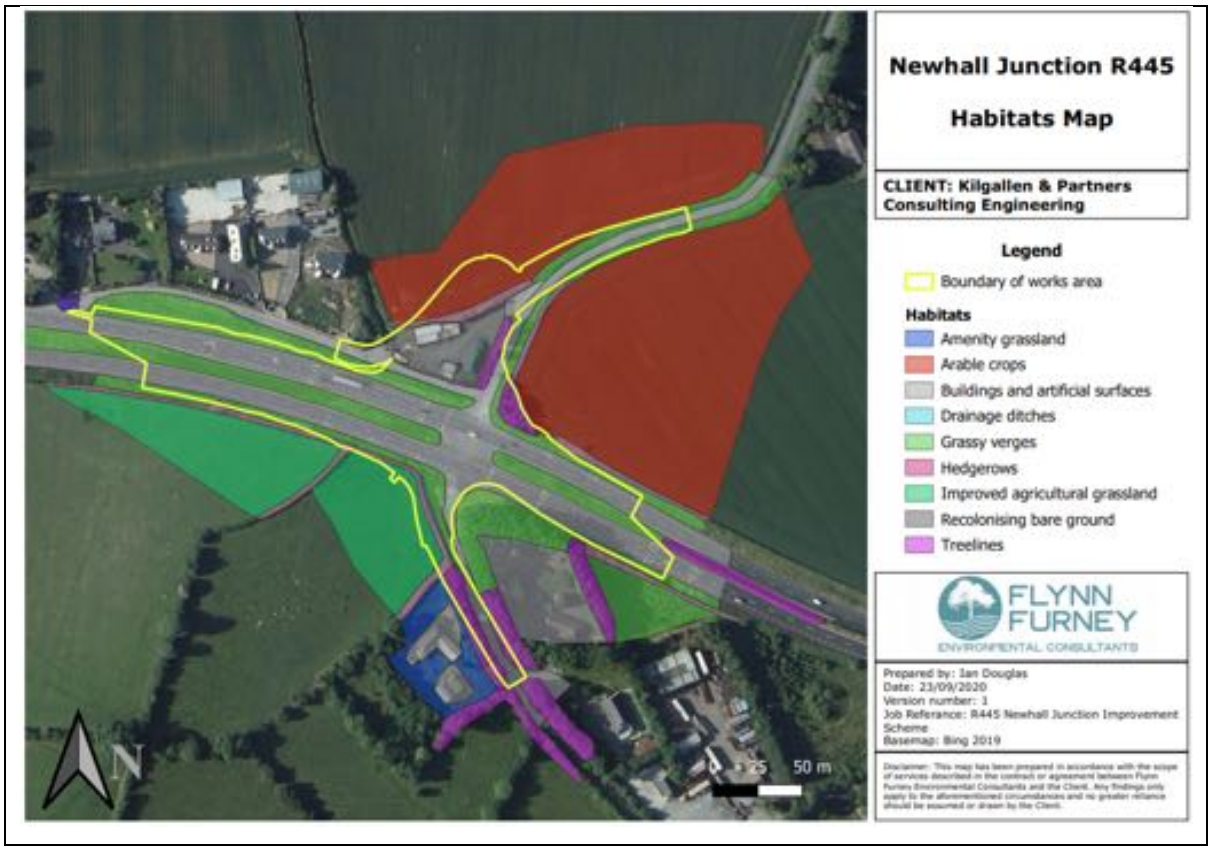
2.5 Outline Site Description

The study site is located in the townlands of Ladytown and Newhall approximately 10km south west of Naas town centre Co. Kildare along the R445. The proposed site comprises a number of small parcels of land including fields, roads, verges, brown field sites, yards and buildings both north and south of the existing R445. The fields that surround the site are generally tilled lands and permanent pasture. A number of mature hedgerows and treelines also surround the site particularly south of the R445 along the L6064.

2.6 Detailed Description of Habitat Areas

A detailed description of habitat areas recorded within or adjacent to the survey area is given below. A map showing the habitats recorded on the site can be seen in figure 3.

Figure 3: Habitat Map



The flowing habitat types were recorded within or surrounding the site during field work in September 2020. The habitat assessment was carried out according to guidelines given by the Heritage Council (2011) and the JNCC (2010). Maps of all habitat types found within and surrounding the site can be seen in Appendix 1.

2.6.1 Dry meadow and grassy verges (GS2)

Grassy verges primarily occurred along the road side and between the lanes of the R445. These areas of grass looked to be unmanaged or infrequently managed. These grasslands were overgrown and were dominated by False Oat-grass (*Arrhenatherum elatius*) with occasional Cock's-foot (*Dactylis glomerata*) and Bents (*Agrostis spp*.). The herb layer varied considerably around these patches of grass. The most diverse were west of the junction in front of the row of houses and in front of the field of improved grassland. Here Hogweed (*Heracleum sphondylium*), Bush Vetch (*Vicia sepium*), Sow thistle (*Sonchus arvensis*), Creeping Buttercup (*Ranunculus repens*), Plantains (*Plantago spp.*), Hedge Bindweed (*Calystegia sepium*), Common

Knapweed (*Centaurea nigra*), Ragworts (*Senecio spp*.), Tormentil (*Potentilla erecta*) and Red Clover (*Trifolium spp*) were recorded.

Other areas of Grassy verge including those around the L2031 were less species diverse and also dominated by False Oat-grass (*Arrhenatherum elatius*) but also included Creeping Buttercup (*Ranunculus repens*), Rape (*Brassica napus*), Cow Parsley (*Anthriscus sylvestris*) and Elder (*Sambucus nigra*).

2.6.2 Improved Grassland GA1

The dominant habitat surrounding much of the south west side of the junction. Improved grassland dominated by Rye grass (*Lolium spp*), Meadow-grasses (*Poa spp.*) and Fescues (*Festuca spp.*). The field appear to have been primarily used for grazing by cattle and sheep. Species of agricultural herbs identified included Dandelion (*Taraxacum spp.*), Creeping Buttercup (*Ranunculus repens*), Plantains (*Plantago spp.*), Nettle (*Urtica dioica*), Thistles (*Cirsium arvense, C. vulgare*) and Docks (*Rumex spp.*).

2.6.3 Hedgerows (WL1)

Hedgerows formed continuous bands around the south western edge of the study area and continued into the surrounding fields. Hedgerows generally contained Hawthorn (*Crataegus monogyna*) and Blackthorn (*Prunus spinosa*) interspersed Ash (*Fraxinus excelsior*), Hazel (*Corylus avella*na), Elder (*Sambucus nigra*), Elms (*Ulmus spp*.) and Brambles (*Rubus fruticosus agg*.).

The invasive species Snowberry (*Symphoricarpos albus*) was recorded within hedgerows along the western side of the L6064.
Other patchy non-continuous hedgerows were recorded across the site.

2.6.4 Treelines (WL2)

Treelines and small groups of trees were recorded throughout the site. Along the boundary of the property west of the L6064 a treeline dominated by Mature Beech (*Fagus sylvatica*) was

recorded. The remains of an Ash (*Fraxinus excelsior*) treeline was recorded east of the L6064. This originally wrapped around the property at the junction but much this has recently been removed.

North of the junction a small stand of trees approximately 15 years old has been planted these included Downy Birch (*Betula pubescens*) and Lime (*Tilia Cordata*). Opposite a linear strip of trees was recorded that included Downy Birch (*Betula pubescens*) and the non-native Coast Redwood (*Sequoia sepervirens*), a North American species.

2.6.5 Recolonising bare ground (ED3)

This habitat was recorded within a yard on the north west of the junction. Access to the yard was restricted. Vegetation cover was less than 50% and contained typical primary colonising generalist species including Colt's Foot (*Tussilago farfara*), Nettle (*Urtica dioica*), Dandelion (*Taraxacum spp*.), Willow-herbs (*Epilobium spp*.) and ragwort (*Senecio spp*.), Herb-Robert (*Geranium robertianum*) and Creeping Buttercup (*Ranunculus repens*). Brambles (*Rubus fruticosus agg*.) were recorded coming over the fence from neighbouring properties.

2.6.6 Drainage ditches (FW4)

Drainage ditches were recorded running along the northern boundary with the property on the L6064. This drain then continued north along the L6064 and then disappeared into a culvert. The only aquatic plant recorded within this ditch was Fool's Water-cress (*Apium nodiflorum*). All other plant species recorded were associated with the surrounding hedgerows and grassy verges.

2.6.7 Amenity grassland (GA2)

This type of grassland was recorded within or in front of a number of residential properties surrounding the site. Rye-grasses (*Lolium spp.*) or other cultivated grass verities dominated these areas. Broadleaved herbs such as Daisy (*Bellis perennis*), Dandelion (*Taraxacum spp*.), clovers (*Trifolium spp*.) and plantains (*Plantago spp*.) were common.

2.6.8 Buildings and artificial surfaces (BL3)

This broad category incorporates all the houses, roadways, hard stands around houses, driveways and the access roads to the small cluster of houses north of the R445. Species were limited to a few small clumps of courses grasses like False Oat-grass (*Arrhenatherum elatius*) and Cock's-foot (*Dactylis glomerata*) and 'weed' species including Dandelion (*Taraxacum spp*.) and Ragworts (*Senecio spp*.).

2.6.9 Arable Land (BC1)

Agricultural land that is cultivated and managed for the production of cereals (wheat, barley, oats, maize), were recorded along the eastern and western side of the L2031. These had recently been harvested and the fields were in stubble at the time of surveying.

2.6.10 Significance of Habitats

None of the habitats occurring within the site are of high sensitivity, most of the area having been modified from its natural state by agricultural activities. There is no Annex I habitat occurring within the area proposed for works. The most widely occurring habitat type is Dry Meadow/Grassy Verge (GS2). This is also widely occurring within the area under survey and wider area. No rare, threatened or protected species of plants as per the Red Data List (Wyse Jackson et al 2016) were found. No species listed in the Flora Protection Order (2015) were found to be growing within the site. No such species were recorded within the area of works. There are no records for protected species within this area on the NBDC or the National Parks and Wildlife Service databases.

2.7 Fauna

2.7.1 Mammal Activity

No otter holts or any other signs of otter were recorded during the course of this survey. No badger setts, scat, scratching or latrines were identified within study area. However, the site may form part of the home range of some badger communities. Works are not considered likely to cause the splitting of the home range of any badger communities. No mammal tracks

or trails were recorded that indicate that this area is being used by any mammal species on a regular basis.

No signs of Red Squirrel or Pine Martin were recorded within or surrounding the site. These would be unlikely to occur here given the lack of woodland cover locally.

2.7.2 Bats

A dedicated bat survey employing bat detectors after dusk was not carried out as part of this survey. However, included in the site survey was any habitat suitable for bat roosts (e.g. mature woody vegetation, buildings or sub-terrain areas). Potential Bat roosting habitat was recorded within the building associated with the radio tower. These were corrugated roofed sheds with some small spaces recorded that may allow bats to enter into these buildings. This habitat was be considered of low potential for bats given they generally prefer tiled roofs to corrugated iron roofing, the degree of local light and noise pollution and the lack of suitable feeding/foraging habitat locally.

2.7.3 Breeding Birds

A dedicated bird survey was not carried out as part of the ecological surveys. However, birds seen and heard during the site survey were recorded. All of the birds recorded were species typical of this kind of farmland. These included Robin (*Erithacus rubecula*), Starling(*Sturnus vulgaris*), Wood pigeon(*Columba palumbus*), Rook(*Corvus frugilegus*) and Magpie(*Pica pica*). None of these species are of high conservation concern.

2.7.4 Freshwater Species, Reptiles and Amphibians

It was noted that no suitable breeding habitat for the Common Frog (*Rana temporaria*) and Smooth Newt (*Lissotriton vulgaris*) exists within the site with the exception of the small drain which is sub-optimal for amphibian species. Suitable habitat for the Common or Viviparous Lizard (*Lacerta vivipara*) was not recorded.

2.7.5 Invasive Species

No invasive species listed on the Schedule 3 of the European Communities (Birds and Natural Habitats) Regulations 2011 were found during the survey.

3 ARTICLE 6(3) SCREENING ASSESSMENT

This section of the report focuses solely on the potential for the proposed works to impact upon Natura 2000 sites. Section 2.1.2 of this report excluded any direct impacts or pathways for impacts on any Natura 2000 sites. This was based upon the distance of the designated sites from the proposed works. The potential for impacts on the Natura 2000 sites is considered below.

3.1 Article 6(3) Assessment Criteria

3.1.1 Description of the individual elements of the project likely to give rise to impacts on the Natura 2000 site.

None of the individual elements of the proposed development as planned are likely to give rise to significant impacts on the Natura 2000 sites, given the limited scale of the works and the nature and location of the works as planned.

3.1.2 Description of any Likely Direct, Indirect or Secondary Impacts of the Project on the Natura 2000 Site.

Any likely direct, indirect or secondary impacts of the proposed development, both alone and in combination with other plans or projects, on any Natura 2000 sites by virtue of the following criteria: size and scale, land take, distance from the Natura 2000 site or key feature thereof, resource requirements, emissions, excavation requirements, transportation requirements and duration of construction, operational and decommissioning phases of the works are detailed in the table below.

Table 3: Assessment of Likely Impacts

ASSESSMENT OF LIKELY IMPACTS	
Size and scale	The proposed works site of approximately 2.1 hectares will occupy a small area. There will be no impact on any Natura 2000 Sites owing

	to size or scale of the proposed works.
Land-take	Works will not alter the size of any designated sites. Therefore land-take is nil.
Distance from the Natura 2000 site or key features of the site;	Mounds Bogs SAC is the nearest designated site 4km away
Resource requirements (water abstraction etc.);	No materials for construction will be sourced from within any Natura 2000 Site. No water will be abstracted from the site during the construction or operation of the site. Therefore there will be no impact on the Natura site as a result of resource requirements.
Emissions (disposal to land, water or air);	There will be no additional emissions of water from the site. No emissions are predicted that will impact upon any Natura 2000 site.
Excavation requirements;	No excavations will take place within any Natura 2000 Site. Construction works will be entirely within area as identified in this report.
Transportation requirements;	Site has existing access via local road. No other means of access will be required during any phase of the project.
Duration of construction, operation, decommissioning, etc.;	Duration of works not known at time of writing. However, these works are expected to be completed within 6 months.
Timing of works	Works shall be timed to minimise disturbance to native species. No woody vegetation is to be cleared or otherwise impacted upon during the bird nesting season (March-August inclusive).
Cumulative or In-combination Impacts with other Projects and Plans	A number of other projects have been considered as part of the screening process. A search of the planning website of Kildare County Council was carried out as part of the desktop study. A number of planning applications were reviewed. The greater majority of the schemes were for the construction or alteration of private dwellings. Or the construction or alternation of commercial facilities within nearby business parks. No cumulative or in-

	combination impacts are therefore predicted.

3.2 Description of any Likely Changes to the Natura 2000 Sites

Any likely changes to the Natura 2000 site are described in the table below with reference to the following criteria: reduction of habitat area, disturbance to key species, habitat or species fragmentation, reduction in species density, changes in key indicators of conservation value and climate change.

Table 4: Likely changes to the Nature 2000 site

Likely Changes to the Natura 2000 Site	
Reduction of habitat area	No works will take place within the boundary of any Natura 2000 sites. There will be no loss of habitat within any Natura 2000 site as a result of the proposed works.
Disturbance to key species	All works associated with the proposed development will take place outside the boundaries of the Natura 2000 sites. None of the qualifying interests of the Natura 2000 sites were recorded during survey. No loss of or impacts upon habitats of the qualifying interests of the nearest Natura 2000 site is predicted. No significant impacts on any key species have therefore been considered likely.
Habitat or species fragmentation	There will be no works within any SAC or SPA. No impacts on any qualifying species are predicted. Therefore, there will be no impact within the Natura 2000 sites with regard to habitat or species fragmentation.
Reduction in species density	No reduction in species density is considered likely within any SAC or SPA as a result of the proposed works.
Changes in key indicators of conservation value (water quality etc.);	Habitat integrity is the most relevant of the key indicators of conservation value with regard to the nearest Natura 2000 site. However, the risk of any significant impacts on any key hydrological or morphological aspects of this site are considered unlikely due to construction or operation phase of the proposed

	development. There will be no impacts on any habitat areas outside the site. As stated above, there will be no loss or reduction in habitat areas or quality within any designated site.
Climate change	No damage to any Natura 2000 site as a result of or in combination with enhanced climate change is predicted as a result of the proposed development.

3.2.1 Likelihood of Interference with the key relationships that define the structure and function of the Natura 2000 Site as a whole:

It is considered that there will be no long-term residual impacts from the proposed works upon the key relationships that define any Natura 2000 sites.

3.2.2 Indicators of Significance as a Result of the Identification of Effects

Indicators of significance as a result of the identification of effects as set out below in terms of loss, fragmentation, disruption, disturbance and changes to the key elements of site.

Table 5: Indicators of significance

Indicators of Significance	
Loss	There will be no loss of habitat within any Natura 2000 site as a result of the proposed works. It is not anticipated that the loss of any species of conservation interest will occur as a result of the proposed works due to injury or mortality.
Fragmentation	No habitat fragmentation to any Natura 2000 site is predicted.
Disruption	No significant risk of disruption to any Natura 2000 sites are likely during this project.
Disturbance	As above
change to key elements of the site (e.g. water quality etc.)	No long-term changes to any key elements of any Natura 2000 site are predicted as a result of the proposed development.

Description of any Likely Significant Impacts or Indeterminate Impacts of the Project on the Natura 2000 Site

Based on a consideration of the likely impacts arising from the proposed works and a review of their significance in terms of the conservation interests and objectives of the Natura 2000 Sites screened, no significant impacts have been identified on the Natura 2000 sites as a result of the proposed development.

3.3 FINDINGS OF ARTICLE 6(3) SCREENING ASSESSMENT

Name of project or plan: R445 Newhall Junction Improvement Scheme

Name and location of Natura 2000 Site: Works will take place on the outskirts of Naas Co. Kildare. The nearest designated site is Mounds Bog SAC.

Description of project or plan: The proposed works involve the construction of a roundabout on the R445 at the same location as Newhall Crossroads. The Local Roads L6064 and L2031 will receive minor realignment required for the entry and exit geometry at the roundabout. Significant verge widening will be required on the realigned local roads to provide appropriate forward visibility on the local roads.

Is the project or plan directly connected with or necessary to the management of the site?: The project is not directly connected with or necessary to the management of any Natura 2000 sites.

Are there other projects or plans that together with the project or plan being assessed could affect the site (provide details)? On the basis that the proposed project will have no impacts on any Natura 2000 sites, no cumulative or in combination impacts are predicted.

3.3.1 Assessment of Significance of Effects

Describe how the project or plan (alone or in combination) is likely to affect the Natura 2000 site:

The proposed project will not significantly affect any Natura 2000 sites.

Explain why these effects are not considered significant

There will be no direct impacts upon the Natura 2000 Sites as:

- No works will take place within any Natura 2000 Site.
- No resources of any Natura 2000 site will be affected by works. There will be no indirect impacts upon the Natura 2000 Sites as:
- The project is small in scale and limited in duration.
- There is no hydrological connectivity between the site and designated sites.

Indirect impacts upon the Natura 2000 Site:

- None.

Consultation with Agencies

- Pending completion of this report.

3.4 Data collected to carry out the assessment

The following sources of data were employed:

- Environmental Protection Agency Envision Database
- NPWS protected species database and online mapping
- Historical OSI Maps
- NPWS protected species database and online mapping.
- Kildare County Council Planning Database

Level of assessment completed

- Desk Study

- Survey and site visit in September 2020
- JNCC Phase 1 Habitat Assessment
- Fossitt Level III Habitat Recording

Overall Conclusions

In conclusion, no impacts are likely as a result of the proposed works on the conservation objectives or overall integrity of any Natura 2000 Site. Therefore, Appropriate Assessment is not required.

4 Reference

Fossitt, J.A (2000) A Guide to Habitats in Ireland. The Heritage Council, Kilkenny.

JNCC (2010) Handbook for Phase 1 habitat survey - a technique for environmental audit. Joint Nature Conservation Committee, Peterborough, UK.

National Roads Authority (2009) Environmental Impact Assessment for National Road Schemes – A Practical Guide. NRA, Dublin.

Parnell, J. & Curtis, T. (2012) Webb's An Irish Flora. Cork University Press, Cork.

Scannell, M J P and Synott, D M, 1987, Census Catalogue of the Flora of Ireland. Stationary Office, Dublin

Wyse Jackson, M., FitzPatrick, Ú., Cole, E., Jebb, M., McFerran, D., Sheehy Skeffington, M. & Wright, M. (2016) Ireland Red List No. 10: Vascular Plants. National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs, Dublin, Ireland.

Appendix A: Site Photos

Area of recolonising bare ground and buildings inside yard	Area of verge grassland and arable land along the L2031
	

Treeline of birch and elm south of junction	Area of cleared treeline south of junction along the L6064
	

Area of grassy verge and hedgerow along the south of the R445	Grassy verge along R445, east of junction
	

Grassy verge to south of junction	Drainage ditch adjacent side road
	

Improved grassland to south of junction	Grassy median strip
	

Grass verge to north of R445	Access road for dwellings and local authority yard
	

Opinion of Relevant Authority

COMHAIRLE CONTAE CHILL DARA

KILDARE COUNTY COUNCIL

Record of Executive Business and Chief Executive's Orders

Planning and Development Act 2000 (as amended) – Part XAB
Planning and Development Regulations 2001 (as amended) – Part 8

R445 Newhall Junction Improvement Project Co. Kildare

Appropriate Assessment (AA) Screening Determination

Pursuant to the requirements of the above, Kildare County Council is proposing to carry out R445 Newhall Junction Improvement project. The proposed development comprises the construction of a roundabout on the R445 at the same location as Newhall Crossroads. The Local Roads L6064 and L2031 will receive minor realignment required for the entry and exit geometry at the roundabout. Significant verge widening will be required on the realigned local roads to provide appropriate forward visibility on the local roads. These works will also involve associated removal of existing roadways and roadway infrastructure, cutting and filling of areas and the installation of new infrastructure or upgrading to existing roadway infrastructure. A detailed description of the proposed development has been provided in the Section 1 of the Screening for Appropriate Assessment Report with drawings provided with the Part 8 application.

Having regard to Article 6(3) of the Habitats Directive and Part XAB of the Planning and Development Act 2000 (as amended), the guidance contained in the document entitled *"Appropriate Assessment of Plans and Projects in Ireland Guidance for Planning Authorities"* (published by the Department of Environment, Heritage and Local Government in 2009) and following an examination of the objective information provided in the Screening for Appropriate Assessment report (the Screening Report) prepared by prepared by Flynn Furney, Environmental Consultants for Kilgallen & Partners Consulting Engineers on behalf of Kildare County Council, as the Competent Authority, determines that the proposed R445 Newhall Junction Improvement Project Co. Kildare , individually or in combination with other plans and projects, does not have the potential to give rise to likely significant effects on European sites, their conservation objectives or integrity, and therefore does not require an Appropriate Assessment.

Key points in the determination – 6 no. Natura 2000 sites occur within the likely zone of impact (15km) of the proposed development (The nearest SAC within the 15km distance from the proposed development site is Mouds Bog SAC and lies at a distance of 4.2km from the proposed site. The 6 no. Natura 2000 sites are not hydrologically or directly linked by habitat connectivity to the area of the proposed development site at Newhall, Co. Kildare. No risks to the conservation objectives of any other Natura 2000 sites are considered likely due one or more of the following, lack of connectivity between the proposed works areas and the designated area, significant buffer between the proposed works area and the designated area , the nature of the site's conservation objectives, no impact or change to the management of the designated area or; and no change to chemical or physiological condition of the designated site as a result of the proposed development.

It is therefore highly improbable that a project of this nature and scale will have any measurable impact on the qualifying interests of these Natura 2000 sites.

Therefore a Stage 2: Appropriate Assessment will not be required to inform the project appraisal either alone or in combination with other plans or projects, with respect to any Natura 2000 sites and their Conservation Objectives.

Signed:

A/Senior Executive Planner

06/04/2021

Emer Uí Fhátharta
Senior Planner

April 6th 2021

ORDER: That Kildare County Council as the Competent Authority, having considered the Screening for Appropriate Assessment Report, by prepared by Flynn Furney, Environmental Consultants for Kilgallen & Partners Consulting Engineers on behalf of Kildare County Council, makes a determination that a Stage 2: Appropriate Assessment will not be required to inform the R445 Newhall Junction Improvement Project, either alone or in combination with other plans or projects, with respect to any Natura 2000 sites and their Conservation Objectives.

Date: 6/4/21

Chief Executive

Appendix B

EIA Screening

EIA Screening Report

FLYNN FURNEY
ENVIRONMENTAL CONSULTANTS

Environmental Impact Assessment Screening Report

R445 Newhall Junction Improvement Project Co. Kildare

Date: September 2020

For: KILGALLEN & PARTNERS CONSULTING ENGINEER

Contents

1 INTRODUCTION

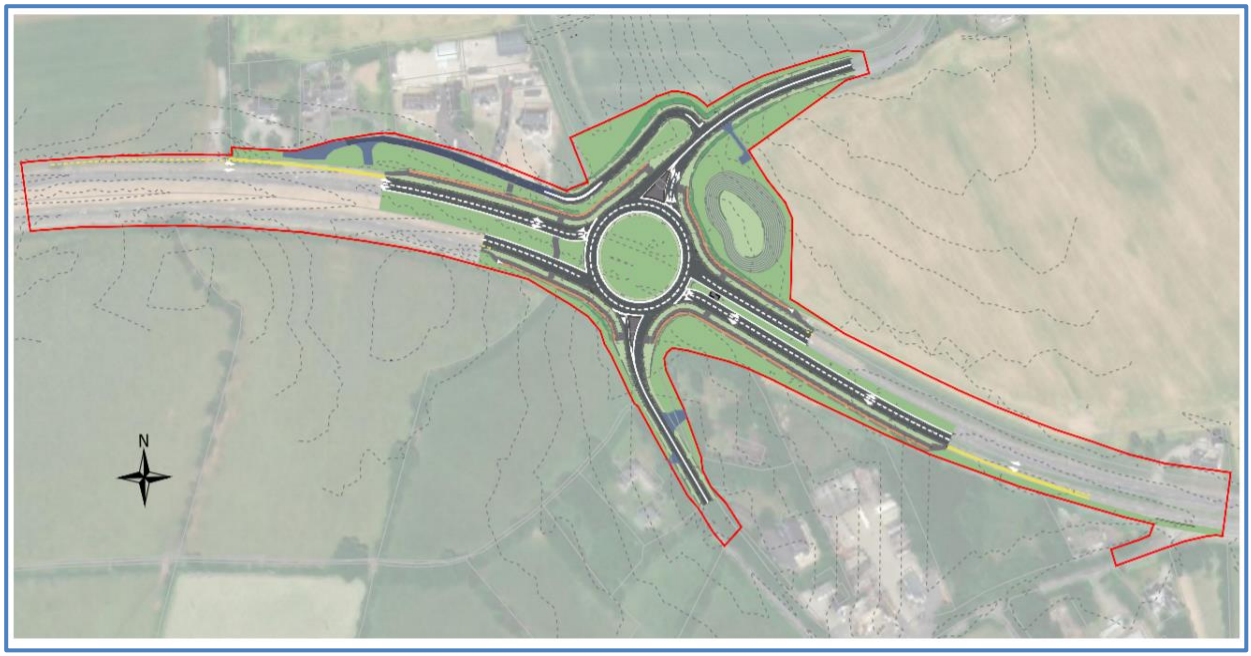
A junction improvement scheme is proposed at the Newhall Junction on the R445 to improve the safety and overall functionality of this junction and the R445 for all road users. Flynn, Furney Environmental Consultants Ltd has been engaged by Kilgallen & Partners Consulting Engineering for the provision of an environmental impact assessment screening report for the proposed works. The principal requirement for these services is to assist the relevant authorities (Kildare County Council) in forming an opinion as to whether or not the proposed works should be subject to Environmental Impact Assessment (EIA) and if so whether an Environmental Impact Assessment Report (EIAR) should be prepared in respect of it.

The screening process includes an assessment of the details of the proposed works with reference to the relevant EIA legislation including the Planning & Development Regulations 2001 (as amended by Planning and Development Regulations 2015), the EIA Directive 2011/92/EU (as amended by Directive 2014/52/EU) and relevant EU Guidance including Interpretation of definitions of project categories of annex I and II of the EIA Directive, EU, 2015 and Environmental Impact Assessment of Projects Guidance on Screening, EU, 2017. The report provides a conclusion of the process and finally a recommendation.

1.1 Description of Proposed Development

Works proposed are the construction of a roundabout on the R445 at the same location as Newhall Crossroads. The Local Roads L6064 and L2031 will receive minor realignment required for the entry and exit geometry at the roundabout. Significant verge widening will be required on the realigned local roads to provide appropriate forward visibility on the local roads. These works will also involve associated removal of existing roadways and roadway infrastructure, cutting and filling of areas and the installation of new infrastructure or upgrading to existing roadway infrastructure.

Figure 1: General Site area



2 Project Screening Introduction and Methodologies

2.1 EIA Screening Methodology

Screening is the first stage in the EIA process, whereby a decision is made on whether or not EIA is required. This Screening Assessment was undertaken with regard to the following legislation and guidance:

- The Planning & Development Act 2000, the Planning & Development (Strategic infrastructure) Act 2006 and the Roads Act 2007;
- Guidance on EIA, Screening, European Commission, 2001
- EIA, Guidance for Consent Authorities regarding Sub-threshold Development, DoEHLG,
- 2003
- Environmental Impact Assessment of National Road Schemes – A Practical Guide (NRA, 2008).
- Appropriate Assessment of Plans and Projects in Ireland – Guidance for Planning Authorities, 2009.
- Guidelines on the Information to be Contained in an Environmental Impact Assessment Report (Draft) - EPA 2017
- European Directive EIA 2014/52/EU1
- Transposition of 2014 EIA Directive (2014/52/EU) in the Land Use Planning and EPA Licencing Systems. Key Issues Consultation Paper by Department of Housing, Planning, Community and Local Government (DOHPCLG, 2017).

EIA legislation sets down the types of projects that may require an EIAR. Annex I defines mandatory projects that require an EIAR and Annex II defines projects that are assessed on the basis of set mandatory thresholds for each of the project classes. A detailed desktop study of key environmental, archaeological, visual and cultural receptors on the route has been carried out. Following this, a range of detailed field surveys were carried out.

[1] Directive 2014/52/EU of the European Parliament and of the Council of 16 April 2014 amending Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment (OJ L 124, 25.4.2015, p. 1).

The EIA screening exercise initially assesses the development for Mandatory EIA using classifications defined in the appropriate legislation. Where no mandatory requirement is concluded, screening advances to sub-threshold development assessment, where the competent authority evaluates whether the project is likely to have a *significant* effect on the environment, with reference to its scale, nature, location and context.

2.2 Mandatory EIA

EIA legislation defines the types of projects that may require an EIAR. *Annex I* defines mandatory projects that require an EIAR and *Annex II* defines projects that are assessed on the basis of set mandatory thresholds for each of the project classes.

The table below gives the mandatory thresholds relevant to the proposed project.

Table 1: Mandatory EIA Threshold Assessment

Mandatory Criterion	Clarification	Regulatory Reference	Response
Does the proposed development involve the construction of a motorway, busway or service area?	--	S. 50(1)(a) of the Roads Act, 1993 as substituted by S. 9(1)(d)(i) of the Roads Act, 2007	No
Is the proposed development a prescribed type of road development consisting of the construction of a proposed public road or the improvement of an existing public road?	The construction of a new road of four or more lanes, or the realignment or widening of an existing road so as to provide four or more lanes, where such new, realigned or widened road is 8Km or more in length in a rural area, or 500m or more in length in an urban area.	Article 8 of the Roads Regulations 1994 (Road development prescribed for the purposes of S. 50 (1)(a) of the Roads Act,1993	No
Has a direction been issued by An Bord Pleanála (ABP) to the Road Authority to prepare an EIAR?	Where ABP considers that a proposed road development would be likely to have significant effects on the environment it shall direct the road authority to prepare an EIAR	S.50(1)(b) of the Roads Act, 1993	No

Does the road authority consider that the proposed road development would be likely to have significant effects on the environment and has it informed ABP in writing of such an opinion?	Where a road authority considers that a proposed road development would be likely to have significant effects on the environment it shall inform ABP in writing and where ABP concurs it shall direct the road authority to prepare an EIAR.	S.50(1)(c) of the Roads Act, 1993	Decision will be based on outcome of this EIA screening process
Is the proposed road development located on 'certain environmental sites' and has the road authority determined whether any significant effects are likely on the environment as a result?	Certain environmental sites concerned are: **Special Area of Conservation (SAC):** A site notified in accordance with Regulation 4 of the European Communities (Natural Habitats) Regulations, 1997 (S.I. No. 94 of 1997**): Special Protection Area (SPA):** A site where consultation has been initiated in accordance with Article 5 of Council Directive 92/43/EC on the conservation of natural habitats and of wild flora and fauna. A **Nature Reserve** within the meaning of Sections 15 or 16 of the Wildlife Act, 1976 Refuge for Fauna under Section 17 of the Wildlife Act, 1976	S.50 (1)(d) of the Roads Act, 1993 as inserted by Art. 14 (a) of the EIA (Amendment) Regulations, 1999	No Natura sites occur within the route or within proximity of same. No Nature Reserves occur within the route or within proximity of same.

Conclusion: The proposed scheme does not fall within the mandatory requirement for an EIA as addressed in EU Directive 85/337/EEC (as amended by Directive 97/11/EC). These proposed works are thus assessed as a sub-threshold development.

Reasoning: The approach adopted in the relevant legislation is that EIA is mandatory for the construction of motorways, bus-ways and service areas and prescribed types of road

developments (as set out in Article 8 of the Roads Regulations, 1994) on the basis that these project classes are generally likely to have significant environmental effects. This road improvement project does not fall within the above categories which would trigger mandatory EIA.

Additionally, other instances may require the preparation of an EIA such as where An Bórd Pleanála directs a road authority to prepare an EIA, and generally where the road authority considers that significant environmental effects are likely and where (in these instances) An Bórd Pleanála concurs.

There are no sites designated for conservation of wildlife within the area proposed for works. There are no designated sites within close proximity to the works. The nearest designated site of European significance is c. 4.2km from the proposed site of works.

2.3 Sub-threshold Development (Discretionary) EIA Screening

A key determinant of the necessity for Environmental Impact Assessment of sub-threshold projects is whether or not such works are likely to have *significant* effects on the environment. The 1997 amending Directive (97/11/EC) introduced guidance for Member States in terms of deciding whether or not a development is likely to have a "significant effect on the environment".

These criteria have been transposed fully into Irish legislation in the third schedule of the European Communities Environmental Impact Assessment (Amendment) Regulations 1999, (SI No.93 of 1999) and in schedule 7 of the Planning & Development Regulations 2001 (SI No 600 of 2001) as amended by Planning & Development Regulations 2008. This has recently been updated by transposition of the 2014 EIA Directive (2014/52/EU) which amends Directive 2011/92/EU[2]). Guidance is provided by use of criteria set out in Annex III of the new Directive. These criteria as transposed in Irish legislation are grouped under three headings and are used to assist the

[2] Directive 2011/92/EU of the European Parliament and of the Council of 13 December 2011 on the assessment of the effects of certain public and private projects on the environment (codification) (OJ L 26, 28.1.2012, p. 1).

screening process in determining whether a development is likely to have a significant effect on the environment. The three headings and criteria details as given in Annex III are given below:

Table 2: Criteria to assist the screening process

Heading	Criteria
1. Characteristics of the proposed development	• the size and design of the entire proposed development/works • the cumulation with other existing and/or approved developments • the use of natural resources • the production of waste • pollution and nuisances • the risk of major accidents (with regard to substances or technologies used) • the risks to human health
2. Location of proposed development	The environmental sensitivity of geographical areas likely to be affected by proposed development, having regard in particular to: • the existing and approved land use • the relative abundance, availability, quality and regenerative capacity of natural resources in the area • The absorption capacity of the natural environment • Annex IV Species (EU Habitats Directive) • Annex I Bird Species ((EU Birds Directive) • Architectural Conservation Areas • Scenic views of protected landscapes (Co. Development Plan)
3. Type and characteristics of potential impacts	The potential significant effects of proposed development in relation to criteria set out under paragraphs 1 and 2 above, and having regard in particular to: • The magnitude and spatial extent of the impact (geographical area and size of the affected population) • The nature of the impact • The transboundary nature of the impact • The intensity and complexity of the impact • The probability of the impact • The expected onset, duration, frequency and reversibility of the impact • The cumulation of the impact with the impact of other existing and/or approved projects

	• The possibility of effectively reducing the impact

Conclusion: It is concluded that the nature of the proposed development would not be considered likely to have significant effects on the environment.

Reasoning: The size of the proposed development would not be considered significant as it is very limited in extent, involving the maximum use of an area of only around 2.1 hectares. The footprint of the proposed development is therefore very small. In addition to this, no sensitive areas occur within the immediate site of works. This site largely comprises roadside verges, Hedgerows and treelines surrounded by agricultural lands.

Works will be carried out by a contractor highly experienced in infrastructure projects. As no untested techniques, equipment or materials will be utilised in the proposed works, risk of accidents may be deemed not significant. Works will follow a Construction Management Plan and will be subject to an ongoing monitoring programme. The lack of significance of the above potential impacts arising from the nature of the project would thus indicate that in-combination impacts may not be considered significant.

3 Screening Assessment

3.1 Characteristics of the Proposed Project

Table 3: Review of characteristics of the Proposed Project

Characteristics of the Proposed Project	
Size and Design of the Proposed Development	The size of the project is below the mandatory threshold for an Environmental Impact Statement. The area of land proposed as being within the site footprint (outside existing roadway) is around 2.1 hectares. The development proposal does not fall under the criteria of Annex I or II as set out in the regulations. The development is sub threshold. The scheme is not significant in terms of size and scale. The design of the proposed development is to allow for least land-take.
Cumulation with other Existing and/or approved developments	A desktop survey of other proposed and potential developments was carried out as part of the Appropriate Assessment Screening Process for the proposed works. The conclusion of this screening was that no cumulative or in-combination impacts were predicted. No significant or relevant developments are known at time of writing.
Use of Natural Resources (habitat classification follows Fossitt, 2000)	The project will involve the use of a small area of land on roadside verge to road widening and to allow realignment of the adjoining local roads and residential access roads. However, the amount of land-take is extremely limited. The lands here typically conform to the designation Grassy Verges (GA2). There are also agricultural lands, hedgerows (WL1) and treelines (WL2) habitats which may be impacted upon. There are no other natural or semi-natural habitats within the area to be significantly affected. The project will use natural materials excavated locally as part of the construction phase of this project. Soils that occur *in*-situ will be used within the works area where possible. No additional use of freshwater or groundwater will be required by works. No abstraction of water will take place.

Characteristics of the Proposed Project	
The production of waste	The proposed development will not produce any significant amounts of additional waste. Works will be subject to a Waste Management Pan.
Pollution and Nuisances	Works do not cross any watercourses. No impacts to water quality are not considered likely. All works will take place within the lands made available for the scheme. A small cluster of houses near the scheme will be subject to some noise pollution during the construction phase of this project. While the project will require the closure of some parts of an existing public road for the construction phase, no significant delays to traffic are anticipated. In operation, the scheme will have the attendant nuisances of vehicular traffic as currently exist here, including air pollution, dust and road soiling.
Risk of Accidents and/or Disasters	Not significant. Providing best construction practices are followed, the risk of accidents which are significant in scale is considered low. A traffic management plan will be put in place for the duration of works. The risk of accidents associated with the operational phase is predicted to be significantly lower than that of the roadway at present. It will also increase the safety of the road here for all users, including motorists. No novel or potentially significantly hazardous substances or technologies will be utilised during the works. A Construction Plan will be employed to ensure adherence to good site practices which will reduce any risk of accidents. No significant impacts as a result of or in combination with enhanced climate change are predicted.
Risks to Human Health	No risks to human health are predicted by the proposed development. The operational phase presents no enhanced risks to human health. Rather, road safety will improve following the completion of works.

3.2 Location of the Proposed Works

Table 4: Review of the location and setting of the proposed works

Existing and Proposed Land Use	The project will involve the use of existing roadside verge along with some existing areas of hardstand, hedgerows and a small amount of agricultural lands. When complete, a verge will be reinstated allowing a similar mix of plants to become established.
The Relative Abundance, Availability, Quality and Regenerative Capacity of Natural Resources	Some of the above habitats will be taken for the project. These types of habitat is extremely widespread in Co. Kildare. However, it should be noted that the land-take of this project is very limited. No significant impact on soils is predicted. No additional water resources will be required. No existing watercourses will be impacted upon during construction phase. No threats to watercourses are predicted for the operational phase of the project. The ecological surveys carried out during the Appropriate Assessment Screening process did not identify any significant natural resources within the area proposed for works.
The Absorption Capacity of the Natural Environment	There will be no significant land-take or significant loss of existing habitats. Any woody vegetation will be cleared outside the bird nesting season. No wetland, coastal, forest or mountain areas occur within the area proposed for works.
Sites designated for conservation: e.g. SACs, SPAs, pNHAs	The proposed site of works is outside any site designated for conservation of nature. The nearest protected site is Mounds Bog SAC 4.2km away.
Annex I Habitats (EU Habitats Directive)	Detailed ecological assessment works have been completed. The habitat types recorded within the route do not conform to any Annex I habitats. No Annex I Priority Habitats have been recorded within immediate surrounding areas.
Annex II Species (EU Habitats Directive)	None of these surveys carried out on this site have recorded any Annex II species within area proposed for works or the adjacent lands.
Annex IV Species (EU Habitats Directive)	No significant impacts on any Annex IV species are predicted. No significant impacts on any bat species are predicted as there are no known bat roosts within the area proposed for works. Some nearby

	buildings and large mature trees close to the road may contain bat roosting habitat. However, these will not be affected by the works.
Annex I Bird Species (EU Birds Directive)	No impacts are predicted on Annex I bird species. No suitable habitat for any of these bird species exists within the area proposed for works.
Nature reserves and Parks	There are no nature reserves or parks within the area proposed for works.
Architectural Conservation Areas	This criterion is not relevant to works.
Scenic views or protected landscapes (Co. Development Plan.	No views or prospects are known within the area proposed for works.
Protected structures or Recorded Monuments and Places of Archaeological Interest	No Recorded Monuments or Places of Archaeological Interest are known to occur within the area proposed for works.

Conclusion: It can be concluded that there will be no significant direct or indirect impacts by virtue of the location of the proposed development on the receiving environment.

Reasoning: The project will not require extensive areas of agricultural lands to be taken out of production. The majority of the project will be on existing roadway or roadside verge. No significant reductions in natural resources (e.g. soil, water, biodiversity) will result from the project.

There will be no direct impacts upon the nearest Natura 2000 Sites - Mounds Bog SAC. European Communities (Natural Habitats) Regulations, 1997 requires that an Article 6(3) assessment be carried out where it is considered that a development is likely to have a significant effect on Natura 2000 sites (SAC/SPA). An Article 6(3) Appropriate Assessment Screening Report has been completed for the proposed works, which concluded that based on a consideration of the likely impacts arising from the works, no likely significant impacts on the conservation objectives of the Natura 2000 sites had been identified.

No indirect impacts are predicted.

The operational phase of the works will not have any inherent threats to any of the above sites or habitats.

No habitats considered to qualify as Annex I habitats under the EU Habitats Directive will be affected by the proposed development. Due to impacts of grazing, fertilising etc, the ecological significance of surrounding lands is considered to be low in national, regional and local terms.

No Annex II (EU Habitats Directive) listed species occur on the site of proposed works. Recent surveys have been carried out here and no evidence of the presence of these has been recorded.

No breeding or resting places of Annex I species were found within the area of works.

No suitable habitat such as roosting sites for bat species were found within the proposed works area.

No negative impacts on any structures of heritage or architectural significance will occur. There are no protected views or aspects at the proposed site of works.

3.3 Type and Characteristics of Potential Impacts

Table 5: Review of the type and characteristics of potential impacts

Spatial extent of the impact geographical area and size of the affected population	Extent of geographical area exposed to any potential impact is extremely small. The area proposed for works is 2.1 hectares. An overall potential positive impact may be expected for road users by providing a safer and wider roadway.
Nature of the impact	Some limited impacts of a temporary nature may be expected within the environs of the immediate work areas. These include some disruption to local traffic on the R181 However, these may be mitigated by traffic management and good site practices. No significant negative impacts outside the site may be expected. Long-term positive impacts are predicted from the improvement of the route safety for all users.
Transboundary nature of the	Not relevant to screening. Route will not cross any

impact	boundaries/frontiers.
Magnitude of the impact	The magnitude of impacts from the proposed works cannot be considered significant. This is due to the small size and scale of works (as above). A positive impact for road users may be predicted.
Intensity and complexity of the impact	Works involve construction within existing roads and roadside verge areas. No works are to take place outside of this area. Best practice measures will ensure no impacts on adjoining areas. No negative impacts on human beings, built or cultural interests are involved. Therefore, any potential impacts may not be complex.
Probability of the impact	The likelihood of significant negative impacts on the receiving environment is extremely low due to the nature and scale of the proposed works. No long-term negative impacts are predicted as likely.
Onset and Duration of impact	Duration of works is estimated at 2-3 months. Operational phase of the completed road is indefinite. However, no long-term impacts are predicted.
Frequency of impact	Once completed, works will not be repeated. Short-term impacts (e.g. temporary delay to traffic on the R445) will not exist past construction phase. Positive impacts on humans are predicted from the operational phase of the project.
Reversibility of the impact	Impacts arising from works in terms of changes in land-use will not be readily reversible. This is because the realigned road will be a permanent structure.
The cumulation of the impact with the impact of other existing and/or approved projects	There are no cumulative impacts predicted. No other existing or approved projects are known at time of writing.
The possibility of effectively reducing the impact	Any temporary impacts – e.g. disruption to traffic, dust emissions – may be readily reduced by the implementation of best practice management plans and adherence to guidelines.

Conclusion: It is concluded that the characteristics of the potential impacts would not be considered significant.

Reasoning: The extent of the site is very small, given the length and area of road to be realigned. The scheme does not have any potential to impact negatively upon human populations, given the

location and scale of the project and the limited nature of the proposed works. Some temporary impacts to local residents will exist during the construction phase of this project.

While some temporary negative impacts (e.g. delays to traffic during construction phase) may arise, these will be of low intensity, short duration and may readily be managed. Potential exists for positive impacts upon nearest human populations and road users. These would arise from the access to a safer road route. Long-term positive impacts may thus be predicted with confidence.

The DoEHLG (2013) Guidance Document 'Environmental Impact Assessment (EIA) Guidance for Consent Authorities regarding Sub-threshold Development' notes that 'The greater the number of different aspects of the environment which are likely to be affected and the greater the links between the effects, the more likely it is that an EIAR should be carried out. Where complexity of impacts is deemed to apply in the case of a specific sub-threshold development proposal, there should be a predisposition towards the preparation of an EIAR'. In this instance, the effects would not be considered complex.

3.4 Significance of Potential Impacts

The most significant potential impacts as described above are assessed (as per NRA, 2008) briefly in the table below as per the themes typically covered in the EIA process (as specified by EU Directive 85/337/EEC, as amended by Directive 97/11/EC).

Table 6: Review of significance of potential Impacts

Significance of potential Impacts	
Human Beings	Positive impacts of long-term duration are predicted as being highly likely as a result of a safer road route being made available.
Flora and Fauna	No significant negative impacts may be anticipated. No designated conservation site, Annex I Habitats or Annex II Species will be impacted upon.
Soils and Geology	Soils in-situ will be used. No bedrock will be impacted upon. Significance of impacts may therefore be described as imperceptible.
Water	No significant negative impacts from construction may be anticipated. No enhanced risk of flooding is predicted arising from the project. The operational phase of the road will not have any potential negative impacts

	on water quality.
Air Quality and Climate	No impacts on air quality or climate may be predicted from a project of this nature and scale.
Noise and Vibration	An increase in noise levels at site of works is anticipated. However, this will be of short duration. This may have a short-term minor impact upon nearby houses. The operational phase of the road will have no potential negative impacts. Significance of this impact is therefore low.
Landscape	No significant impacts are predicted given that the project involves the realignment of an existing roadway.
Material Assets	Positive impacts are anticipated given that the project will result in a safer roadway.
Cultural Heritage	No negative impacts are predicted.
In-combination Impacts of Above	No in-combination impacts are predicted.

Conclusion: Potential negative impacts on humans identified for the construction phase are limited to local traffic delays and short-term noise impacts to local residents. However, these may be mitigated by the implementation of an effective plans to manage traffic and appropriate works methodologies. No negative impacts are predicted as being likely on humans for the operational phase. Rather, positive impacts of long-term duration are predicted. These are owing to the junction being made safer.

No significant impacts associated with water quality are to be anticipated. No significant soil movement is anticipated. No bedrock geology will be affected by proposed works.

It is considered that the impacts in terms of material assets and thus human beings would be largely positive due to the access for the population to a safer road route.

No negative impacts on any aspects of cultural heritage are anticipated.

No impact interactions have been identified and it is considered that any minor impacts identified during the screening process can be managed through the implementation of best working practices for the construction and maintenance of the junction. No likely significant long-term or permanent negative environmental impacts have been identified in the course of the screening process.

4 CONCLUSION AND RECOMMENDATIONS

It is concluded that the characteristics of the proposed development would not be considered likely to have significant effects on the environment. This is based primarily on the very limited size and scale of the proposed works and low potential to have significant impacts. No other projects emerged from the screening process with which the proposed works may have significant cumulative impacts. No demolition is anticipated. The works will be below the threshold of quantity requiring EIA. No water abstraction will be required. No waste materials will arise from the proposed works in any significant quantities. No significant pollution or nuisance is anticipated to the population here. No significant risk of accidents is anticipated.

It is concluded that there will be no significant direct or indirect impacts by virtue of the location of the proposed development on the receiving environment. This is based primarily upon the low risk of impacts to any Natura 2000 site qualifying interests. A number of Annex II species were investigated but no impacts were predicted given the implementation of mitigation measures and best practise. The European Communities (Natural Habitats) Regulations, 1997 requires that an Article 6(3) assessment be carried out where it is considered that a development is likely to have a significant effect on Natura 2000 sites. An Article 6(3) Appropriate Assessment Screening Report has been completed for the proposed works. This concluded that based on a consideration of the likely impacts arising from the works, no likely significant impacts on the conservation objectives of any Natura 2000 site had been identified. Works will not take place within any other designated site. No Annex I Habitats (EU Habitats Directive) occur within the site of works. No Annex II Species of the same directive were found to occur on site. An Appropriate Assessment screening for the project predicted no impacts on any of these species. The operational phase of the route will have no potential for negative impacts on these sites or species. No archaeological or built heritage assets will be negatively impacted upon by the proposed works.

It is concluded that the type and characteristics of the potential impacts would not be considered significant. This is based primarily upon the limited size and scale of the proposed works. The lack of sensitive receptors is also a significant factor in this assessment. Impacts on landscape, soils and geology are not considered significant, given the scale of works; while it is considered that the impacts in terms of material assets and human beings would be largely positive due to the new access to a safer road route with the exception of minor short-term noise impacts to some local residents. There may also be some short-term negative impacts from delays to local traffic on this

regional road and on local roads. However, these would be of short-term duration and readily managed.

The assessment has been carried out on the proposed works as a sub threshold development. The overall conclusion of this screening exercise is that there should be no specific requirement for a full Environmental Impact Assessment of the proposed works.

5 REFERENCES

DoEHLG. (2003) 'Environmental Impact Assessment (EIA) Guidance for Consent Authorities regarding Sub-threshold Development'. Department of Environment, Heritage and Local Government, Dublin.

DOECLG (2015) *Planning and Development Regulations 2001-2013* (Unofficial Consolidation). Unpublished Report by Department of Environment, Community and Local Government.

FFEC (2020) *AA Screening R445 Junction Improvement Scheme.* Unpublished Report for Kildare County Council by Flynn Furney Environmental Consultants Ltd, Cork.

NRA (2008) *Environmental Impact Assessment of National Roads Schemes – a practical guide*. National Roads Authority (Now Transport Infrastructure Ireland) , Dublin.

Opinion of Relevant Authority

COMHAIRLE CONTAE CHILL DARA

KILDARE COUNTY COUNCIL

Record of Executive Business and Chief Executive's Orders

Planning and Development Act 2000 (as amended) – Part XI
Planning and Development Regulations 2001 (as amended) – Part 8

R445 Newhall Junction Improvement Project Co. Kildare

Environmental Impact Assessment (EIA) Screening Determination

Pursuant to the requirements of the above, Kildare County Council is proposing to carry out R445 Newhall Junction Improvement Project. The proposed development comprises the construction of a roundabout on the R445 at the same location as Newhall Crossroads. The Local Roads L6064 and L2031 will receive minor realignment required for the entry and exit geometry at the roundabout. Significant verge widening will be required on the realigned local roads to provide appropriate forward visibility on the local roads. These works will also involve associated removal of existing roadways and roadway infrastructure, cutting and filling of areas and the installation of new infrastructure or upgrading to existing roadway infrastructure. A detailed description of the proposed development has been provided in the Section 1 of the Environmental Impact Assessment Screening Report with drawings provided with the Part 8 application.

Having regard to EIA Directive 2011/92/EU as amended by Directive 2014/52/EU (the EIA Directive), the guidance contained in: "*Environmental Impact Assessment (EIA) Guidance for Consent Authorities regarding Sub-Threshold Development*" (published by the Department of Environment, Heritage and Local Government in 2003); "*Environmental Impact - Assessment of Projects - Guidance on Screening*" (published by the European Commission in 2017); "*Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment*" (published by the Department of Housing, Planning and Local Government in 2018); and on the basis of the objective information provided in the "*Environmental Impact Assessment Report*"(the Screening Report) prepared by Flynn Furney, Environmental Consultants for Kilgallen & Partners Consulting Engineers on behalf of Kildare County Council, as the Competent Authority, determines that the R445 Newhall Junction Improvement Project individually, and in combination with other plans and projects, does not require and Environmental Impact Assessment.

It is considered that the Screening Report has been carried out giving full consideration to the EIA Directive and in particular to Annex I, II and III of that Directive, which set out requirements for mandatory and sub-threshold EIA.

As the proposed R445 Newhall Junction Improvement Projects is sub-threshold, it has, therefore, been assessed on a case-by-case basis in accordance with the criteria for determining whether or not a development would or would not be likely to have significant effects on the environment as outlined within Annex III of the EIA Directive.

It is further considered that the Screening Report contains a fair and reasonable assessment of the likelihood of significant effects of the proposed project on the environment, having regard to the foregoing and in particular:

- The size and design of the whole project;
- Cumulation with other existing and/or proposed projects;
- The use of natural resources, in particular land, soil, water and biodiversity;
- The production of waste;

- Pollution and nuisance;
- The risk of major accidents and/or disasters which are relevant to the project concerned, including those caused by climate change, in accordance with scientific knowledge; and
- The risk to human health (for example due to water contamination or air pollution).

Sections 2 and 3 of the screening report provides a reasonable description and assessment of the types and characteristics of the potential impacts of the proposed development in respect of each heading.

It is considered that the environmental effects arising from the proposed project will generally be localised and minor in nature. I concur with the conclusion and recommendation of the screening report that the proposed development is not likely to give rise to significant environmental impacts and does not require an Environmental Impact Assessment Report to be prepared or an Environmental Impact Assessment to be conducted.

Signed:

A/Senior Executive Planner

Dated: 06/04/2021

Emer Uí Fhátharta
Senior Planner
April 6th 2021

ORDER: That Kildare County Council as the Competent Authority having considered the EIA Screening Report prepared by Flynn Furney Environmental Consultants, for Kilgallen & Partners Consulting Engineers for Kildare County Council hereby makes a determination that the proposed R445 Newhall Junction Improvement Project Co. Kildare would not be likely to have significant effects on the environment and that the proposed project does not require an Environmental Impact Assessment.

Date: 6/4/21

Chief Executive

Appendix C

Report on Ecological Impact

FLYNN FURNEY
ENVIRONMENTAL CONSULTANTS

Ecological Impact Assessment Report

R445 Newhall Junction Improvement Project Co. Kildare

Date: September 2020

For: KILGALLEN & PARTNERS CONSULTING ENGINEERS

Contents

1 INTRODUCTION

Works have been proposed by Kildare County Council at the Newhall Junction of the R445, south-west of Naas, Co. Kildare. The development consists of the construction of a roundabout, realignment of local roads, and roadside verges and associated works.

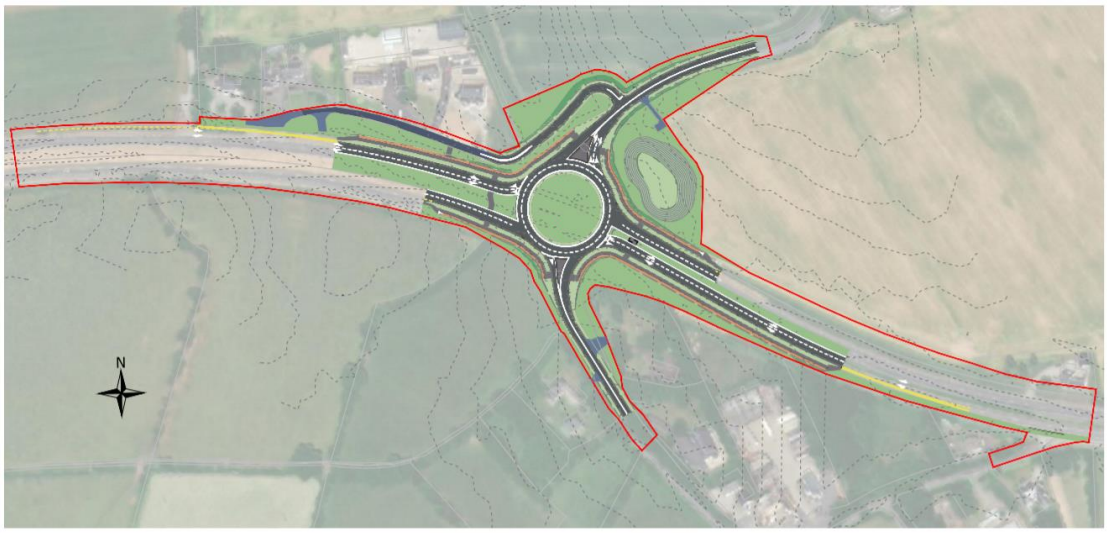
The site was surveyed by Ecologists of Flynn Furney Environmental Consultants in September 2020. The purpose of this Ecological Impact Assessment is to provide a description of potential ecological impacts arising from this proposed development. The surveys carried out investigate whether any Annex I habitats (EU Habitats Directive), Annex II species (EU Habitats Directive), Annex I Bird Species (EU Birds Directive) or 'stepping stones/Ecological Corridors' (as covered under Annex 10 of the EU Habitats Directive) or locally important habitats are likely to be impacted as a result of the proposed development.

This work has been completed in in accordance with TII 'Guidelines for Assessment of Ecological Impacts of National Roads Schemes'.

1.1 Outline Description of the Proposed Site of Works

The study site is located in the townlands of Ladytown and Newhall approximately 10km south west of Naas town centre Co. Kildare on the R445. The proposed site comprises a number of small parcels of land including fields, roads, roadside verges, brown field sites, yards and buildings both north and south of the existing R445. The fields that surround the site are generally pasture or for arable crop production. A number of minor hedgerows and treelines also surround the site particularly south of the R445 and along the L6064.

Figure 1: Site boundary



1.2 Description of the Works

The area under study can be seen in figure 1. Works are likely to involve the removal and stockpiling of surface soil and overburden material including hedgerows and trees. The removal, reinstatement and installation of services, filling (as required), capping and road surfacing.

1.3 Objectives of this EcIA

The objectives of this present studies were as follows:

- To map and describe existing habitats
- To identify sensitive areas within the site
- To identify potential ecological conflicts or impacts
- To identify ways to avoid the above and mitigate against if necessary
- To suggest Ecological enhancements works that can be added to this project.

2 LEGISLATION AND PLANNING POLICY

2.1 European Council Directives

2.1.1 Council Directive on the Conservation of Natural Habitats of Wild Fauna and Flora (92/43/EEC) (The Habitats Directive)

The main aim of the Directive is to promote the maintenance of biodiversity through the conservation of natural habitats and wild species listed on the Annexes of the Directive. Member States are required to take measures to maintain or restore, at favourable conservation status, biodiversity whilst taking account of economic, social, cultural requirements and regional and local characteristics.

It gives effect to site and species protection measures through establishment of the Natura 2000 network and designation of European Sites including Special Areas of Conservation (SAC) and Special Protected Areas (SPA). It also establishes a list of species (other than birds) whose habitats must be protected to secure their survival. These priority species and habitats are subject to a higher level of protection.

The Directive also requires appropriate assessment of any plan or project not directly connected with or necessary to the management of a European Site, but likely to have significant effects upon a European site, either individually or in combination with other plans or projects.

2.2 Council Directive on the Conservation of Wild Birds (2009/147/EC) (The Birds Directive)

The Directive provides a framework for the conservation and management of, and human interactions with, wild birds in Europe. It makes provisions for the maintenance of the wild bird populations across their natural range; conserves the habitats for rare or vulnerable species listed in Annex I and of migratory species through the classification of SPAs and provides protection for all wild birds.

2.3 Irish Legislation

2.3.1 The European Communities (Birds and Natural Habitats) (Amendment) Regulations 2015 (S.I. No. 355 of 2015)

The European Communities (Birds and Natural Habitats) (Amendment) Regulations provides that the following shall be construed together as one:

Wildlife Act 1976
Wildlife (Amendment) Acts of 2000, 2010 and 2012
European Communities (Birds and Natural Habitats) (Restrictions of the Use of Poison Bait) Regulations 2010
European Communities (Birds and Natural Habitats) Regulations 2011
European Communities (Birds and Natural Habitats) (Amendment) Regulations of 2013, 2015
Wildlife Amendment Bill 2016 (proposed legislation)

2.3.2 European Communities (Birds and Natural Habitats) Regulations 2011 to 2015

The Regulations give effect to requirements relating to the designation of protected sites under the Birds Directive and Habitats Directive. The Regulations provide for the protection and management of European Sites and place obligations on all public authorities to have regard to the requirements of the Habitats Directive beyond the realms of planning related consents issued under the Planning and Development Act 2000, as amended (the PDA). The Regulations also provide for the protection of species of European importance.

2.3.3 Wildlife Acts 1976 to 2012

The Acts provides for *inter alia* the protection of wildlife. The Acts prohibit the intentional killing, taking or injuring of certain wild birds or wild animals; or the intentional destruction, uprooting or picking of certain wild plants.

2.3.4 Wildlife Amendment Bill 2016

The purpose of the Bill is to provide for the implementation of a reconfiguration of the Raised Bog Natural Heritage Area Network arising from (i) the proposals from the Review of Raised Bog Natural Heritage Area Network published in January 2014; (ii) an assessment of the effects on the environment of the proposals arising from the Review and, if required, any other screening for an assessment or as the case may be, assessment, including public consultation undertaken and (iii) observations or submissions received during the course of public consultation.

Taken as a whole, nature conservation legislation is of key importance in undertaking EcIA for proposed development as it shapes planning policy.

3 SURVEY METHODOLOGY

Walkover surveys of the site were carried out in September 2020. Habitats were identified, mapped and classified and dominant plant species noted in accordance with the guidelines given by the JNCC (2007) and The Heritage Council (2010). Bat habitat and mammal surveys followed guidance as per NRA/TII guidance documents. Habitats were classified as per Fossitt (2000). Assessment of ecological impact followed CIEEM (2018), NRA (2006) and EPA (2002).

3.1 DESK STUDY

Prior to the main fieldwork contributing to this assessment, a desktop survey of available information sources was carried out. These included:

- The National Biodiversity Data Centre Online Database
- The National Biodiversity Network Online Atlas
- The NPWS Protected Species Database and Online Mapping
- The Environmental Protection Agency Database
- The EPA Water Quality in Ireland Report

Desk research also included a review of records available through the National Biodiversity Data Centre mapping system. These included rare and protected species. Records were requested for all species appearing within the study area or immediately surrounding the study area. The results of which can be seen in Appendix C.

Designated sites were identified using the current boundary shapefiles downloaded from the NWPS website. Records of species from within the relevant Km squares were also obtained. Habitat mapping also reviewed included the Irish Semi-Natural Grassland Surveys (ISGS), the National Survey of Native Woodland (NSNW) and Ancient woodland inventory.

3.2 FIELD STUDY

Field work for this survey was carried out on the 23rd of September 2020. The field survey habitat assessments were carried out according to guidelines given by the Heritage Council (2011) and the JNCC (2010). A primary purpose of this survey was to:

- Identify habitat types within the study area
- Assess for the presence of protected species of flora and fauna
- Identify ecological and environmental constraints to the construction of this Greenway
- Identify ecological sensitivities around and within the study area.

3.2.1 Ecological Impact Assessment Methodologies

This ecological impact assessment has been prepared in accordance with relevant legislation and best practice guidance including:

- The Chartered Institute of Ecology and Environmental Management Guidelines for Ecological Impact Assessment in the UK and Ireland: terrestrial, freshwater and Coastal 2nd Edition. CIEEM (2018).
- The EPA's Draft Advice Notes on Preparing Environmental Impact Statements (EPA, 2015a).
- The EPA's Draft Revised guidelines on Information to be Contained in Environmental Impact Statements (EPA, 2015b).
- Guidelines for Assessment of Ecological Impacts of National Road Schemes (NRA, 2009).

Ecological features (habitats and species) were evaluated for their conservation importance according to the National Roads Authority's scheme (NRA 2009). For habitats or species, significance of effects was assessed with reference to their conservation status, abundance and distribution. Description of significant effects follows guidance outlined in the EPA Draft Revised Guidelines on the Information to be Contained in EIS (EPA, 2015b). The term 'significant effect' as used in this report follows guidance (CIEEM, 2018) and is an effect that either supports or

undermines biodiversity conservation objectives for 'important ecological features' or for biodiversity in general. In the case of designated sites, a negative significant effect would be one that undermines the conservation objectives and targets for that site. The significance of impacts on habitats was determined with reference to the value of the feature being affected and the magnitude of the impact. Impacts are considered ecologically significant at a stated geographic scale or are considered not significant.

The impacts which may be expected from the proposed road improvement works are assessed below. These possible impacts have been assessed under the CIEEM (2018) and the National Roads Authority guidelines (NRA, 2006). Criteria for assessment of duration of impacts used (EPA 2002). These provide guidance on assessing impact significance upon features of sites proposed for works and those adjacent. Impact significance must be given in context of their respective ecological value of the site and features under study.

The 'ecological value' of an area or feature is defined with reference to geographical context. That is, whether it is of value locally, regionally, nationally or internationally. This is assessed by ecologists on reviewing survey outcomes. Key criteria are the presence of designated sites, the site or feature containing protected species or areas of high biodiversity. The criteria for ecological value are given in Table 1, below.

Table 1: Ecological Value Criteria

Ecological Value	Criteria
International	▪ 'European Sites' including Special Areas of Conservation (SAC) & Special Protection Areas (SPA). ▪ Sites that satisfy the criteria for designation as a 'European Site' (see ▪ Annex III of the Habitats Directive, as amended). ▪ Features essential to maintaining the coherence of the Natura 2000 Network. ▪ Sites containing 'best examples' of the habitat types listed in Annex I of the Habitats Directive.

Ecological Value	Criteria
	▪ Resident or regularly occurring populations (assessed to be important at the national level) of the following: ▪ Species of bird, listed in Annex I and/or referred to in Article 4(2) of the Birds Directive; and/or ▪ Species of animal and plants listed in Annex II and/or IV of the Habitats Directive. ▪ Ramsar Sites ▪ World Heritage Sites (Convention for the Protection of World Cultural & Natural Heritage, 1972). ▪ Sites hosting significant species populations under the Bonn Convention ▪ Sites hosting significant populations under the Berne Convention ▪
National	▪ Areas of Special Scientific Interest (ASSI) or Natural Heritage Area (NHA). ▪ National Nature Reserves (NNR). ▪ Marine Nature Reserves (MNR). ▪ Area of Outstanding Natural Beauty (AONB). ▪ Refuge for species protected under the Wildlife (Northern Ireland) Order 1985 (as amended). ▪ Undesignated sites fulfilling the criteria for designation as an ASSI; NNR; MNR; and/or refuge for species protected under the Wildlife (Northern Ireland) Order 1985 (as amended). ▪ Resident or regularly occurring populations (important at the national level) of the following: ▪ Species protected under Wildlife (Northern Ireland) Order 1985 or Wildlife Act 1976, as amended); and/or ▪ Species listed on the relevant Red Data list. ▪ Sites containing 'viable areas' of the habitat types listed in Annex I of the Habitats Directive.
Regional	

Ecological Value	Criteria
	▪ Sites of Local Nature Conservation Importance (SLNCI). ▪ Areas subject to a Tree Preservation Order. ▪ Resident or regularly occurring populations (assessed to be important at the Regional level) of the following: ▪ Species of bird, listed in Annex I and/or referred to in Article 4(2) of the Birds Directive; ▪ Species of animal and plants listed in Annex II and/or IV of the Habitats Directive; ▪ Species protected under the Wildlife (Northern Ireland) Order 1985 (as amended); and/or ▪ Species listed on the relevant Red Data list. ▪ Sites containing areas of the habitat types listed in Annex I of the Habitats Directive that do not satisfy the criteria for valuation as of International or National importance. ▪ Regionally important populations of species or viable areas of semi-natural habitats or natural heritage features identified in the National or Local Biodiversity Action Plan (BAP), if this have been prepared. ▪ Sites containing semi-natural habitat types with high biodiversity in a regional context and a high degree of naturalness, or populations of species that are uncommon within the region. ▪ Sites containing habitats and species that are rare or are undergoing a decline in quality or extent at a national level.
Local	▪ Locally important populations of priority species or habitats or features of natural heritage importance identified in the Local BAP, if this has been prepared; ▪ Resident or regularly occurring populations (assessed to be important at the Local level) of the following: ▪ Species of bird, listed in Annex I and/or referred to in Article 4(2) of the Birds Directive;

Ecological Value	Criteria
	▪ Species of animal and plants listed in Annex II and/or IV of the Habitats Directive; ▪ Species protected under the Wildlife (Northern Ireland) Order 1985 (as amended); and/or ▪ Species listed on the relevant Red Data list. ▪ Sites containing semi-natural habitat types with high biodiversity in a local context and a high degree of naturalness, or populations of species that are uncommon in the locality; ▪ Sites or features containing common or lower value habitats, including naturalised species that are nevertheless essential in maintaining links and ecological corridors between features of higher ecological value ▪ Sites containing small areas of semi-natural habitat that are of some local importance for wildlife; ▪ Sites or features containing non-native species that are of some importance in maintaining habitat links.

Ecological Impact Assessment must also consider the *significance* of effects that may be expected arising from a proposed development. CIEEM guidelines (2016) define a significant effect as:

"an effect that either supports or undermines biodiversity conservation objectives for 'important ecological features'... or for biodiversity in general. Conservation objectives may be specific (e.g. for a designated site) or broad (e.g. national/local nature conservation policy) or more wide-ranging (enhancement of biodiversity). Effects can be considered significant at a wide range of scales from international to local".

It also states that:

"an effect that is sufficiently important to require assessment and reporting so that the decision maker is adequately informed of the environmental consequences of permitting a project. A

significant effect is a positive or negative ecological effect that should be given weight in judging whether to authorise a project: it can influence whether permission is given or refused and, if given, whether the effect is important enough to warrant conditions, restrictions or further requirements such as monitoring".

The criteria for assessment of significance of effects is given in the following table. It should be noted that significant effects may also include beneficial effects.

3.3 Significance Criteria

Table 2: Criteria for Assessing Significance of Effects

Impact Significance	Effect	Criteria
Significant Negative Effect	Major Adverse	▪ Loss of, permanent damage to or adverse impact on any part of a site of international or national importance; ▪ Loss of a substantial part or key feature of a site of regional importance; ▪ Loss of favourable conservation status (FCS) of a legally protected species; ▪ Loss of or moderate damage to a population of nationally rare or scarce species.
	Moderate Adverse	▪ Temporary disturbance to a site of international or national importance, but no permanent damage; ▪ Loss of or permanent damage to any part of a site of regional importance; ▪ Loss of a key feature of local importance; ▪ A substantial reduction in the numbers of legally protected species such that there is no loss of FCS but the population is significantly more vulnerable; ▪ Reduction in the amount of habitat available for a nationally rare or scarce species, or species that are notable at a regional or county level.

Impact Significance	Effect	Criteria
No Significant Effect	Minor Adverse	▪ Temporary disturbance to a site of regional value, but no permanent damage; ▪ Loss of, or permanent damage to, a feature with some ecological value in a local context but that has no nature conservation designation; ▪ A minor impact on legally protected species but no significant habitat loss or reduction in FCS; ▪ A minor impact on populations of nationally rare or scarce species or species that are notable at a regional or county level.
	Negligible	▪ No impacts on sites of international, national or county importance; ▪ Temporary disturbance or damage to a small part of a feature of local importance; ▪ Loss of or damage to land of negligible nature conservation value; ▪ No reduction in the population of legally protected, nationally rare, nationally scarce or notable (regional level) species on the site or its immediate vicinity. ▪ Beneficial and adverse impacts balance such that resulting impact has no overall affect upon feature.
	Minor Beneficial	▪ A small but clear and measurable gain in general wildlife interest, e.g. small-scale new habitats of wildlife value created where none existed before or where the new habitats exceeds in area that habitats lost.
Significant Positive Effect	Moderate Beneficial	▪ Larger new scale habitats (e.g. net gains over 1 ha in area) created leading to significant measurable gains in relation to the objectives of biodiversity action plans.

Impact Significance	Effect	Criteria
	Major Beneficial	▪ Major gains in new habitats (net gains of at least 10 ha) of high significance for biodiversity being those habitats, or habitats supporting viable species populations, of national or international importance cited in Annexes I and II of the habitats Directive or Annex I of the Birds Directive.

3.3.1 Impact duration

The duration of impact must also be considered when assessing overall ecological impacts. Criteria for assessment of duration of impacts used (EPA 2002), the following terms are defined when quantifying duration:

• Temporary: up to 1 year
• Short-term: from 1-7 years
• Medium-term: 7-15 years
• Long-term: 15-60 years
• Permanent: over 60 years

The likelihood of impacts should also be defined. Assessment of likelihood of impact followed CIEEM guidelines. These assesses likelihood as follows:

- Almost Certain: probability estimated at greater than 95%
- Probable or Likely: probability estimated between 50% and 95%
- Unlikely: probability estimated between 5% and 50%
- Extremely Unlikely: probability estimated at less than 5%

4 Results

4.1 Designated Areas

All sites designated for the conservation of nature within 15km of the proposed works are detailed in Table 3. Maps of designated sites found with 15km of the site can be seen in Appendix 1.

Table 3: Designated Areas with 15km of the proposed site

Site Code	Site Name	Designation	Distance from designated site	Likelihood of impact
2331	Mouds Bog	SAC	4.2km	None identified
396	Pollardstown Fen	SAC	7.8km	None identified
1387	Ballynafagh Lake	SAC	7.8km	None identified
391	Ballynafagh Bog	SAC	9.2km	None identified
397	Red Bog, Kildare	SAC	12km	None identified
4063	Poulaphouca Reservoir	SPA	13km	None identified
1393	Hodgestown Bog	NHA	12km	None identified
391	Ballynafagh Bog	pNHA	9.7km	None identified
392	Curragh (Kildare)	pNHA	7.7km	None identified
393	Liffey Valley Meander Belt	pNHA	9.8km	None identified
395	Mouds Bog	pNHA	4.2km	None identified
396	Pollardstown Fen	pNHA	7.7km	None identified
397	Red Bog, Kildare	pNHA	12km	None identified
731	Poulaphouca Reservoir	pNHA	13km	None identified
1387	Ballynafagh Lake	pNHA	10.8km	None identified
1391	Donadea Wood	pNHA	13.1km	None identified
1394	Kilteel Wood	pNHA	13km	None identified
1395	Liffey At Osberstown	pNHA	2.4km	None identified
1396	Liffey Bank Above Athgarvan	pNHA	7.1km	None identified
1759	Newtown Marshes	pNHA	13.1km	None identified
1772	Dunlavin Marshes	pNHA	14.7km	None identified
2104	Grand Canal	pNHA	1.3km	None identified

No risks to the conservation objectives of any other Natura 2000 sites are considered likely due one or more of the following:

- Lack of connectivity between the proposed works areas and the designated area
- Significant buffer between the proposed works area and the designated area
- The nature of the site's conservation objectives
- No impact or change to the management of the designated area or;
- No change to chemical or physiological condition of the designated site as a result of the proposed development.

A number of proposed/ Natural Heritage Areas occur within 15km of the site proposed for works. Again, no risks to any of these areas are likely as a result of the proposed works for one or more of the reasons specified above.

4.2 Habitats

The flowing habitat types were recorded within or surrounding the site during field work in September 2020. The habitat assessment was carried out according to guidelines given by the Heritage Council (2011) and the JNCC (2010). Maps of all habitat types found within and surrounding the site can be seen in Appendix 1.

4.2.1 Dry meadow and grassy verges (GS2)

Grassy verges primarily occurred along the road side and between the lanes of the R445. These areas of grass looked to be unmanaged or infrequently managed. These grasslands were overgrown and were dominated by False Oat-grass (*Arrhenatherum elatius*) with occasional Cock's-foot (*Dactylis glomerata*) and Bents (*Agrostis spp*.). The herb layer varied considerably around these patches of grass. The most diverse were west of the junction in front of the row of houses and in front of the field of improved grassland. Here Hogweed (*Heracleum sphondylium*), Bush Vetch (*Vicia sepium*), Sow thistle (*Sonchus arvensis*), Creeping Buttercup (*Ranunculus*

repens), Plantains (*Plantago spp.*), Hedge Bindweed (*Calystegia sepium*), Common Knapweed (*Centaurea nigra*), Ragworts (*Senecio spp*.), Tormentil (*Potentilla erecta*) and Red Clover (*Trifolium spp*) were recorded.

Other areas of Grassy verge including those around the L2031 were less species diverse and also dominated by False Oat-grass (*Arrhenatherum elatius*) but also included Creeping Buttercup (*Ranunculus repens*), Rape (Brassica napus), Cow Parsley (Anthriscus sylvestris) and Elder (*Sambucus nigra*).

4.2.2 Improved Grassland GA1

The dominant habitat surrounding much of the south west side of the junction. Improved grassland dominated by Rye grass (*Lolium spp*), Meadow-grasses (*Poa spp.*) and Fescues (*Festuca spp.*). The field look to have been primarily used for grazing by cattle and sheep. Species of agricultural herbs identified included Dandelion (*Taraxacum spp.*), Creeping Buttercup (*Ranunculus repens*), Plantains (*Plantago spp.*), Nettle (*Urtica dioica*), Thistles (*Cirsium arvense, C. vulgare*) and Docks (*Rumex spp.*).

4.2.3 Hedgerows (WL1)

Hedgerows formed continuous bands around the south western edge of the study area and continued into the surrounding fields. Hedgerows generally contained Hawthorn (*Crataegus monogyna*) and Blackthorn (*Prunus spinosa*) interspersed Ash (*Fraxinus excelsior*), Hazel (*Corylus avella*na), Elder (*Sambucus nigra*), Elms (*Ulmus spp*.) and Brambles (*Rubus fruticosus agg*.).

The invasive species Snowberry (*Symphoricarpos albus*) was recorded within hedgerows along the western side of the L6064.

4.2.4 Treelines (WL2)

Treelines and small groups of trees were recorded throughout the site. Along the boundary of the property west of the L6064 a treeline dominated by Mature Beech (*Fagus sylvatica*) was

recorded. The remains of an Ash (*Fraxinus excelsior*) treeline was recorded east of the L6064. This originally wrapped around the property at the junction but much this has recently been removed.

North of the junction a small stand of trees approximately 15 years old has been planted these included Downy Birch (*Betula pubescens*) and Lime (*Tilia Cordata*). Opposite a linear strip of trees was recorded that included Downy Birch (*Betula pubescens*) and Coast Redwood (*Sequoia sempervirens*).

4.2.5 Recolonising bare ground (ED3)

This habitat was recorded within a yard on the north west of the junction. Access to the yard was restricted. Vegetation cover was less than 50% and contained typical primary colonising generalist species including Colt's Foot (*Tussilago farfara*), Nettle (*Urtica dioica*), Dandelion (*Taraxacum spp*.), Willow-herbs (*Epilobium spp*.) and ragwort (*Senecio spp*.), Herb-Robert (*Geranium robertianum*) and Creeping Buttercup (*Ranunculus repens*). Brambles (*Rubus fruticosus agg*.) were recorded coming over the fence from neighbouring properties.

4.2.6 Drainage ditches (FW4)

Drainage ditches were recorded running along the northern boundary with the property on the L6064. This drain then continued north along the L6064 and then disappeared into a culvert. The only aquatic plants recorded within this ditch was Fool's Water-cress (*Apium nodiflorum*). All other plant species recorded were associated with the surrounding hedgerows and grassy verges.

4.2.7 Amenity grassland (GA2)

This type of grassland was recorded within or in front of a number of residential properties surrounding the site. Rye-grasses (*Lolium spp.*) or other cultivated grass verities dominated these areas. Broadleaved herbs such as Daisy (*Bellis perennis*), Dandelion (*Taraxacum spp*.), clovers (*Trifolium spp*.) and plantains (*Plantago spp*.) were common.

4.2.8 Buildings and artificial surfaces (BL3)

This broad category incorporates all the houses, roadways, hard stands around houses, driveways and the access road to the small cluster of houses north of the R445. Species were limited to a few small clumps of courses grasses like False Oat-grass (*Arrhenatherum elatius*) and Cock's-foot (*Dactylis glomerata*) and 'weed' species including Dandelion (*Taraxacum spp*.) and Ragworts (*Senecio spp*.).

4.2.9 Arable Land (BC1)

Agricultural land that is cultivated and managed for the production of cereals (wheat, barley, oats, maize), were recorded along the eastern and western side of the L2031. These had recently been harvested and the fields were in stubble at the time of surveying.

5 Evaluation of Significance of Habitats

This section evaluates the ecological significance of the habitats discussed in detail above. Using the guidelines provided in section 3.3.

Table 4: Evaluation of Significance of Impacts

Habitat Types	Evaluation	Rationale
Hedgerows	High Local	Mature hedgerows Ecological corridors Feeding and nesting opportunities for birds
Dry meadow and grassy verges	Low Local	Support some flowering species that may support invertebrate communities
Treelines	High Local	Mature treelines Ecological corridors Feeding and nesting opportunities for birds
Improved Grassland	Low Local	Small areas of generally species poor grassland and grassy verges. Often highly modified.
Recolonising bare ground	Low Local	Small areas of generally species poor ground. Highly modified.
Drainage ditches	Low Local	Small areas supporting limited wetland vegetation
Amenity grassland	Low Local	Small areas of generally species poor grassland and grassy verges. Often highly modified.
Buildings and artificial surfaces	Low Local	No ability to support plant or animal communities
Arable Land	Low Local	Generally species poor and of limited ability to support communities

6 Evaluation of Significance of Impacts: Habitats

The potential impacts on the ecological features identified are given in table 5.

Table 5:Impact Assessment for Site Habitats

Ecological feature	Evaluation	Nature of Impact	Significance	Duration & Likelihood
Hedgerows	High Local	Possible disturbance to bird species during construction.	Negligible	Short-term/Possible
Dry meadow and grassy verges	Low Local	Most will be lost	Negligible	Permanent/Likely
Treelines	High local	-Some mature treelines will be removed. - Some treelines will be pruned/cut back	Negligible	Long-term / Likely
Improved Grassland	Low Local	No impacts predicted	None	None
Recolonising bare ground	Low Local	Some may be lost	Negligible	Long-term/ Unlikely
Drainage ditches	Low Local	No significant impacts predicted	None	None
Amenity grassland	Low Local	Some will be lost	Negligible	Long-term/ Likely
Buildings and artificial surfaces	Low Local	No significant impacts predicted	None	None
Arable Land	Low Local	No significant impacts predicted	None	None

7 Impact Mitigation

Mitigation measures to address the potential impacts as detailed above on the ecological features are given in table 6.

Table 6: Habitat mitigation required

Ecological feature	Nature of Impact	Recommended Mitigation Measures
Hedgerows	- Some hedgerows will be partially removed. - Some hedgerows will be pruned/cut back	- Mature hedgerows retained where possible - Native species used in reinstatement - Pruning to be carried out at correct time of year
Dry Meadow & Grassy Verges	Some will be lost	Replanting and management schemes to be drawn up to allow habitat recreation along remaining verges.
Treelines	-Some mature treelines will be partially removed. - Some treelines will be pruned/cut back	-Removal of mature trees to be minimised - Younger trees removed where possible - Replanting to be carried out on like-for-like basis where possible - Pruning to be carried out at correct time of year
Improved agricultural grassland	Some may be lost	No mitigation required
Recolonising bare ground	Some may be lost	No mitigation required
Drainage ditches	Likely to be diverted or culverted	No mitigation required
Amenity Grassland	Some will be lost	No mitigation required

Ecological feature	Nature of Impact	Recommended Mitigation Measures
Buildings and Artificial Surfaces	Some may be lost or altered	No mitigation required
Arable Land	Some may be lost or altered	No mitigation required

7.1 Fauna

7.1.1 Mammal Activity

No otter holts or any other signs of otter were recorded during the course of this survey. No Badger (*Meles meles*) setts, scat, scratching or latrines were identified within study area. However the site may form part of the home range of some badger communities. Works are not considered likely to cause the splitting of the home range of any badger communities. No mammal tracks or trails were recorded that indicate that this area is being used by any mammal species on a regular basis.

No signs of Red Squirrel (*Sciurus vulgaris*) or Pine Marten (*Martes martes*) were recorded within or surrounding the site. These would be unlikely to occur here given the lack of woodland cover locally.

Table 7: Impacts and Mitigation for Mammal Species

Mammals	
Impact Severity	Negligible
Impacts	No significant impacts to any mammal species likely as a result of the proposed development
Mitigation	No mitigation is required

7.1.2 Breeding Birds

A dedicated bird survey was not carried out. Bird observed during the survey can be seen in table 8. No significant impacts are expected to any of these species as a result of the proposed development. No 'red-listed' birds - i.e. birds of highest conservation concern (Birdwatch Ireland, 2015) were noted occurring on site. Two species observed are 'amber status' with the remaining species being 'green status'. These species are widespread and common. The boundary hedgerows and treelines of the area are likely to be of high local importance for birds.

Table 8: Bird species recorded during the site survey

Species name	Common Name	Conservation of Concern - status
Erithacus rubecula	Robin	Amber
Sturnus vulgaris	Starling	Amber
Columba palumbus	Wood pigeon	Green
Corvus frugilegus	Rook	Green
Pica pica	Magpie	Green

Table 9: Impacts and Mitigation for Bird species

Birds	
Impact Severity	Minor Adverse
Impacts	Loss of feeding and possible nesting sites within Treelines and hedgerows
Mitigation	Do not remove any vegetation during the bird nesting season. Compensatory planting carried out where possible

7.1.3 Invasive species

Ireland is a signatory of a number of international treaties and conventions, including the Convention on Biological Diversity. Such treaties and conventions require the Irish Government to address issues of invasive alien species. This has been implemented through national

legislation via the Wildlife Acts 1976 and 2000 (as amended) and further regulated through the European Communities (Birds and Natural Habitats) Regulations 2011 (SI 477).

Articles 49 and 50 of these latter regulations sets out the legal implications associated with alien invasive species and Schedule 3 of the regulations lists non-native species subject to the restrictions of Articles 49 and 50.

Under Article 49 and 50 of these Regulations it is an offence to:

- Plant, disperse, allow dispersal or cause the spread of invasive species.
- Keep the plants in possession for the purpose of sale, breeding, reproduction,
- propagation, distribution, introduction or release.
- Keep anything from which the plant can be reproduced, or propagated from, without a granted licence.

No invasive species listed on schedule 3 were recorded on site. As such invasive species are not predicted to be a constraint to these road improvement works. The only invasive species recorded was Snowberry. This plant should be removed where works permit this.

Table 10: Invasive Species

Invasive Species	
Impact Severity	Negligible
Impacts	No significant impacts on the proposed works or on the surrounding landscape as a result of invasive species
Mitigation	Remove Snowberry where possible.

7.1.4 Amphibians and Reptiles

It was noted that no suitable breeding habitat for the Common Frog (*Rana temporaria*) and Smooth Newt (*Lissotriton vulgaris*) exists within the site with the exception of the small drain which is sub-optimal for amphibian species. Suitable habitat for the Common or Viviparous Lizard (*Lacerta vivipara*) was not recorded.

Table 11: Impacts and Mitigation for Amphibians and Reptiles

Amphibians and Reptile	
Impact Severity	Negligible
Impacts	No significant impacts to any Amphibians or Reptiles are likely as a result of the proposed development
Mitigation	No mitigation is required

7.1.5 Bats

A dedicated bat survey was not carried out as part of this survey work. Instead an estimation of potential bat roosting opportunities was investigated.

All Irish bat species are protected under the Wildlife Act (1976) and Wildlife Amendment Act (2000). Also, the EC Directive on The Conservation of Natural habitats and of Wild Fauna and Flora (Habitats Directive 1992), seeks to protect rare species, including bats, and their habitats and requires that appropriate monitoring of populations be undertaken. Across Europe, they are further protected under the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention 1982), which, in relation to bats, exists to conserve all species and their habitats. The Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention 1979, enacted 1983) was instigated to protect migrant species across all European boundaries. The Irish government has ratified both these conventions. All bats are listed in Annex IV of the Habitats Directive and the greater horseshoe bat and lesser horseshoe bat are further listed under Annex II.

Potential Bat roosting habitat was recorded within the building associated with the radio tower. These were corrugated roofed sheds with some small spaces recorded that may allow bats to

enter into these buildings. This habitat was be considered of low potential for bats given they generally prefer tiled roofs then corrugate, the degree of light and noise pollution locally and the lack of suitable feed habitat locally.

Dawn and dusk surveys should however be carried out on this site to ascertain whether any of these buildings contain roosts prior to the removal or alteration of any of these building as part of the junction improvement scheme.

Table 12: Impacts and Mitigation for Bats

Bats	
Impact Severity	Negligible
Impacts	No significant impacts to bat species likely as a result of the proposed development
Mitigation	Survey for bats to be carried out

8 Conclusion

No significant negative impacts on habitats or protected species are predicted arising from the proposed junction improvement works on the R445. Impacts arising during the works will be short-term and negligible to minor adverse. The land take for these road works will generally

involve losses of hedgerows, verges and improved grassland fields. No habitats, designated areas or protected species were found within or immediately surrounding the proposed site of works. This development, singly or in conjunction with other development in the area will not impact negatively on any site of or species of national or international importance.

REFERENCES

CIEEM (2018) *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine*. Version 1.1. Chartered Institute of Ecology and Environmental Management, Winchester, UK.

Curtis, T.G.F. & McGough,H.N.(1988) *The Irish Red Data Book 1: Vascular Plants*. The Stationery Office, Dublin.

EPA (2015) *Draft Revised Guidelines on Information to be Contained in Environmental Impact Statements*. Environmental Protection Agency, Dublin.

European Commission DE, 2001. Assessment of plans and projects significantly affecting Natura 2000 sites.

Fossitt, J.A. (2000) *A Guide to Habitats in Ireland*. The Heritage Council, Kilkenny.

JNCC (2010) *Handbook for Phase 1 Habitat Survey*. Joint Nature Conservation Committee, Peterborough, UK.

National Roads Authority (2005) Guidelines for the Crossing of Watercourses during the Construction of National Road Schemes

National Roads Authority (2009). *Guidelines For The Assessment of Ecological Impacts Of National Road Schemes*. NRA, Dublin (now Transport Infrastructure Ireland).

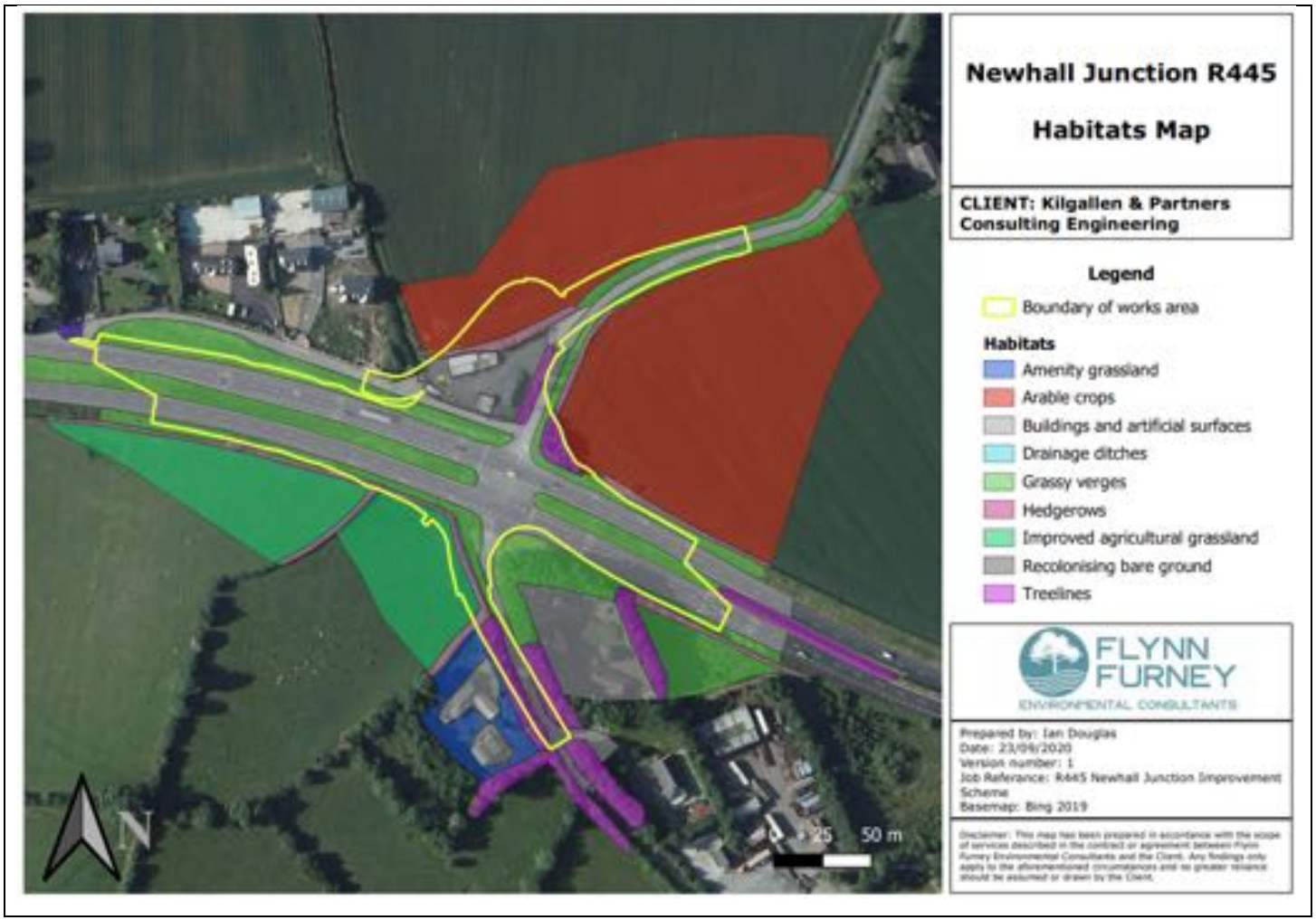
Parnell, J. & Curtis, T. (2012) *Webb's An Irish Flora.* Cork University Press, Cork.

Scannell, M J P and Synott, D M, (1987) *Census Catalogue of the Flora of Ireland.* Stationary Office, Dublin

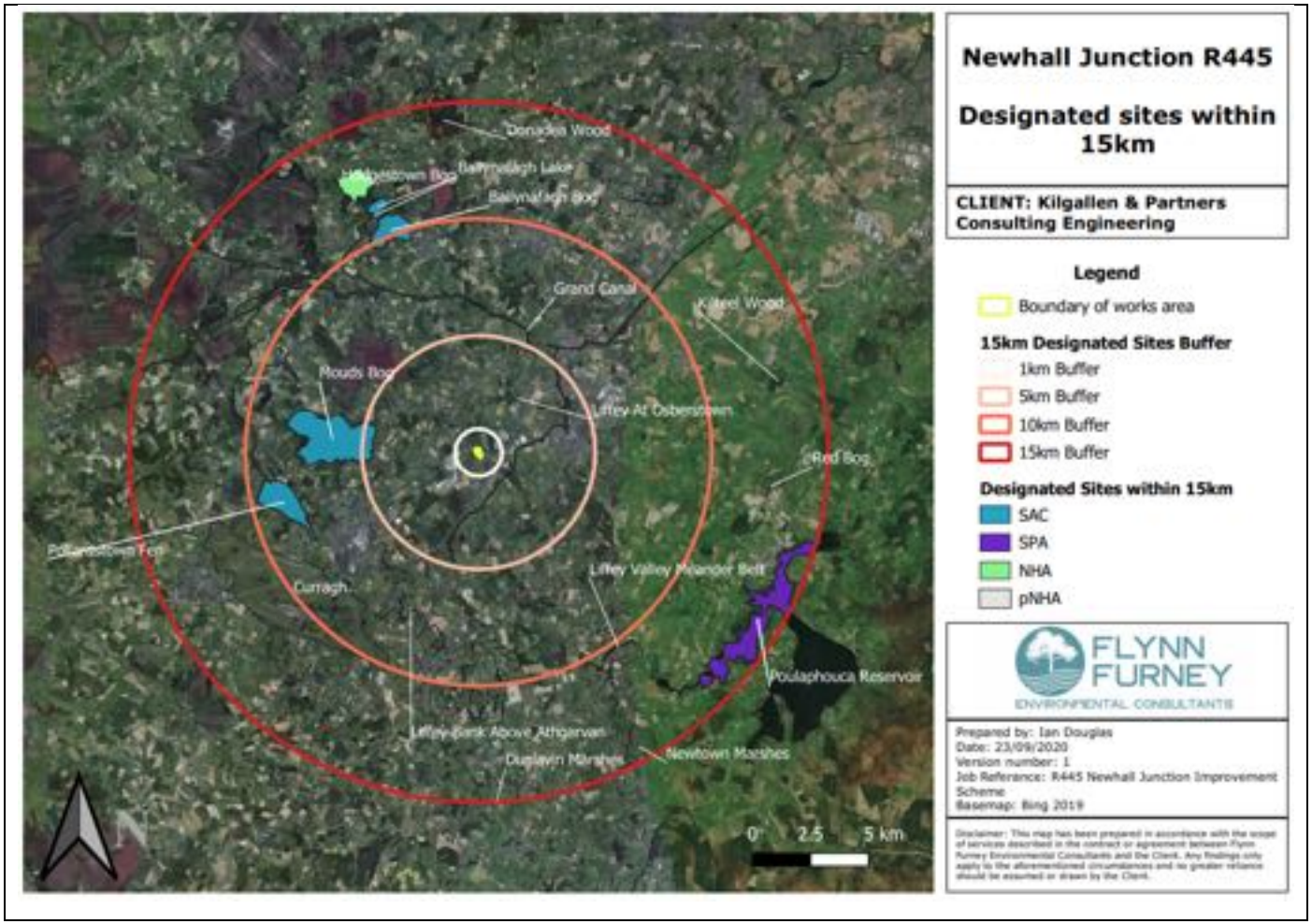
Smith, G.F., O'Donoghue, P., O'Hora, K. and Delaney, E., (2011) *Best practice guidance for habitat survey and mapping.* The Heritage Council: Ireland.

Wyse Jackson, M., FitzPatrick, Ú., Cole, E., Jebb, M., McFerran, D., Sheehy Skeffington, M. & Wright, M. (2016). Ireland Red List No. 10: Vascular Plants. National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs, Dublin, Ireland.

Appendix A1: Habitats Maps



Appendix A2: Designated Areas Map



Appendix B: Site Photos

Area of recolonising bare ground and buildings inside yard	Area of verge grassland and arable land along the L2031
	

Treeline of birch and elm south of junction	Area of cleared treeline south of junction along the L6064
	

Area of grassy verge and hedgerow along the south of the R445	Grassy verge along R445, east of junction
	

Grassy verge to south of junction	Drainage ditch adjacent side road
	

Improved grassland to south of junction	Grassy median strip
	

Grass verge to north of R445	Access road for dwellings and local authority yard
	

Appendix C: Species lists from NBDC

Species group	Species name	Record count	Date of last record	Title of dataset	Designation
amphibian	Common Frog (Rana temporaria)	1	31/12/1979	Irish National Frog Database	Protected Species: EU Habitats Directive || Protected Species: EU Habitats Directive >> Annex V || Protected Species: Wildlife Acts
bird	Barn Owl (Tyto alba)	3	31/12/2011	Bird Atlas 2007 - 2011	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List
bird	Barn Swallow (Hirundo rustica)	4	31/12/2011	Bird Atlas 2007 - 2011	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
bird	Black-billed Magpie (Pica pica)	5	31/12/2011	Bird Atlas 2007 - 2011	
bird	Blackcap (Sylvia atricapilla)	3	31/12/2011	Bird Atlas 2007 - 2011	

bird	Black-headed Gull (Larus ridibundus)	3	31/12/2011	Bird Atlas 2007 - 2011	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List
bird	Blue Tit (Cyanistes caeruleus)	6	31/12/2011	Bird Atlas 2007 - 2011	
bird	Brambling (Fringilla montifringilla)	1	31/12/2011	Bird Atlas 2007 - 2011	
bird	Chaffinch (Fringilla coelebs)	6	31/12/2011	Bird Atlas 2007 - 2011	
bird	Coal Tit (Periparus ater)	6	31/12/2011	Bird Atlas 2007 - 2011	
bird	Common Blackbird (Turdus merula)	6	31/12/2011	Bird Atlas 2007 - 2011	
bird	Common Bullfinch (Pyrrhula pyrrhula)	6	31/12/2011	Bird Atlas 2007 - 2011	
bird	Common Buzzard (Buteo buteo)	3	31/12/2011	Bird Atlas 2007 - 2011	
bird	Common Chiffchaff (Phylloscopus collybita)	4	31/12/2011	Bird Atlas 2007 - 2011	

bird	Common Coot (Fulica atra)	3	31/12/2011	Bird Atlas 2007 - 2011	Protected Species: Wildlife Acts || Protected Species: EU Birds Directive || Protected Species: EU Birds Directive >> Annex II, Section I Bird Species || Protected Species: EU Birds Directive >> Annex III, Section II Bird Species || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
bird	Common Cuckoo (Cuculus canorus)	2	31/12/2011	Bird Atlas 2007 - 2011	
bird	Common Grasshopper Warbler (Locustella naevia)	1	31/12/2011	Bird Atlas 2007 - 2011	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
bird	Common Kestrel (Falco tinnunculus)	5	31/12/2011	Bird Atlas 2007 - 2011	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List

bird	Common Kingfisher (Alcedo atthis)	6	31/12/2011	Bird Atlas 2007 - 2011	Protected Species: Wildlife Acts || Protected Species: EU Birds Directive || Protected Species: EU Birds Directive >> Annex I Bird Species || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
bird	Common Linnet (Carduelis cannabina)	5	31/12/2011	Bird Atlas 2007 - 2011	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
bird	Common Moorhen (Gallinula chloropus)	6	31/12/2011	Bird Atlas 2007 - 2011	
bird	Common Pheasant (Phasianus colchicus)	6	31/12/2011	Bird Atlas 2007 - 2011	Protected Species: Wildlife Acts || Protected Species: EU Birds Directive || Protected Species: EU Birds Directive >> Annex II, Section I Bird Species || Protected Species: EU Birds Directive >> Annex III, Section I Bird Species

bird	Common Pochard (Aythya ferina)	1	29/02/1984	The First Atlas of Wintering Birds in Britain and Ireland: 1981/82-1983/84.	Protected Species: Wildlife Acts || Protected Species: EU Birds Directive || Protected Species: EU Birds Directive >> Annex II, Section I Bird Species || Protected Species: EU Birds Directive >> Annex III, Section II Bird Species || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
bird	Common Quail (Coturnix coturnix)	1	31/07/1991	The Second Atlas of Breeding Birds in Britain and Ireland: 1988-1991	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List
bird	Common Raven (Corvus corax)	3	31/12/2011	Bird Atlas 2007 - 2011	
bird	Common Redshank (Tringa totanus)	1	31/07/1972	The First Atlas of Breeding Birds in Britain and Ireland: 1968-1972.	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List

bird	Common Snipe (Gallinago gallinago)	5	31/12/2011	Bird Atlas 2007 - 2011	Protected Species: Wildlife Acts || Protected Species: EU Birds Directive || Protected Species: EU Birds Directive >> Annex II, Section I Bird Species || Protected Species: EU Birds Directive >> Annex III, Section III Bird Species || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
bird	Common Starling (Sturnus vulgaris)	5	31/12/2011	Bird Atlas 2007 - 2011	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
bird	Common Swift (Apus apus)	3	31/12/2011	Bird Atlas 2007 - 2011	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List

bird	Common Wood Pigeon (Columba palumbus)	6	31/12/2011	Bird Atlas 2007 - 2011	Protected Species: Wildlife Acts || Protected Species: EU Birds Directive || Protected Species: EU Birds Directive >> Annex II, Section I Bird Species || Protected Species: EU Birds Directive >> Annex III, Section I Bird Species
bird	Corn Crake (Crex crex)	2	31/07/1991	The Second Atlas of Breeding Birds in Britain and Ireland: 1988-1991	Protected Species: Wildlife Acts || Protected Species: EU Birds Directive || Protected Species: EU Birds Directive >> Annex I Bird Species || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List
bird	Eurasian Collared Dove (Streptopelia decaocto)	4	31/12/2011	Bird Atlas 2007 - 2011	

bird	Eurasian Curlew (Numenius arquata)	3	31/12/2011	Bird Atlas 2007 - 2011	Protected Species: Wildlife Acts || Protected Species: EU Birds Directive || Protected Species: EU Birds Directive >> Annex II, Section II Bird Species || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List
bird	Eurasian Jackdaw (Corvus monedula)	6	31/12/2011	Bird Atlas 2007 - 2011	
bird	Eurasian Jay (Garrulus glandarius)	2	31/12/2011	Bird Atlas 2007 - 2011	
bird	Eurasian Siskin (Carduelis spinus)	2	31/12/2011	Bird Atlas 2007 - 2011	
bird	Eurasian Sparrowhawk (Accipiter nisus)	3	31/12/2011	Bird Atlas 2007 - 2011	

bird	Eurasian Teal (Anas crecca)	1	29/02/1984	The First Atlas of Wintering Birds in Britain and Ireland: 1981/82-1983/84.	Protected Species: Wildlife Acts || Protected Species: EU Birds Directive || Protected Species: EU Birds Directive >> Annex II, Section I Bird Species || Protected Species: EU Birds Directive >> Annex III, Section II Bird Species || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
bird	Eurasian Treecreeper (Certhia familiaris)	5	31/12/2011	Bird Atlas 2007 - 2011	
bird	Eurasian Woodcock (Scolopax rusticola)	2	31/12/2011	Bird Atlas 2007 - 2011	Protected Species: Wildlife Acts || Protected Species: EU Birds Directive || Protected Species: EU Birds Directive >> Annex II, Section I Bird Species || Protected Species: EU Birds Directive >> Annex III, Section III Bird Species || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List

bird	European Golden Plover (Pluvialis apricaria)	1	29/02/1984	The First Atlas of Wintering Birds in Britain and Ireland: 1981/82-1983/84.	Protected Species: Wildlife Acts || Protected Species: EU Birds Directive || Protected Species: EU Birds Directive >> Annex I Bird Species || Protected Species: EU Birds Directive >> Annex II, Section II Bird Species || Protected Species: EU Birds Directive >> Annex III, Section III Bird Species || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List
bird	European Goldfinch (Carduelis carduelis)	6	31/12/2011	Bird Atlas 2007 - 2011	
bird	European Greenfinch (Carduelis chloris)	6	31/12/2011	Bird Atlas 2007 - 2011	
bird	European Honey-buzzard (Pernis apivorus)	1	31/12/1881	Rare birds of Ireland	
bird	European Robin (Erithacus rubecula)	6	31/12/2011	Bird Atlas 2007 - 2011	
bird	Fieldfare (Turdus pilaris)	2	31/12/2011	Bird Atlas 2007 - 2011	
bird	Goldcrest (Regulus regulus)	6	31/12/2011	Bird Atlas 2007 - 2011	

bird	Great Cormorant (Phalacrocorax carbo)	1	29/02/1984	The First Atlas of Wintering Birds in Britain and Ireland: 1981/82-1983/84.	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
bird	Great Tit (Parus major)	6	31/12/2011	Bird Atlas 2007 - 2011	
bird	Green Sandpiper (Tringa ochropus)	1	29/02/1984	The First Atlas of Wintering Birds in Britain and Ireland: 1981/82-1983/84.	
bird	Grey Heron (Ardea cinerea)	6	31/12/2011	Bird Atlas 2007 - 2011	
bird	Grey Wagtail (Motacilla cinerea)	5	31/12/2011	Bird Atlas 2007 - 2011	

bird	Greylag Goose (Anser anser)	1	29/02/1984	The First Atlas of Wintering Birds in Britain and Ireland: 1981/82-1983/84.	Invasive Species: Invasive Species || Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland) || Protected Species: Wildlife Acts || Protected Species: EU Birds Directive || Protected Species: EU Birds Directive >> Annex II, Section I Bird Species || Protected Species: EU Birds Directive >> Annex III, Section II Bird Species || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
bird	Hedge Accentor (Prunella modularis)	5	31/12/2011	Bird Atlas 2007 - 2011	
bird	Herring Gull (Larus argentatus)	1	29/02/1984	The First Atlas of Wintering Birds in Britain and Ireland: 1981/82-1983/84.	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List
bird	Hooded Crow (Corvus cornix)	5	31/12/2011	Bird Atlas 2007 - 2011	

bird	House Martin (Delichon urbicum)	4	31/12/2011	Bird Atlas 2007 - 2011	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
bird	House Sparrow (Passer domesticus)	6	31/12/2011	Bird Atlas 2007 - 2011	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
bird	Lesser Black-backed Gull (Larus fuscus)	3	31/12/2011	Bird Atlas 2007 - 2011	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
bird	Lesser Redpoll (Carduelis cabaret)	4	31/12/2011	Bird Atlas 2007 - 2011	

bird	Little Grebe (Tachybaptus ruficollis)	4	31/12/2011	Bird Atlas 2007 - 2011	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
bird	Long-eared Owl (Asio otus)	2	31/12/2011	Bird Atlas 2007 - 2011	
bird	Long-tailed Tit (Aegithalos caudatus)	4	31/12/2011	Bird Atlas 2007 - 2011	
bird	Mallard (Anas platyrhynchos)	5	31/12/2011	Bird Atlas 2007 - 2011	Protected Species: Wildlife Acts || Protected Species: EU Birds Directive || Protected Species: EU Birds Directive >> Annex II, Section I Bird Species || Protected Species: EU Birds Directive >> Annex III, Section I Bird Species
bird	Meadow Pipit (Anthus pratensis)	5	31/12/2011	Bird Atlas 2007 - 2011	
bird	Mew Gull (Larus canus)	1	31/12/2011	Bird Atlas 2007 - 2011	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List

bird	Mistle Thrush (Turdus viscivorus)	5	31/12/2011	Bird Atlas 2007 - 2011	
bird	Mute Swan (Cygnus olor)	5	31/12/2011	Bird Atlas 2007 - 2011	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
bird	Northern Lapwing (Vanellus vanellus)	4	31/12/2011	Bird Atlas 2007 - 2011	Protected Species: Wildlife Acts || Protected Species: EU Birds Directive || Protected Species: EU Birds Directive >> Annex II, Section II Bird Species || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List
bird	Northern Wheatear (Oenanthe oenanthe)	1	31/07/1972	The First Atlas of Breeding Birds in Britain and Ireland: 1968-1972.	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List

bird	Red Grouse (Lagopus lagopus)	1	31/07/1972	The First Atlas of Breeding Birds in Britain and Ireland: 1968-1972.	Protected Species: Wildlife Acts || Protected Species: EU Birds Directive || Protected Species: EU Birds Directive >> Annex II, Section I Bird Species || Protected Species: EU Birds Directive >> Annex III, Section I Bird Species || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List
bird	Red-legged Partridge (Alectoris rufa)	1	31/12/2011	Bird Atlas 2007 - 2011	
bird	Redwing (Turdus iliacus)	2	31/12/2011	Bird Atlas 2007 - 2011	
bird	Reed Bunting (Emberiza schoeniclus)	4	31/12/2011	Bird Atlas 2007 - 2011	
bird	Rock Pigeon (Columba livia)	4	31/12/2011	Bird Atlas 2007 - 2011	Protected Species: Wildlife Acts || Protected Species: EU Birds Directive || Protected Species: EU Birds Directive >> Annex II, Section I Bird Species
bird	Rook (Corvus frugilegus)	6	31/12/2011	Bird Atlas 2007 - 2011	

bird	Sand Martin (Riparia riparia)	3	31/12/2011	Bird Atlas 2007 - 2011	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
bird	Sedge Warbler (Acrocephalus schoenobaenus)	3	31/12/2011	Bird Atlas 2007 - 2011	
bird	Short-eared Owl (Asio flammeus)	1	31/12/2011	Bird Atlas 2007 - 2011	Protected Species: Wildlife Acts || Protected Species: EU Birds Directive || Protected Species: EU Birds Directive >> Annex I Bird Species || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
bird	Sky Lark (Alauda arvensis)	4	31/12/2011	Bird Atlas 2007 - 2011	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
bird	Song Thrush (Turdus philomelos)	6	31/12/2011	Bird Atlas 2007 - 2011	

bird	Spotted Flycatcher (Muscicapa striata)	4	31/12/2011	Bird Atlas 2007 - 2011	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
bird	Stock Pigeon (Columba oenas)	2	31/07/1991	The Second Atlas of Breeding Birds in Britain and Ireland: 1988-1991	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
bird	Stonechat (Saxicola torquata)	1	31/12/2011	Bird Atlas 2007 - 2011	
bird	Tufted Duck (Aythya fuligula)	2	31/12/2011	Bird Atlas 2007 - 2011	Protected Species: Wildlife Acts || Protected Species: EU Birds Directive || Protected Species: EU Birds Directive >> Annex II, Section I Bird Species || Protected Species: EU Birds Directive >> Annex III, Section II Bird Species || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List

bird	Whinchat (Saxicola rubetra)	1	31/07/1972	The First Atlas of Breeding Birds in Britain and Ireland: 1968-1972.	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
bird	White Wagtail (Motacilla alba)	6	31/12/2011	Bird Atlas 2007 - 2011	
bird	White-throated Dipper (Cinclus cinclus)	5	31/12/2011	Bird Atlas 2007 - 2011	
bird	Whooper Swan (Cygnus cygnus)	1	29/02/1984	The First Atlas of Wintering Birds in Britain and Ireland: 1981/82-1983/84.	Protected Species: Wildlife Acts || Protected Species: EU Birds Directive || Protected Species: EU Birds Directive >> Annex I Bird Species || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
bird	Willow Warbler (Phylloscopus trochilus)	4	31/12/2011	Bird Atlas 2007 - 2011	
bird	Winter Wren (Troglodytes troglodytes)	6	31/12/2011	Bird Atlas 2007 - 2011	

bird	Yellowhammer (Emberiza citrinella)	6	31/12/2011	Bird Atlas 2007 - 2011	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List
fern	Hart's-tongue (Phyllitis scolopendrium)	1	31/01/2007	Online Atlas of Vascular Plants 2012-2020	
flowering plant	Alder (Alnus glutinosa)	1	31/01/2007	Online Atlas of Vascular Plants 2012-2020	
flowering plant	American Willowherb (Epilobium ciliatum)	1	31/01/2007	Online Atlas of Vascular Plants 2012-2020	
flowering plant	Annual Meadow-grass (Poa annua)	1	31/01/2007	Online Atlas of Vascular Plants 2012-2020	
flowering plant	Ash (Fraxinus excelsior)	1	31/01/2007	Online Atlas of Vascular Plants 2012-2020	
flowering plant	Beech (Fagus sylvatica)	1	31/01/2007	Online Atlas of Vascular Plants 2012-2020	
flowering plant	Black Medick (Medicago lupulina)	1	31/01/2007	Online Atlas of Vascular Plants 2012-2020	
flowering plant	Blue Water-speedwell (Veronica anagallis-aquatica)	1	31/01/2007	Online Atlas of Vascular Plants 2012-2020	
flowering plant	Bramble (Rubus fruticosus agg.)	1	31/01/2007	Online Atlas of Vascular Plants 2012-2020	
flowering plant	Branched Bur-reed (Sparganium erectum)	1	31/01/2007	Online Atlas of Vascular Plants 2012-2020	

flowering plant	Broad-leaved Dock (Rumex obtusifolius)	1	31/01/2007	Online Atlas of Vascular Plants 2012-2020	
flowering plant	Broad-leaved Pondweed (Potamogeton natans)	1	31/01/2007	Online Atlas of Vascular Plants 2012-2020	
flowering plant	Brooklime (Veronica beccabunga)	1	31/01/2007	Online Atlas of Vascular Plants 2012-2020	
flowering plant	Bulrush (Typha latifolia)	1	31/01/2007	Online Atlas of Vascular Plants 2012-2020	
flowering plant	Cat's-ear (Hypochaeris radicata)	1	31/01/2007	Online Atlas of Vascular Plants 2012-2020	
flowering plant	Cock's-foot (Dactylis glomerata)	1	31/01/2007	Online Atlas of Vascular Plants 2012-2020	
flowering plant	Common Bird's-foot-trefoil (Lotus corniculatus)	1	31/01/2007	Online Atlas of Vascular Plants 2012-2020	
flowering plant	Common Duckweed (Lemna minor)	1	31/01/2007	Online Atlas of Vascular Plants 2012-2020	
flowering plant	Common Field-speedwell (Veronica persica)	1	31/01/2007	Online Atlas of Vascular Plants 2012-2020	
flowering plant	Common Mouse-ear (Cerastium fontanum)	1	31/01/2007	Online Atlas of Vascular Plants 2012-2020	
flowering plant	Common Nettle (Urtica dioica)	1	31/01/2007	Online Atlas of Vascular Plants 2012-2020	
flowering plant	Common Poppy (Papaver rhoeas)	2	14/08/2019	Online Atlas of Vascular Plants 2012-2020	
flowering plant	Common Reed (Phragmites australis)	1	31/01/2007	Online Atlas of Vascular Plants 2012-2020	

flowering plant	Common Valerian (Valeriana officinalis)	1	31/01/2007	Online Atlas of Vascular Plants 2012-2020	
flowering plant	Cow Parsley (Anthriscus sylvestris)	1	31/01/2007	Online Atlas of Vascular Plants 2012-2020	
flowering plant	Crack-willow (Salix fragilis)	1	31/01/2007	Online Atlas of Vascular Plants 2012-2020	
flowering plant	Creeping Bent (Agrostis stolonifera)	1	31/01/2007	Online Atlas of Vascular Plants 2012-2020	
flowering plant	Creeping Buttercup (Ranunculus repens)	1	31/01/2007	Online Atlas of Vascular Plants 2012-2020	
flowering plant	Creeping Cinquefoil (Potentilla reptans)	1	31/01/2007	Online Atlas of Vascular Plants 2012-2020	
flowering plant	Creeping Thistle (Cirsium arvense)	1	31/01/2007	Online Atlas of Vascular Plants 2012-2020	
flowering plant	Crested Dog's-tail (Cynosurus cristatus)	1	31/01/2007	Online Atlas of Vascular Plants 2012-2020	
flowering plant	Cuckooflower (Cardamine pratensis)	1	31/01/2007	Online Atlas of Vascular Plants 2012-2020	
flowering plant	Curled Dock (Rumex crispus)	1	31/01/2007	Online Atlas of Vascular Plants 2012-2020	
flowering plant	Cut-leaved Crane's-bill (Geranium dissectum)	1	31/01/2007	Online Atlas of Vascular Plants 2012-2020	
flowering plant	Cut-leaved Dead-nettle (Lamium hybridum)	1	31/01/2007	Online Atlas of Vascular Plants 2012-2020	
flowering plant	Dog-rose (Rosa canina)	1	31/01/2007	Online Atlas of Vascular Plants 2012-2020	

flowering plant	Elder (Sambucus nigra)	1	31/01/2007	Online Atlas of Vascular Plants 2012-2020	
flowering plant	False-brome (Brachypodium sylvaticum)	1	31/01/2007	Online Atlas of Vascular Plants 2012-2020	
flowering plant	Festuca rubra agg.	1	31/01/2007	Online Atlas of Vascular Plants 2012-2020	
flowering plant	Floating Sweet-grass (Glyceria fluitans)	1	31/01/2007	Online Atlas of Vascular Plants 2012-2020	
flowering plant	Fool's-water-cress (Apium nodiflorum)	1	31/01/2007	Online Atlas of Vascular Plants 2012-2020	
flowering plant	Germander Speedwell (Veronica chamaedrys)	1	31/01/2007	Online Atlas of Vascular Plants 2012-2020	
flowering plant	Glaucous Sedge (Carex flacca)	1	31/01/2007	Online Atlas of Vascular Plants 2012-2020	
flowering plant	Gorse (Ulex europaeus)	1	31/01/2007	Online Atlas of Vascular Plants 2012-2020	
flowering plant	Great Willowherb (Epilobium hirsutum)	1	31/01/2007	Online Atlas of Vascular Plants 2012-2020	
flowering plant	Groundsel (Senecio vulgaris)	1	31/01/2007	Online Atlas of Vascular Plants 2012-2020	
flowering plant	Hairy-brome (Bromopsis ramosa)	1	31/01/2007	Online Atlas of Vascular Plants 2012-2020	
flowering plant	Hard Rush (Juncus inflexus)	2	31/01/2007	Online Atlas of Vascular Plants 2012-2020	
flowering plant	Hawthorn (Crataegus monogyna)	1	31/01/2007	Online Atlas of Vascular Plants 2012-2020	
flowering plant	Hedge Bindweed (Calystegia sepium)	1	31/01/2007	Online Atlas of Vascular Plants 2012-2020	

flowering plant	Hemlock Water-dropwort (Oenanthe crocata)	1	31/01/2007	Online Atlas of Vascular Plants 2012-2020	
flowering plant	Ivy (Hedera helix)	1	31/01/2007	Online Atlas of Vascular Plants 2012-2020	
flowering plant	Japanese Knotweed (Fallopia japonica)	1	31/01/2007	Online Atlas of Vascular Plants 2012-2020	Invasive Species: Invasive Species || Invasive Species: Invasive Species >> High Impact Invasive Species || Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland)
flowering plant	Lesser Celandine (Ranunculus ficaria)	2	25/03/2020	Online Atlas of Vascular Plants 2012-2020	
flowering plant	Lesser Pond-sedge (Carex acutiformis)	1	31/01/2007	Online Atlas of Vascular Plants 2012-2020	
flowering plant	Lesser Stitchwort (Stellaria graminea)	1	31/01/2007	Online Atlas of Vascular Plants 2012-2020	
flowering plant	Lesser Water-parsnip (Berula erecta)	1	31/01/2007	Online Atlas of Vascular Plants 2012-2020	
flowering plant	Meadow Foxtail (Alopecurus pratensis)	1	31/01/2007	Online Atlas of Vascular Plants 2012-2020	
flowering plant	Meadowsweet (Filipendula ulmaria)	1	31/01/2007	Online Atlas of Vascular Plants 2012-2020	
flowering plant	Opposite-leaved Golden-saxifrage (Chrysosplenium oppositifolium)	1	31/01/2007	Online Atlas of Vascular Plants 2012-2020	
flowering plant	Osier (Salix viminalis)	1	31/01/2007	Online Atlas of Vascular Plants 2012-2020	

flowering plant	Oxeye Daisy (Leucanthemum vulgare)	1	31/01/2007	Online Atlas of Vascular Plants 2012-2020	
flowering plant	Pendulous Sedge (Carex pendula)	1	31/01/2007	Online Atlas of Vascular Plants 2012-2020	
flowering plant	Perennial Rye-grass (Lolium perenne)	1	31/01/2007	Online Atlas of Vascular Plants 2012-2020	
flowering plant	Primrose (Primula vulgaris)	1	31/01/2007	Online Atlas of Vascular Plants 2012-2020	
flowering plant	Red Clover (Trifolium pratense)	1	31/01/2007	Online Atlas of Vascular Plants 2012-2020	
flowering plant	Red Dead-nettle (Lamium purpureum)	1	31/01/2007	Online Atlas of Vascular Plants 2012-2020	
flowering plant	Red-osier Dogwood (Cornus sericea)	1	31/01/2007	Online Atlas of Vascular Plants 2012-2020	
flowering plant	Reed Canary-grass (Phalaris arundinacea)	1	31/01/2007	Online Atlas of Vascular Plants 2012-2020	
flowering plant	Remote Sedge (Carex remota)	1	31/01/2007	Online Atlas of Vascular Plants 2012-2020	
flowering plant	Rough Meadow-grass (Poa trivialis)	1	31/01/2007	Online Atlas of Vascular Plants 2012-2020	
flowering plant	Salix cinerea	1	31/01/2007	Online Atlas of Vascular Plants 2012-2020	
flowering plant	Selfheal (Prunella vulgaris)	1	31/01/2007	Online Atlas of Vascular Plants 2012-2020	
flowering plant	Snowberry (Symphoricarpos albus)	1	31/01/2007	Online Atlas of Vascular Plants 2012-2020	
flowering plant	Soft-rush (Juncus effusus)	1	31/01/2007	Online Atlas of Vascular Plants 2012-2020	

flowering plant	Spear Thistle (Cirsium vulgare)	1	31/01/2007	Online Atlas of Vascular Plants 2012-2020	
flowering plant	Spiked Water-milfoil (Myriophyllum spicatum)	1	31/01/2007	Online Atlas of Vascular Plants 2012-2020	
flowering plant	Sweet Vernal-grass (Anthoxanthum odoratum)	1	31/01/2007	Online Atlas of Vascular Plants 2012-2020	
flowering plant	Sycamore (Acer pseudoplatanus)	1	31/01/2007	Online Atlas of Vascular Plants 2012-2020	Invasive Species: Invasive Species || Invasive Species: Invasive Species >> Medium Impact Invasive Species
flowering plant	Tall Fescue (Festuca arundinacea)	1	31/01/2007	Online Atlas of Vascular Plants 2012-2020	
flowering plant	Taraxacum aggregate	1	31/01/2007	Online Atlas of Vascular Plants 2012-2020	
flowering plant	Timothy (Phleum pratense)	1	31/01/2007	Online Atlas of Vascular Plants 2012-2020	
flowering plant	Tufted Hair-grass (Deschampsia cespitosa)	1	31/01/2007	Online Atlas of Vascular Plants 2012-2020	
flowering plant	Water Mint (Mentha aquatica)	1	31/01/2007	Online Atlas of Vascular Plants 2012-2020	
flowering plant	Water-cress (Rorippa nasturtium-aquaticum)	1	31/01/2007	Online Atlas of Vascular Plants 2012-2020	
flowering plant	Water-plantain (Alisma plantago-aquatica)	1	31/01/2007	Online Atlas of Vascular Plants 2012-2020	
flowering plant	White Clover (Trifolium repens)	1	31/01/2007	Online Atlas of Vascular Plants 2012-2020	

flowering plant	White Willow (Salix alba)	1	31/01/2007	Online Atlas of Vascular Plants 2012-2020	
flowering plant	Wild Angelica (Angelica sylvestris)	1	31/01/2007	Online Atlas of Vascular Plants 2012-2020	
flowering plant	Wild Carrot (Daucus carota)	1	31/01/2007	Online Atlas of Vascular Plants 2012-2020	
flowering plant	Wild Privet (Ligustrum vulgare)	1	31/01/2007	Online Atlas of Vascular Plants 2012-2020	
flowering plant	Yellow Iris (Iris pseudacorus)	1	31/01/2007	Online Atlas of Vascular Plants 2012-2020	
fungus	Pestle Puffball (Handkea excipuliformis)	1	31/12/1988	Fungal Records for Ireland	
fungus	Stump Puffball (Lycoperdon pyriforme)	1	31/12/1986	Fungal Records for Ireland	
horsetail	Field Horsetail (Equisetum arvense)	1	31/01/2007	Online Atlas of Vascular Plants 2012-2020	
insect - butterfly	Brimstone (Gonepteryx rhamni)	1	31/12/1976	Distribution Atlas of Butterflies in Ireland 1979 (An Foras Forbartha)	
insect - butterfly	Dark Green Fritillary (Argynnis aglaja)	1	31/12/1976	Distribution Atlas of Butterflies in Ireland 1979 (An Foras Forbartha)	Threatened Species: Vulnerable
insect - butterfly	Dingy Skipper (Erynnis tages)	1	31/12/1976	Distribution Atlas of Butterflies in Ireland 1979 (An Foras Forbartha)	Threatened Species: Near threatened
insect - butterfly	Green-veined White (Pieris napi)	1	15/05/1977	Distribution Atlas of Butterflies in Ireland 1979 (An Foras Forbartha)	

insect - butterfly	Large White (Pieris brassicae)	1	31/10/1969	Distribution Atlas of Butterflies in Ireland 1979 (An Foras Forbartha)	
insect - butterfly	Marsh Fritillary (Euphydryas aurinia)	9	31/12/2010	All Ireland Marsh Fritillary Database	Protected Species: EU Habitats Directive || Protected Species: EU Habitats Directive >> Annex II || Threatened Species: Vulnerable
insect - butterfly	Orange-tip (Anthocharis cardamines)	1	15/05/1977	Distribution Atlas of Butterflies in Ireland 1979 (An Foras Forbartha)	
insect - butterfly	Peacock (Inachis io)	2	15/05/1977	Distribution Atlas of Butterflies in Ireland 1979 (An Foras Forbartha)	
insect - butterfly	Red Admiral (Vanessa atalanta)	1	31/10/1969	Distribution Atlas of Butterflies in Ireland 1979 (An Foras Forbartha)	
insect - butterfly	Small Copper (Lycaena phlaeas)	1	31/12/1978	Distribution Atlas of Butterflies in Ireland 1979 (An Foras Forbartha)	
insect - butterfly	Small Tortoiseshell (Aglais urticae)	1	31/10/1969	Distribution Atlas of Butterflies in Ireland 1979 (An Foras Forbartha)	
insect - butterfly	Small White (Pieris rapae)	1	31/10/1969	Distribution Atlas of Butterflies in Ireland 1979 (An Foras Forbartha)	

insect - butterfly	Speckled Wood (Pararge aegeria)	1	31/12/1978	Distribution Atlas of Butterflies in Ireland 1979 (An Foras Forbartha)	
insect - butterfly	Wall (Lasiommata megera)	1	31/12/1978	Distribution Atlas of Butterflies in Ireland 1979 (An Foras Forbartha)	Threatened Species: Endangered
insect - hymenopteran	Common Carder Bee (Bombus (Thoracombus) pascuorum)	1	22/04/2018	Bees of Ireland	
insect - louse (Phthiraptera)	Felicola (Suricatoecus) vulpis	1	11/02/1946	Lice (Phthiraptera) of Ireland	
insect - louse (Phthiraptera)	Trichodectes (Stachiella) ermineae	1	31/12/1987	Lice (Phthiraptera) of Ireland	
insect - moth	Dark Sword-grass (Agrotis ipsilon)	1	31/12/1985	Moths Ireland	
insect - true bug (Hemiptera)	Saldula orthochila	1	19/10/1927	True Bugs (Heteroptera) of Ireland	
insect - true fly (Diptera)	Anasimyia lineata	1	09/06/1953	Hoverflies (Syrphidae) of Ireland	
insect - true fly (Diptera)	Cheilosia albitarsis	1	04/06/1953	Hoverflies (Syrphidae) of Ireland	
insect - true fly (Diptera)	Cheilosia pagana	1	02/08/1952	Hoverflies (Syrphidae) of Ireland	
insect - true fly (Diptera)	Cheilosia scutellata	1	02/08/1952	Hoverflies (Syrphidae) of Ireland	
insect - true fly (Diptera)	Chrysogaster solstitialis	1	02/08/1952	Hoverflies (Syrphidae) of Ireland	
insect - true fly (Diptera)	Epistrophe grossulariae	1	11/08/1952	Hoverflies (Syrphidae) of Ireland	

insect - true fly (Diptera)	Eupeodes corollae	1	11/08/1952	Hoverflies (Syrphidae) of Ireland	
insect - true fly (Diptera)	Eupeodes latifasciatus	1	04/06/1953	Hoverflies (Syrphidae) of Ireland	
insect - true fly (Diptera)	Ferdinandea cuprea	1	09/06/1953	Hoverflies (Syrphidae) of Ireland	
insect - true fly (Diptera)	Helophilus hybridus	1	11/08/1952	Hoverflies (Syrphidae) of Ireland	
insect - true fly (Diptera)	Leucozona glaucia	1	11/08/1952	Hoverflies (Syrphidae) of Ireland	
insect - true fly (Diptera)	Melangyna arctica	1	04/06/1953	Hoverflies (Syrphidae) of Ireland	
insect - true fly (Diptera)	Melangyna umbellatarum	1	04/06/1953	Hoverflies (Syrphidae) of Ireland	
insect - true fly (Diptera)	Melanogaster hirtella	1	09/06/1953	Hoverflies (Syrphidae) of Ireland	
Insect - true fly (Diptera)	Meligramma cincta	1	09/06/1953	Hoverflies (Syrphidae) of Ireland	
insect - true fly (Diptera)	Meliscaeva cinctella	1	11/08/1952	Hoverflies (Syrphidae) of Ireland	
insect - true fly (Diptera)	Merodon equestris	1	09/06/1953	Hoverflies (Syrphidae) of Ireland	
insect - true fly (Diptera)	Neoascia podagrica	1	11/08/1952	Hoverflies (Syrphidae) of Ireland	
insect - true fly (Diptera)	Pipiza austriaca	1	04/06/1953	Hoverflies (Syrphidae) of Ireland	
insect - true fly (Diptera)	Pipiza noctiluca	1	11/08/1952	Hoverflies (Syrphidae) of Ireland	
insect - true fly (Diptera)	Platycheirus albimanus	1	09/06/1953	Hoverflies (Syrphidae) of Ireland	
insect - true fly (Diptera)	Platycheirus granditarsus	1	20/08/1952	Hoverflies (Syrphidae) of Ireland	

insect - true fly (Diptera)	Platycheirus rosarum	1	11/08/1952	Hoverflies (Syrphidae) of Ireland	
insect - true fly (Diptera)	Tropidia scita	1	09/06/1953	Hoverflies (Syrphidae) of Ireland	
insect - true fly (Diptera)	Xylota segnis	1	11/08/1952	Hoverflies (Syrphidae) of Ireland	
insect - true fly (Diptera)	Xylota sylvarum	1	04/06/1953	Hoverflies (Syrphidae) of Ireland	
liverwort	Common Crystalwort (Riccia sorocarpa)	1	31/12/2002	Bryophytes of Ireland	Threatened Species: Least concern
liverwort	Fringed Heartwort (Ricciocarpos natans)	4	31/12/1971	Bryophytes of Ireland	Threatened Species: Near threatened
mollusc	Arion (Arion)	1	24/09/1977	All Ireland Non-Marine Molluscan Database	
mollusc	Arion (Kobeltia)	1	24/09/1977	All Ireland Non-Marine Molluscan Database	
mollusc	Brown Lipped Snail (Cepaea (Cepaea) nemoralis)	1	24/09/1977	All Ireland Non-Marine Molluscan Database	
mollusc	Budapest Slug (Tandonia budapestensis)	1	24/09/1977	All Ireland Non-Marine Molluscan Database	Invasive Species: Invasive Species || Invasive Species: Invasive Species >> Medium Impact Invasive Species
mollusc	Cellar Snail (Oxychilus (Oxychilus) cellarius)	1	24/09/1977	All Ireland Non-Marine Molluscan Database	
mollusc	Chestnut Slug (Deroceras (Deroceras) panormitanum)	1	24/09/1977	All Ireland Non-Marine Molluscan Database	

mollusc	Clear Glass Snail (Aegopinella pura)	1	24/09/1977	All Ireland Non-Marine Molluscan Database	
mollusc	Columella	1	24/09/1977	All Ireland Non-Marine Molluscan Database	
mollusc	Common Chrysalis Snail (Lauria (Lauria) cylindracea)	1	24/09/1977	All Ireland Non-Marine Molluscan Database	
mollusc	Common Garden Snail (Cornu aspersum)	1	24/09/1977	All Ireland Non-Marine Molluscan Database	Invasive Species: Invasive Species || Invasive Species: Invasive Species >> Medium Impact Invasive Species
mollusc	Common Whorl Snail (Vertigo (Vertigo) pygmaea)	1	24/09/1977	All Ireland Non-Marine Molluscan Database	Threatened Species: Near threatened
mollusc	Crystal Snail (Vitrea crystallina)	1	24/09/1977	All Ireland Non-Marine Molluscan Database	
mollusc	Desmoulin's Whorl Snail (Vertigo (Vertigo) moulinsiana)	1	01/04/1971	All Ireland Non-Marine Molluscan Database	Protected Species: EU Habitats Directive || Protected Species: EU Habitats Directive >> Annex II || Protected Species: Wildlife Acts || Threatened Species: Endangered
mollusc	Dwarf Snail (Punctum (Punctum) pygmaeum)	1	24/09/1977	All Ireland Non-Marine Molluscan Database	
mollusc	English Chrysalis Snail (Leiostyla (Leiostyla) anglica)	1	24/09/1977	All Ireland Non-Marine Molluscan Database	Threatened Species: Vulnerable
mollusc	Euconulus	1	24/09/1977	All Ireland Non-Marine Molluscan Database	

mollusc	Garlic Snail (Oxychilus (Oxychilus) alliarius)	1	24/09/1977	All Ireland Non-Marine Molluscan Database	
mollusc	Great Grey Slug (Limax maximus)	1	24/09/1977	All Ireland Non-Marine Molluscan Database	
mollusc	Hairy Snail (Trochulus (Trochulus) hispidus)	1	24/09/1977	All Ireland Non-Marine Molluscan Database	
mollusc	Heath Snail (Helicella itala)	1	24/09/1977	All Ireland Non-Marine Molluscan Database	Threatened Species: Vulnerable
mollusc	Hedgehog Slug (Arion (Kobeltia) intermedius)	1	24/09/1977	All Ireland Non-Marine Molluscan Database	
mollusc	Jenkins' Spire Snail (Potamopyrgus antipodarum)	1	24/09/1977	All Ireland Non-Marine Molluscan Database	Invasive Species: Invasive Species || Invasive Species: Invasive Species >> Medium Impact Invasive Species
mollusc	Large Amber Snail (Succinea putris)	1	24/09/1977	All Ireland Non-Marine Molluscan Database	
mollusc	Least Slippery Snail (Cochlicopa cf. lubricella)	1	24/09/1977	All Ireland Non-Marine Molluscan Database	
mollusc	Lesser Bulin (Merdigera obscura)	1	24/09/1977	All Ireland Non-Marine Molluscan Database	Threatened Species: Endangered
mollusc	Long-toothed Herald Snail (Carychium tridentatum)	1	24/09/1977	All Ireland Non-Marine Molluscan Database	
mollusc	Milky Crystal Snail (Vitrea contracta)	1	24/09/1977	All Ireland Non-Marine Molluscan Database	
mollusc	Netted Slug (Deroceras	1	24/09/1977	All Ireland Non-Marine Molluscan Database	

	(Deroceras) reticulatum)				
mollusc	Pellucid Glass Snail (Vitrina pellucida)	1	24/09/1977	All Ireland Non-Marine Molluscan Database	
mollusc	Prickly Snail (Acanthinula aculeata)	1	24/09/1977	All Ireland Non-Marine Molluscan Database	Threatened Species: Near threatened
mollusc	Rock Snail (Pyramidula pusilla)	1	24/09/1977	All Ireland Non-Marine Molluscan Database	
mollusc	Rounded Snail (Discus (Gonyodiscus) rotundatus)	1	24/09/1977	All Ireland Non-Marine Molluscan Database	
mollusc	Silver Slug (Arion (Carinarion) silvaticus)	1	24/09/1977	All Ireland Non-Marine Molluscan Database	
mollusc	Slippery Moss Snail (Cochlicopa cf. lubrica)	1	24/09/1977	All Ireland Non-Marine Molluscan Database	
mollusc	Smooth Glass Snail (Aegopinella nitidula)	1	24/09/1977	All Ireland Non-Marine Molluscan Database	
mollusc	Strawberry Snail (Trochulus (Trochulus) striolatus)	1	24/09/1977	All Ireland Non-Marine Molluscan Database	
mollusc	Tree Slug (Lehmannia marginata)	1	24/09/1977	All Ireland Non-Marine Molluscan Database	
mollusc	Tree Snail (Balea (Balea) perversa)	1	24/09/1977	All Ireland Non-Marine Molluscan Database	Threatened Species: Vulnerable
mollusc	Two-toothed Door Snail (Clausilia (Clausilia) bidentata)	1	24/09/1977	All Ireland Non-Marine Molluscan Database	

mollusc	Yellow Slug (Limacus flavus)	1	24/09/1977	All Ireland Non-Marine Molluscan Database	
moss	Delicate Tamarisk-moss (Thuidium delicatulum)	1	31/12/1979	Bryophytes of Ireland	Threatened Species: Least concern
moss	Fatfoot Pocket-moss (Fissidens crassipes)	1	31/12/1968	Bryophytes of Ireland	Threatened Species: Least concern
moss	Fine-leaved Marsh Feather-moss (Campyliadelphus elodes)	1	30/06/1953	Bryophytes of Ireland	Threatened Species: Near threatened
moss	Giant Spear-moss (Calliergon giganteum)	1	30/06/1953	Bryophytes of Ireland	Threatened Species: Least concern
moss	Hooded Bristle-moss (Orthotrichum cupulatum)	1	31/05/1968	Bryophytes of Ireland	Threatened Species: Least concern
moss	Hooked Scorpion-moss (Scorpidium scorpioides)	1	31/07/1938	Bryophytes of Ireland	Threatened Species: Least concern
moss	Marsh Thyme-moss (Plagiomnium ellipticum)	1	30/06/1967	Bryophytes of Ireland	Threatened Species: Least concern
moss	River Feather-moss (Brachythecium rivulare)	1	30/06/1953	Bryophytes of Ireland	Threatened Species: Least concern
moss	Rusty Bog-moss (Sphagnum fuscum)	1	31/07/1956	Bryophytes of Ireland	Threatened Species: Least concern
moss	Whitish Feather-moss (Brachythecium albicans)	1	31/08/1951	Bryophytes of Ireland	Threatened Species: Least concern

terrestrial mammal	American Mink (Mustela vison)	1	01/02/1991	Badger and Habitats Survey of Ireland	Invasive Species: Invasive Species || Invasive Species: Invasive Species >> High Impact Invasive Species || Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland)
terrestrial mammal	Brown Rat (Rattus norvegicus)	1	31/12/1985	Mammal Recording Scheme 1970-1985 (An Foras Forbartha)	Invasive Species: Invasive Species || Invasive Species: Invasive Species >> High Impact Invasive Species || Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland)
terrestrial mammal	Eastern Grey Squirrel (Sciurus carolinensis)	1	31/12/1985	Mammal Recording Scheme 1970-1985 (An Foras Forbartha)	Invasive Species: Invasive Species || Invasive Species: Invasive Species >> High Impact Invasive Species || Invasive Species: Invasive Species >> EU Regulation No. 1143/2014 || Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland)
terrestrial mammal	Eurasian Red Squirrel (Sciurus vulgaris)	1	31/12/1985	Mammal Recording Scheme 1970-1985 (An Foras Forbartha)	Protected Species: Wildlife Acts

terrestrial mammal	European Otter (Lutra lutra)	1	01/02/1991	Badger and Habitats Survey of Ireland	Protected Species: EU Habitats Directive || Protected Species: EU Habitats Directive >> Annex II || Protected Species: EU Habitats Directive >> Annex IV || Protected Species: Wildlife Acts
terrestrial mammal	House Mouse (Mus musculus)	1	31/12/1985	Mammal Recording Scheme 1970-1985 (An Foras Forbartha)	Invasive Species: Invasive Species || Invasive Species: Invasive Species >> High Impact Invasive Species
terrestrial mammal	Irish Stoat (Mustela erminea subsp. hibernica)	1	31/12/1985	Mammal Recording Scheme 1970-1985 (An Foras Forbartha)	

Appendix D

Report on Cultural Heritage Impact

R445 NEWHALL JUNCTION IMPROVEMENT SCHEME
Co. KILDARE

CULTURAL HERITAGE ASSESSMENT REPORT

MARTIN E. BYRNE, MA, Dip. EIA Mgmt., MIAI.

Report Commissioned by
KILGALLEN & PARTNERS CONSULTING ENGINEERS
Kylekiproe
Well Road
Portlaoise
Co. Laois
For
KILDARE COUNTY COUNCIL

FEBRUARY 2021

BYRNE MULLINS & ASSOCIATES
ARCHAEOLOGICAL & HISTORICAL
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R445 NEWHALL JUNCTION IMPROVEMENT SCHEME Co. KILDARE

CULTURAL HERITAGE
ARCHAEOLOGY, ARCHITECTURAL HERITAGE & LOCAL HISTORY

Martin E. Byrne, MA, Dip. EIA Mgmt, MIAI.
BYRNE MULLINS & ASSOCIATES – ARCHAEOLOGICAL CONSULTANTS

1. Introduction

This report provides a Cultural Heritage Assessment/Appraisal with respect to the proposed R445 Newhall Junction Improvement Scheme, Co. Kildare It was commissioned by Kilgallen & Partners, Consulting Engineers, Kylekiproe, Well Road, Portlaoise, Co. Laois for Kildare County Council**.**

Cultural Heritage has been defined by UNESCO as "the legacy of physical artefacts and intangible attributes of a group or society that are inherited from past generations, maintained in the present and bestowed for the benefit of future generations" (Tangible Cultural Heritage, UNESCO http://www.unesco.org/new/en/cairo/culture/tangible-cultural-heritage). Cultural Heritage is assumed to include all humanly created features on the landscape, including portable artefacts, which might reflect the prehistoric, historic, architectural, engineering and/or social history of the area. Where appropriate, it also includes for non-physical aspects of heritage, such as history, linguistics, folklore, etc.

The Heritage Act (1995) contains a list of various aspects of heritage, including archaeological monuments and objects, architectural heritage, fauna, flora, geology, heritage gardens and parks, heritage objects, inland waterways, landscapes, monuments, seascapes, wildlife habitats, and wrecks.

The Cultural Heritage of the area of the proposed scheme was examined through an Archaeological, Architectural, and Historical study. The Archaeological and Architectural studies involved a documentary/cartographic search and focussed field inspection of the area, while the Historical study involved a documentary search.

The Assessment has been prepared in accordance with TII *'Guidelines for Assessment of Architectural Heritage Impacts of National Road Schemes'* (NRA 2005a) *and 'Guidelines for Assessment of Archaeological Heritage Impacts of National Road Schemes'* (NRA 2005b) and discusses the receiving environment from a Cultural Heritage perspective. It provides information with respect to previously identified baseline data and assesses the impact of the proposals on identified sites and areas of Cultural Heritage interest and/or potential. It also suggests a strategy in order to reduce and mitigate against significant adverse impacts.

2. Project Overview

The existing Newhall Crossroads is formed by the intersection R445 Road (Naas-Newbridge Dual-Carriageway) with local roads leading north (L2031) and south (L6064) – Figure 1. It is located approximately 4.1km west of the centre of Naas and 6km north-east of the centre of Newbridge.

The objective of the Scheme is to replace the existing Newhall Crossroads with a junction designed to modern standards. The Scheme, as illustrated in Figure 2, proposes a roundabout on the R445 at the same location as Newhall Crossroads. The Local Roads L6064 and L2031 will receive minor realignment required for the entry and exit geometry at the roundabout. Significant verge widening will be required on the realigned local roads to provide appropriate forward visibility on the local roads. The following junctions will be closed:

- R445 / Lady's Cross Road east of Newhall Crossroads;
- R445 / Local Access Road west of Newhall Crossroads.

Traffic on the Local Access Road and Lady's Cross Road will no longer access the R445 directly. The

Local Access Road will have direct access to the realigned L2031 only. All Lady's Cross Road traffic will use the new roundabout and the existing priority junction with the L6064.

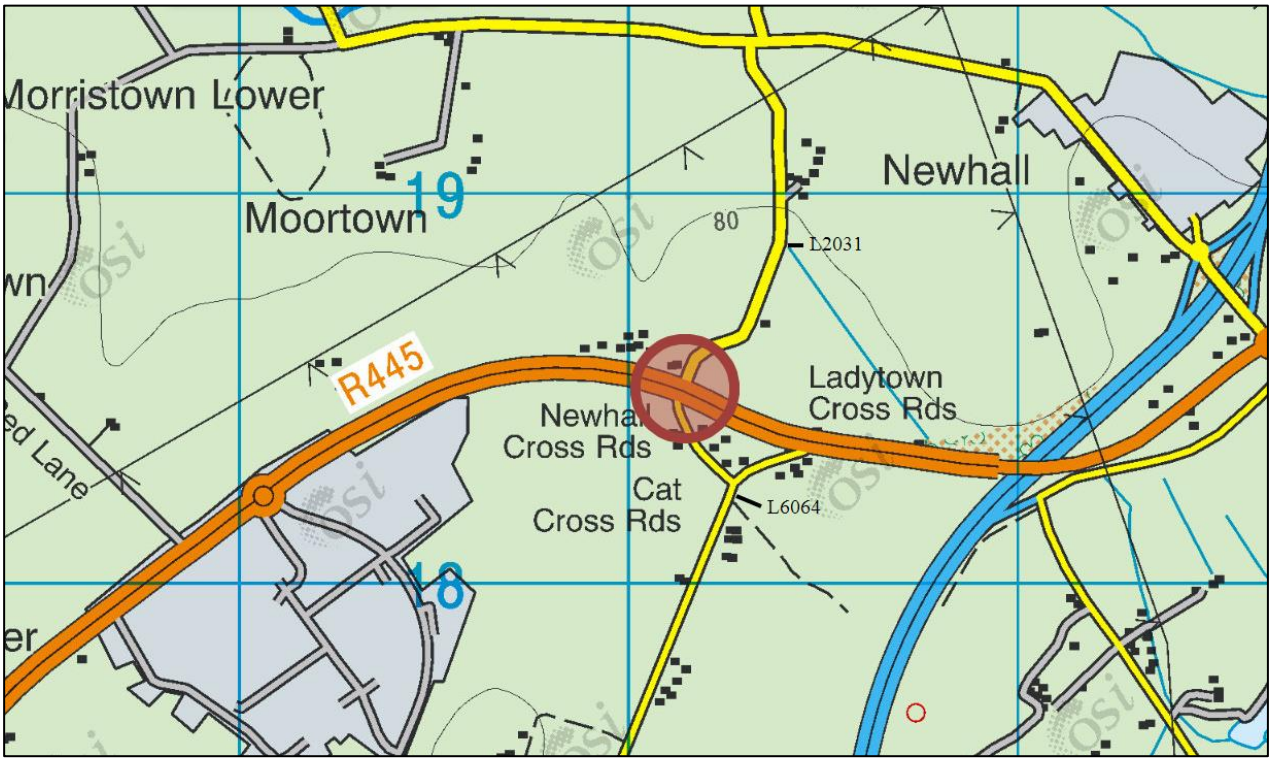

Figure 1 General Scheme Location

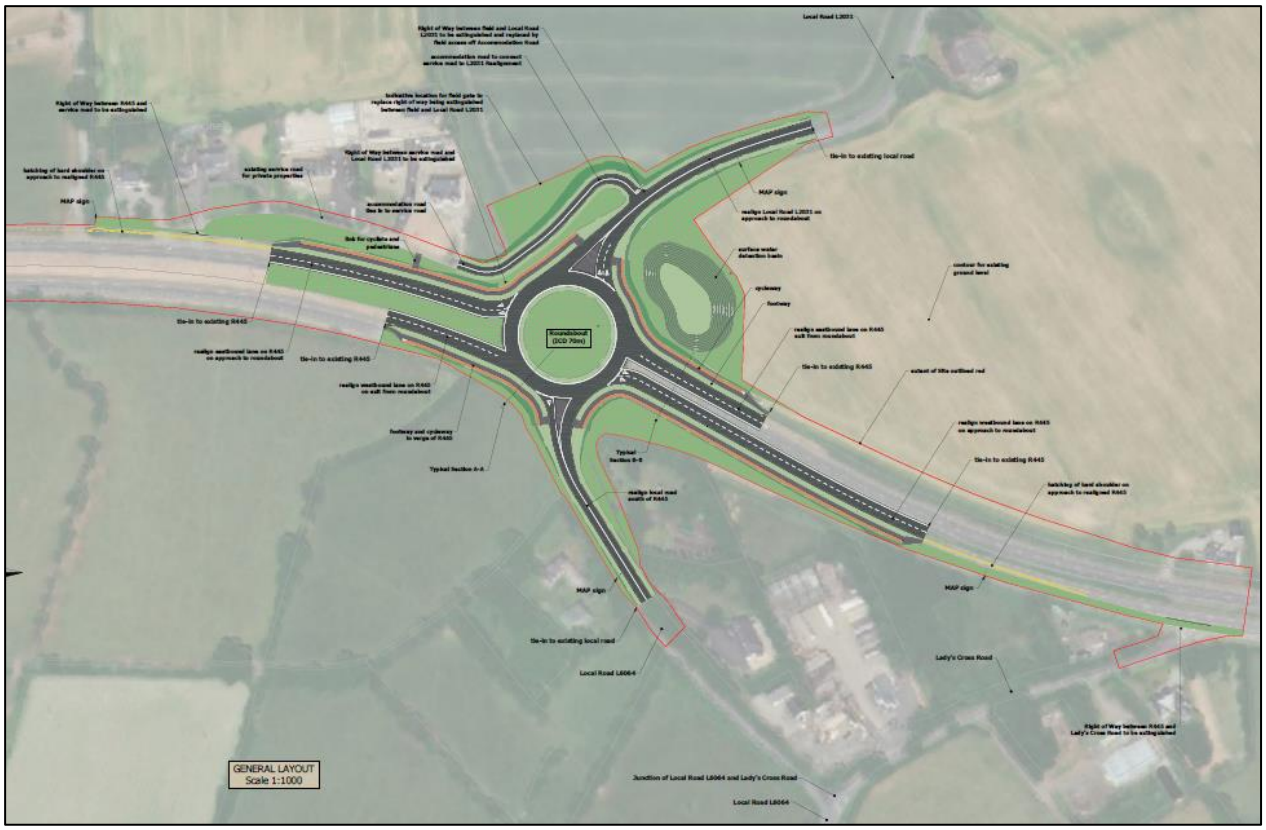

Figure 2 Proposed Layout

3. Methodology

The Cultural Heritage components of the study comprise the results of a survey and evaluation of sites of archaeological, architectural and historical potential within, and in the immediate environs of, the proposed development area. The work consists of the results of the paper survey and the field inspection.

3.1 Definition of Study Area

The overall extent of the proposed development area (Figure 3) and area of 500m surround such area was determined to be the Study Area for Cultural Heritage. The extent of the Cultural Heritage Study Area was chosen to reflect an appropriate context for the development, beyond which it was considered that a development of this nature would have no direct/indirect impacts.

3.2 Paper Survey

The Archaeological, Architectural and Local History components of the study comprise the results of a Paper Survey, from which a list of sites and areas of known interest was compiled. The Paper Survey comprised documentary, cartographic and aerial photographic research using the following principal sources:

- Record of Monuments and Places – Co. Kildare (RMP)
- Sites and Monuments Record of the Archaeological Survey of Ireland (SMR) – www.archaeology.ie
- Topographical Files of the National Museum of Ireland
- Annual Archaeological Excavations Bulletin – www.excavations.ie
- Aerial Photographic and Cartographic Archive of the Ordnance Survey of Ireland – www.osi.ie
- National Inventory of Architectural Heritage – Survey of the Architectural Heritage of County Kildare (NIAH) – www.buildingsofireland.ie.
- Documentary and historic cartographic sources (see Appendix 1)
- Kildare County Development Plan 2017-2023 (KCDP)
- Placenames Commission – www.logainm.ie
- Heritage Council Heritage Maps & Data – www.heritagemaps.ie
- National Folklore Collection (The School's Collection) – www.duchas.ie

3.2 Field Inspection

A detailed field inspection/surface reconnaissance survey was undertaken in late September 2020. This included an inspection of the existing field surfaces and the exposed edges of existing drains/streams.

An attempt was also made to identify previously unrecorded sites of cultural heritage potential within, and in the immediate environs of, the proposed development area. Sites of cultural heritage potential identified on the basis of the paper survey were inspected in an attempt to confirm their locations on the ground and to determine, if possible, their likely extent.

4. Introduction to Study Area / Receiving Environment

The study area with respect to this report included the proposed construction corridor (orange-line boundaries - Figures 3 & Plate 1) and an area of *c.* 500m outside the defined boundaries of such. This is termed the Cultural Heritage Assessment Corridor.

The Construction Corridor is largely located in the townlands of Newhall and Ladytown and comprises the existing Newhall Crossroads formed by the east-west orientated R445 Road (Naas-Newbridge Dual Carriageway) and L2031 and L6064 roads leading north and south respectively; the R445 incorporates a central grassed median and the local roads incorporate grass verges. A stream (Plate 2; VP-1) runs in an overgrown open channel along the western side of the L6064 road to a similar channel forming agricultural field boundaries to the north of the R445 with the section under the dual-carriageway routed through modern pipe culverts (Plate 3; VP-2).

In general terms, the area is largely agricultural, with the lands to the north – east and west sides of the L2031 – in arable use and those to the south under pasture.

There is an open yard with sheds located on the immediate western side of the L2031, where it joins the R443, to the west of which are a number of modern residential properties fronting onto a separate access road linked at its western end to the R445 and separated from such by a wide grass verge feature (Figure

3; Plate 1). The road frontage boundaries to the L2031 are formed by planted hedges, with access gates to the yard property and agricultural lands located along the western side; likewise, a planted hedge exists along the road frontage boundary to the R445 to the east of the crossroads.

There are a number of residential property plots located on the eastern side of the L6064 and a single residential property on the western side; the road frontage boundaries along this road, together with those along the southern side of the R445, to the west and east of the crossroads are formed by hedges and trees and all incorporate grass verges (Figure 3; Plate 1). In addition, a stream in an open-cut ditch runs northwards along the western edge of the L6064 road (Plate 2).

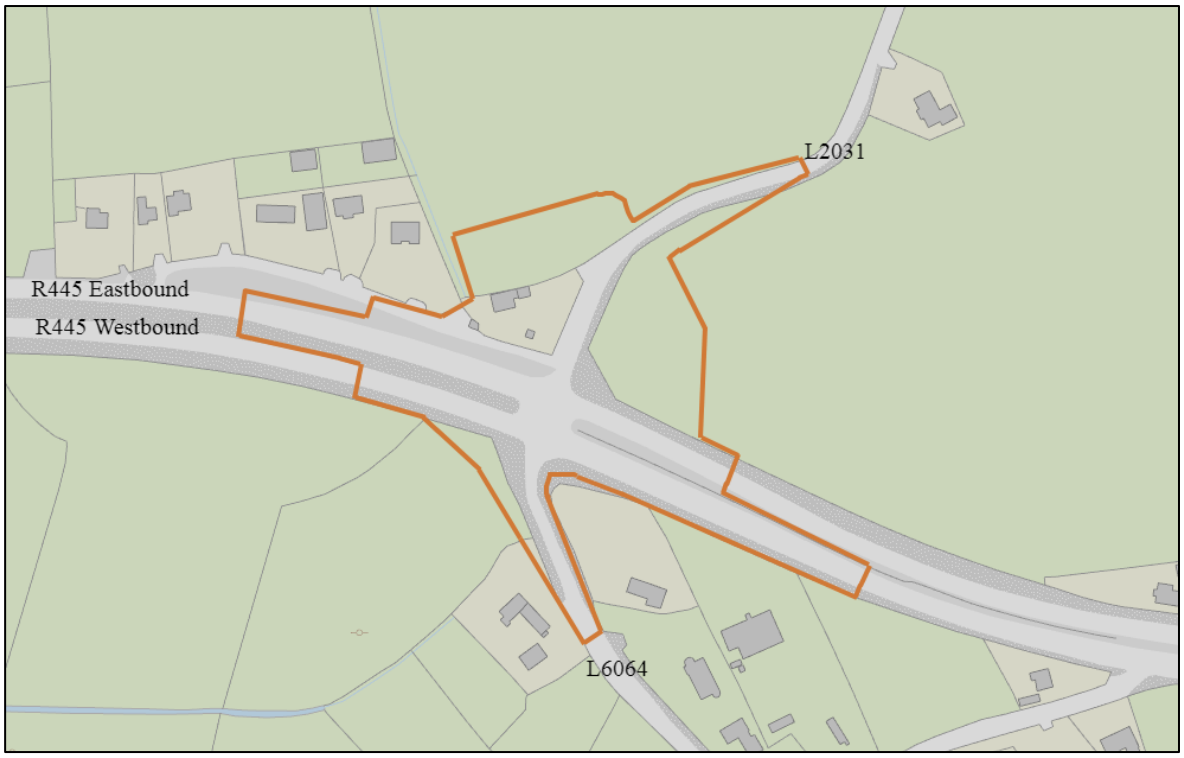

Figure 3 Location and Extent of Construction Corridor

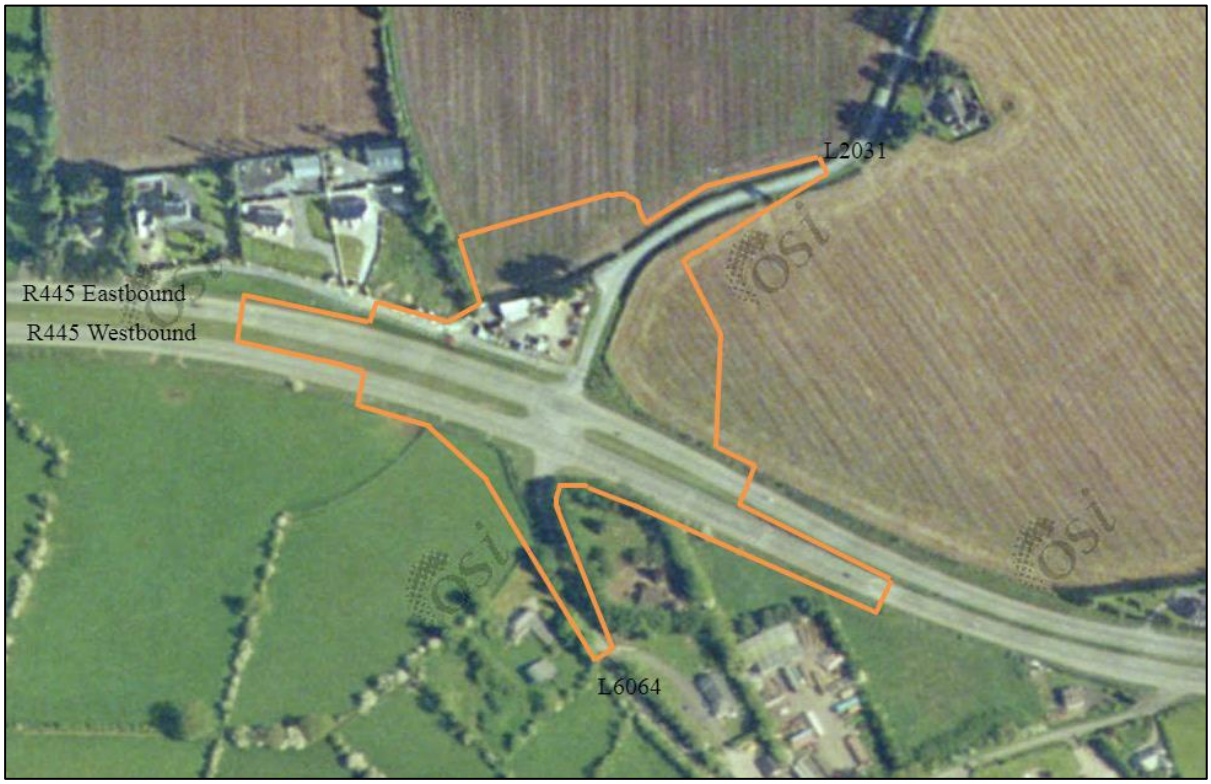

Plate 1 Aerial Photograph of Subject Area (2005)

Photographic views of selected scheme areas are illustrated below in Plates 2 – 9, with the respective 'viewpoints' indicated in Figure 4.

Plate 2 Stream along L6064 – western side (from north) [VP1]

Plate 3 Concrete Pipes/Culvert to stream under R445 Road [VP2]

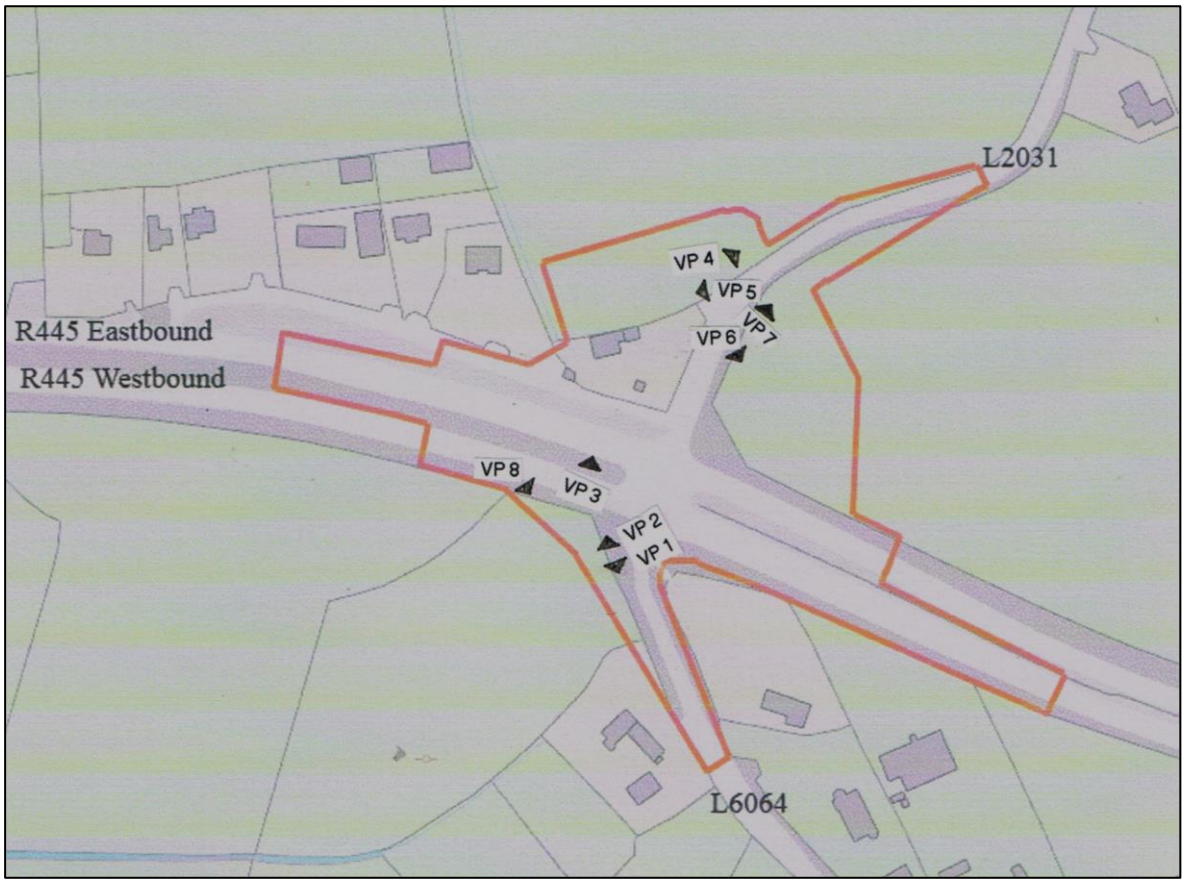

Figure 4 Viewpoint Locations [VP} for Plates 2 - 9

Plate 4 VP3

Plate 5 VP4

Plate 6 VP5

Plate 7 VP6

Plate 8 VP7

Plate 9 VP8

5. General Historical Background

The proposed development area is located in the townlands of Newhall and Ladytown (O.S. 6-inch maps: Kildare Sheets 18 & 19); the relevant boundary between these townlands is the centre of the existing access road to the residences west of Newhall Crossroads and to the north of the R445, which then turns to the general southeast across the dual-carriageway and along the centre of the L6064 road to the south.

Both townlands form part of the civil parish of Ladytown and barony of Connell. The name Newhall (Irish translation: *An Halla Nua*) is known from at least the mid-seventeenth century and considered to be of English derivation (Placenames Commission: www.logainm.ie). The Irish form of the name Ladytown – *Baile na Mná Maithe* – is considered a non-validated name by the Placenames Commission, who note that the *Calendar of Judiciary Rolls [Ireland}, 1295-1307)* indicate that it was known as *Villate Domine* in the late-thirteenth century.

The Civil Survey (1655-8) (www.downsurvey.tcd.ie/down-survey-maps.php) notes that 'Ladyestown' comprised 593 plantation acres, while 'Newhall' comprised 433 plantation acres, all forming part of an extensive landholding owned by Sir Nicholas White of Leixlip, who is recorded as the owner in 1641 and 1670; a census of 1659 records that Ladytown had a population of 75 English, with George Fitzgerald and Thomas Moore acting as 'Titulados', while Newhall had population of 80 English and 3 Irish. Extracts from

the Down Survey Map of 1655-6 (Figure 5) and a map of 1670 (Figure 6) for the parish of Ladytown indicate some residential activity in the townlands of Newhall and Ladytown, with a church indicated in the latter.

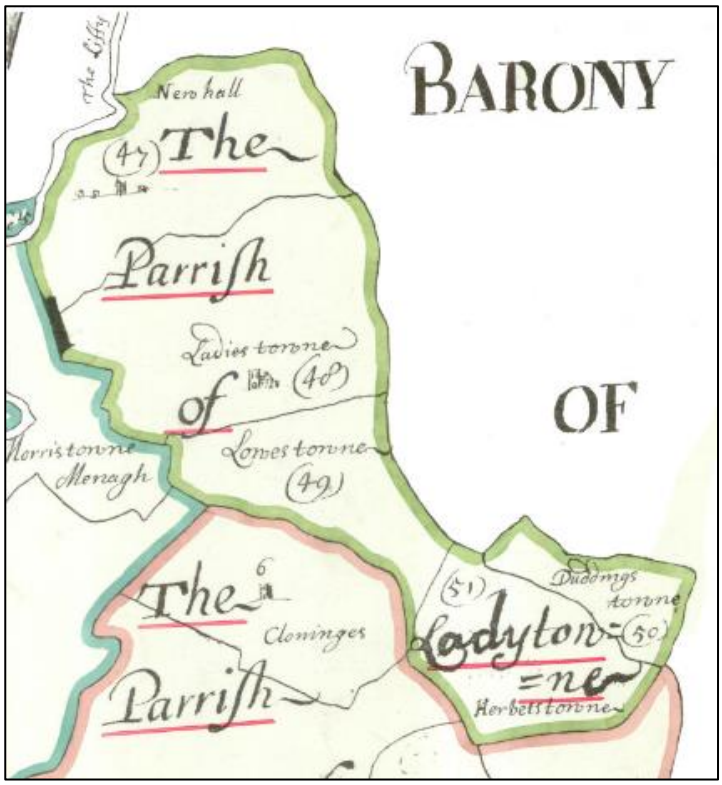

Figure 5 Extract from Civil Survey Map of 1655-6

Figure 6 Extract from Map of 1670

A generalised indication of the area in the mid-1700s is illustrated by Noble & Keenan's 'Grand Jury Map' of 1752 (Figure 7). This indicates the road linking Naas to Newbridge had been established by this time, as was the road leading south (L6064) from the present crossroads, although the road leading north (L2031) is not indicated.

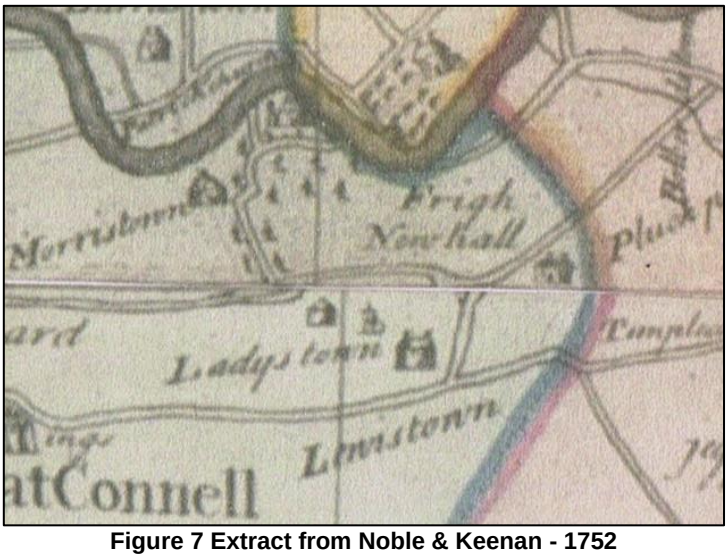

Figure 7 Extract from Noble & Keenan - 1752

Likewise review of *Taylor & Skinner's Maps of the Roads of Ireland, Surveyed 1777* (Figure 8) indicates that the road leading north from the present Newhall Crossroads had not been established by this time; it does, however, appear to have been established by 1783, as indicated in Taylor's map (Figure 9).

Figure 8 Extract from Taylor & Skinner, 1777 (Map 96) – north to right

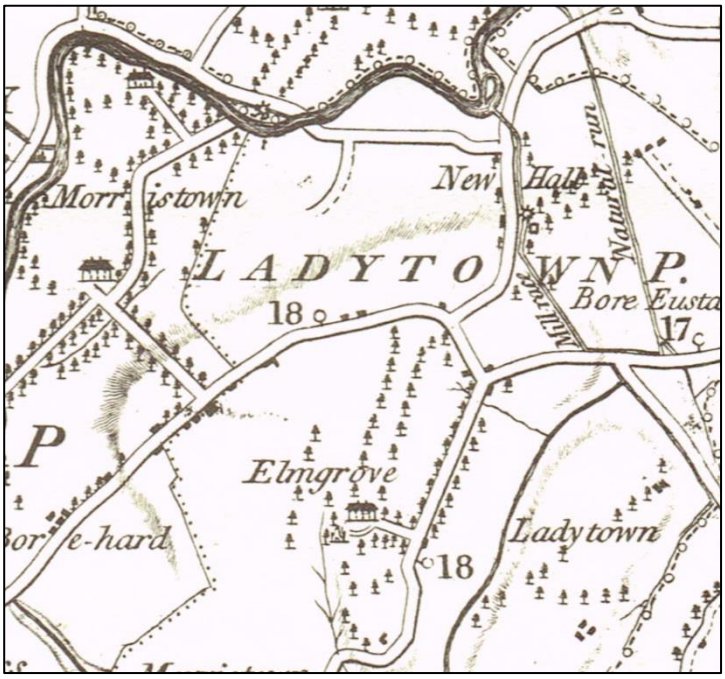

Figure 9 Extract from Taylor - 1783

The topographical nature of the immediate subject area in 1837 is illustrated below in Figure 10 superimposed on a modern aerial photograph. This indicates that the existing access road to the residential properties to the north of the R445 and immediately west of the present Newhall Junction, formed part of the main road from Naas to Newbridge; the townland boundary is shown in the centre of this road as a dotted line, as well as along the centre of the local road to the south (L6064). The local road to the north (L2031) originally forked north-east from the former main road and this, together with the local road to the south was identified as Newhall Cross Roads. The lands in the immediate area were largely in agricultural use, with two structures (houses?) located in a triangular plot formed by the junction of the main road with the southern local road L6064); in addition, a complex of structures (residence and outbuildings?) are present on the western side of this road adjacent the termination point of the proposed scheme.

Figure 10 Extract from Ordnance Survey 6" Map of 1837 superimposed on modern aerial photograph

Lewis (1837, 242) noted that the civil parish of Ladytown had a population of 402 at that time and that it "comprises 2629 statute acres, as applotted under the tithe act, and [was] valued at £1683 per annum". He further notes that the parish was "a vicarage, in the diocese of Kildare, forming part of the union of Great Connell; the rectory is impropriate in Sir T. Molyneux, Bart., Sir G. Cockburn, K.G.H., and A. Rourke, Esq. The tithes amount to £95.9.6., of which £63.13 is payable to the impropriators, and £31. 16. 6 to the vicar. In the R. C. divisions it is part of the union or district of Caragh and Downings".

Griffith's Valuation (*Primary Valuation of Ireland 1848-64*) of 1854 notes that the proposed development lands within the townland of Newhall were owned by Michael A. Rourke and leased to Thomas Flood, with those within Ladytown owned by Sir Capel Molyneux and leased to Eleanor Holohan and Thomas Duggan.

The topographical nature of the subject development area in 1908/9 is illustrated in Figure 11, superimposed on a modern aerial photograph. Very little changes to the area are indicated, with the extent of the triangular plot on the eastern side of the road leading to the south (L6064) indicated as comprising a smithy and probable residence accessed from the road to the west, as well as changes to the property on the western side of the road, including extensions to previous structures as well as additional structures. The stream running along the western side of the southern road (L6064) is indicated.

Figure 11 Extract from Ordnance Survey Map of 1908/9

The topographical nature of the subject development area in 1939 is illustrated in Figure 12, superimposed on a modern aerial photograph. Very little changes to the area are indicated, with some changes to the structures within the triangular plot on the eastern side of the road, including a third structure, as well as changes to the property on the western side of the road, named 'Ladyville' including a reduction in the number and form of the structures to previous structures. The stream running along the western side of the southern road (L6064) is indicated.

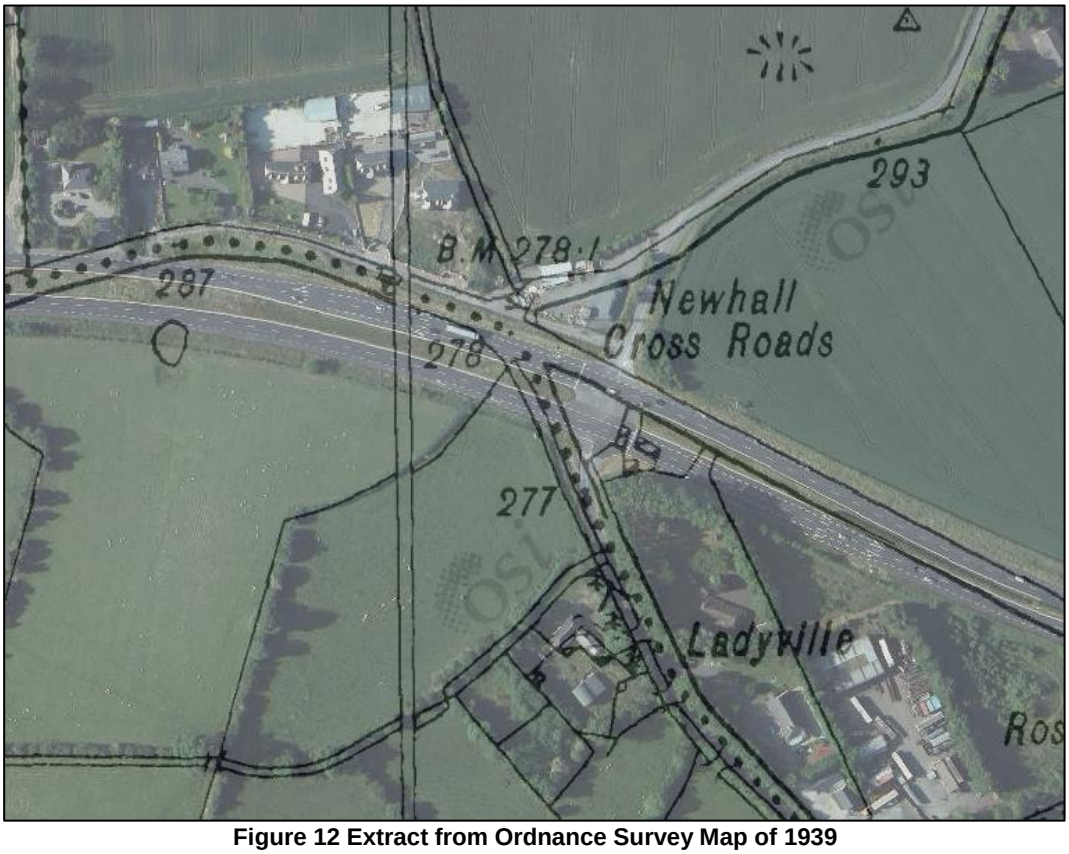

Figure 12 Extract from Ordnance Survey Map of 1939

The present dual-carriageway was constructed in the 1960s and formed part of the former N7 Road. This resulted in a realignment of the southernmost section of the L2031 to its present form; in addition, the southern westbound lane of the carriageway was routed through the former triangular plot to the east of the L6064 road. Furthermore, part of the original road to the west of Newhall Crossroads was not incorporated into the northern eastbound lane of the carriageway but was retained and now forms the access road to a number of residential properties.

6. Archaeological Heritage

Archaeology is the study of past societies through their material remains and the landscapes they lived in. "The archaeological heritage consists of such material remains (whether in the form of sites and monuments or artefacts in the sense of moveable objects) and environmental evidence" (DoAHG 1999, p9).

6.1 Statutory Protections

The statutory and administrative framework of development control in zone of archaeological potential or in proximity to recorded monuments has two main elements:

- Archaeological preservation and licensing under the National Monuments Acts and
- Development plans and planning applications under the Planning Acts.

6.1.1 National Monuments Acts 1930 - 2014

Section 12 (1) of the National Monuments Acts, 1930 - 2014 provides that the Minister for Arts, Heritage, Regional, Rural and Gaeltacht Affairs shall establish and maintain a record of monuments and places where the Minister believes there are monuments, such record to be comprised of a list of monuments and relevant places and a map or maps showing each monument and relevant place in respect to each county of the State. This is referred to as the 'Record of Monuments and Places' (RMP), and monuments entered into it are referred to as 'Recorded Monuments'.

Section 12(3) of the National Monuments Acts 1930 – 2014 provides for the protection of monuments and places in the record, stating that

"*When the owner or occupier (not being the Minister) of a monument or place which has been recorded under subsection (1) of this section or any person proposes to carry out, or to cause or permit the carrying out of, any work at or in relation to such monument or place, he shall give notice in writing of his proposal to carry out the work to the Minister and shall not, except in the case of urgent necessity and with the consent of the Minister, commence work for a period of two months after having given the notice.*

6.1.2 Kildare County Development Plan 2017 – 2023

The following relevant Archaeological Heritage Policies are set out in Section 12.9.1 of the Plan:

AH1 Manage development in a manner that protects and conserves the archaeological heritage of the county, avoids adverse impacts on sites, monuments, features or objects of significant historical or archaeological interest and secures the preservation in-situ or by record of all sites and features of historical and archaeological interest. The Council will favour preservation in – situ in accordance with the recommendation of the Framework and Principals for the Protection of Archaeological Heritage (1999) or any superseding national policy.

AH2 Have regard to the Record of Monuments and Places (RMP), the Urban Archaeological Survey and archaeological sites identified subsequent to the publication of the RMP when assessing planning applications for development. No development shall be permitted in the vicinity of a recorded feature, where it detracts from the setting of the feature or which is injurious to its cultural or educational value.

AH3 Secure the preservation (in-situ or by record) of all sites, monuments and features of significant historical or archaeological interest, included in the Record of Monuments and Places and their settings, in accordance with the recommendations of the Framework and Principles for the Protection of Archaeological Heritage, DAHG (1999), or any superseding national policy document

AH4 Ensure that development in the vicinity of a site of archaeological interest is not detrimental to the character of the archaeological site or its setting by reason of its location, scale, bulk or detailing and to ensure that such proposed developments are subject to an archaeological assessment. Such an assessment will seek to ensure that the development can be sited and designed in such a way as to avoid impacting on archaeological heritage that is of significant interest including previously unknown sites, features and objects.

NOTE: The RMP for County Kildare was published in 1996 Any archaeological monuments and sites discovered since the publication are not subject to protections under the National Monuments Acts, unless specifically the subject of a Preservation order, but are protected in the Kildare County Development Plan under Policy AH2 above.

6.2 Archaeological Inventory

6.2.1 Terrestrial Archaeology

In terms of the subject proposals, there are no previously identified monuments located within the extent of the subject development lands. In addition, no features of archaeological potential were noted as a result of cartographic or aerial photographic research undertaken as part of the preparation of this report, or by a subsequent detailed surface reconnaissance survey.

There is, however, one recently discovered monument located within the defined study area, outside the northern extent of the subject development. This is an enclosure site described below and illustrated in Plate 10; the extent of the associated 'Zone of Archaeological Notification' with respect to the proposed development extent is illustrated in Figure 13.

SMR No: KD019-071 **TOWNLAND:** Newhall **CLASSIFICATION:** Enclosure **PROTECTION:** KCDP	An aerial photograph (Ref: GB89.AF.22) taken by Dr. Gillian Barret and submitted to the Archaeological Survey of Ireland shows cropmark of a curvilinear enclosure defined by a fosse. The feature is clearly identifiable in the most recent Google aerial image (www.gogle.ie/maps), as illustrated in Plate 10. This indicates a curvilinear feature with a diameter of approximately 40m enclosed by a fosse. A possible ditch feature extends from the north-eastern extent east-north-east for a distance of approximately 45m from the north-eastern tip of the monument before turning southeast for a distance of approximately 70m; this may be the subsurface remains of a possible field system. As indicated in Figure 13, the closest extent of the associated 'Zone of Archaeological Potential/Notification' is 72m from the subject construction corridor.

Plate 10 Aerial Image of KD019-071 (Source: Google)

Figure 13 Location of Construction Corridor with respect to Archaeological Zone associated with KD019-071

6.2.2 Underwater Archaeology

Watercourses have always attracted human activity for a variety of reasons, as a source of water and food, as transport routes, as a source of energy and for their spiritual, religious or ritual associations. They also act as depositories for archaeological artefacts.

A reconnaissance survey of the stream banks along the western side of the L6064, where possible, together with historic cartographic research, indicates that there are no associated features such as stepping stones or fording points associated with the stream, either within the proposed construction corridor or within the wider defined study area. There was some evidence for low spoil heaps along the adjacent grass verge, most likely associated with clearance of the stream.

6.3 Archaeological Artefacts

No artefacts are listed in the Topographical Registers of the National Museum of Ireland, as having been discovered within the defined Cultural Heritage Study Area

6.4 Results from previous documented relevant archaeological investigations

A search undertaken of the annual Archaeological Excavations Bulletin (www.excavations.ie) indicates that no licenced archaeological investigations have been undertaken within the development lands or wider defined Cultural Heritage Study Area.

6.5 Archaeological Potential of Study Area / Receiving Environment

The siting preferences of particular monument types are well documented. Broadly speaking, the general landscape of the study area offers a potential setting for additional sites and remains as follows:

- The general gently sloping flat landscape is a favoured position for the location of ringforts in the general region surrounding the study area.

- The subject lands and surrounding landscape offer many opportunities for the location of Fulachta Fiadh (prehistoric cooking sites). These sites are location specific, generally located close to rivers and

streams or in wet marshy areas, and sometimes occur in groups.

7. Architectural Heritage

Architectural heritage has several definitions and meanings for people. A useful rule of thumb (which is actually the legal situation) is set out in the Architectural Heritage (National Inventory) and Historic Monuments (Miscellaneous Provisions) Act, 1999 which provides the following definition:

(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.

A rich architectural heritage has survived to the present day in County Kildare. While there are impressive demesne features and large houses in the County, much of the County's architectural heritage has come from vernacular traditions with local craftsmen sometimes borrowing from the traditions of classical architecture to construct buildings that met local needs. This rich architectural heritage contributes enormously to the overall built environment and, indeed, helps to give it definition in terms of place and character for those that live and work in the county as well as those who visit here.

7.1 Protected Structures

Section 51 of the Planning and Development Act, 2000 (as amended) requires the Development Plan to include a record of structures. These structures form part of the architectural heritage of the County and are to be protected. Kildare County Council has drawn up this list, referred to as the Record of Protected Structures (RPS), in which each structure is given a reference number and is a constituent part of the County Development Plan.

There are no structures listed in the Record of Protected Structures (RPS) of the Kildare County Development Plan 2017-2023 as being located within the defined Cultural Heritage Study Area.

7.2 National Inventory of Architectural Heritage (NIAH)

The National Inventory of Architectural Heritage (NIAH) is a state initiative under the administration of the Department of Culture, Heritage and the Gaeltacht. 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. It is intended that the NIAH will provide the basis for the recommendations of the Minister for Culture, Heritage and the Gaeltacht to the planning authorities. The NIAH includes structures and garden features.

There are no structures listed in the National Inventory of Architectural Heritage (NIAH) as being located within the defined Cultural Heritage Study Area.

8. Assessment of Impacts

8.1 Introduction

The following Table (from EPA, 2017, Table 3.3) provides the baseline criteria used to describe the impacts (effects) that the proposed development will have on Cultural Heritage Sites, Structures and Features.

Quality of Effects	**Positive Effects** A change which improves the quality of the environment **Neutral Effects** No effects or effects that are imperceptible, within normal bounds of variation or within the margin of forecasting error. **Negative/adverse Effects**

	A change which reduces the quality of the environment
Significance of Effects	**Imperceptible** An effect capable of measurement but without significant consequences. **Not significant** An effect which causes noticeable changes in the character of the environment but without significant consequences. **Slight Effects** An effect which causes noticeable changes in the character of the environment without affecting its sensitivities. **Moderate Effects** An effect that alters the character of the environment in a manner that is consistent with existing and emerging baseline trends. **Significant Effects** An effect which, by its character, magnitude, duration or intensity alters a sensitive aspect of the environment. **Very Significant** An effect which, by its character, magnitude, duration or intensity significantly alters most of a sensitive aspect of the environment. **Profound Effects** An effect which obliterates sensitive characteristics
Extent and Context of Effects	**Extent** Describe the size of the area, the number of sites, and the proportion of a population affected by an effect. **Context** Describe whether the extent, duration, or frequency will conform or contrast with established (baseline) conditions
Probability of Effects	**Likely Effects** The effects that can reasonably be expected to occur because of the planned project if all mitigation measures are properly implemented. **Unlikely Effects** The effects that can reasonably be expected not to occur because of the planned project if all mitigation measures are properly implemented.
Duration and Frequency of Effects	**Momentary Effects** Effects lasting from seconds to minutes **Brief Effects** Effects lasting less than a day **Temporary Effects**

	Effects lasting less than a year **Short-term Effects** Effects lasting one to seven years. **Medium-term Effects** Effects lasting seven to fifteen years. **Long-term Effects** Effects lasting fifteen to sixty years. **Permanent Effects** Effects lasting over sixty years **Reversible Effects** Effects that can be undone, for example through remediation or restoration **Frequency of Effects** Describe how often the effect will occur.

8.2 Potential Impacts of the Proposals

8.2.1 Construction Phase

8.2.1.1 Local History

The general historical background to the subject development area was introduced above in Section 5. In summary, there are no significant historical events associated with the proposed Construction Corridor or immediate environs which have the ability to be impacted upon by the proposed development.

Consequently, it is considered generally that, in terms of local history, a neutral impact/effect will occur during the construction phase associated with the scheme.

8.2.1.2 Archaeological Heritage

(a) Terrestrial

The general archaeological background to the subject development area was introduced above in Section 6.2. In summary, there are no previously recorded archaeological monuments located within the proposed Construction Corridor; a curvilinear enclosure site (KD0190071) with a possible associated field system is located to the north, within the wider defined study area. The closest extent of the associated 'Zone of Archaeological Potential/Notification' is 72m from the extent of the scheme. No additional features of archaeological potential were noted as a result of cartographic or aerial photographic research undertaken as part of the preparation of this report, or by a subsequent detailed surface reconnaissance survey.

Consequently in terms of effects on previously identified archaeological monuments, it is considered that a neutral impact will occur

In general, ground reductions associated with a development of this kind, in areas of previous generally undisturbed ground, have the ability to uncover and disturb hitherto unrecorded subsurface features, deposits, structures and finds of archaeological interest and potential. Without the adoption and implementation of a suitable mitigation strategy, any subsurface archaeological features or artefacts that might be located within the site during the construction phase of the development might not be identified and recorded.

(b) Underwater

A stream is located along the western side of the L6064 and is routed under the R445 by means of concrete pipes before emerging along a field/property boundary to the north of the main road. No associated features of interest were noted by a limited inspection of this stream or by aerial photographic and historic

cartographic research.

The section of stream along the L6064 within the defined scheme area will be culverted using concrete pipes and it is considered that a neutral impact of slight effect will occur during the construction phase associated with the scheme.

8.2.1.3 Architectural Heritage

As noted above in Section 7, there are no protected structures within the meaning of the Planning and Development Act, 2000 situated within the boundaries of the proposed Construction Corridor or wider Cultural Heritage Study Area. Likewise, no structures of architectural heritage interest/merit are listed by the National Inventory of Architectural Heritage as being located within such areas.

Consequently, it is considered that, in terms of architectural heritage, a neutral impact will occur during the construction phase associated with the scheme.

8.2.2. Operational (Post-Construction) Phase

8.2.2.1 Local History

The general historical background to the subject development area was introduced above in Section 5. In summary, there are no significant historical events associated with the proposed Construction Corridor or immediate environs which have the ability to be impacted upon by the proposed development, although a short section of townland boundary will be removed at construction phase.

Consequently, it is generally considered that, in terms of local history, a neutral impact will occur during the operational phase associated with the scheme.

8.2.2.2 Archaeological Heritage

The general archaeological background to the subject development area was introduced above in Section 6.2. In summary, there are no extant archaeological monuments located within the proposed Construction Corridor or wider Cultural Heritage Study Area. An enclosure site with possible associated field system is located to the north of the scheme; there are no surface traces for this complex of features.

Consequently, given the above and the nature of KD019-071 (enclosure), it is not considered likely that the setting of any archaeological monuments will be visually impacted by the ache and that a neutral impact will occur during the operational phase.

8.2.2.3. Architectural Heritage

As noted above in Section 7, there are no protected structures within the meaning of the Planning and Development Act, 2000 situated within the boundaries of the proposed Construction Corridor or wider Cultural Heritage Study Area. Likewise, no structures of architectural heritage interest/merit are listed by the National Inventory of Architectural Heritage as being located within such areas.

Consequently, it is considered that, in terms of architectural heritage, a neutral impact will occur during the operational phase associated with the scheme.

8.2.3. 'Do Nothing' Scenario

In terms of Cultural Heritage, no impacts will occur.

8.2.4. Potential Cumulative Impacts

It is not considered that any cumulative impacts will occur.

9. Mitigation Measures

9.1 Pre-Construction/Construction Phase

9.1.1 Local History

The general historical background to the subject development area was introduced above in Section 5. In general, there are no significant historical events associated with the proposed development lands which have the ability to be impacted upon by the proposed development.

Consequently, no mitigation measures are considered necessary.

9.1.2 Archaeological Heritage

The general archaeological background to the subject development area was introduced above in Section 6.2. In summary, there subsurface remains of an enclosure (KD019-071) with a possible associated field system is located to the north of the extent of the scheme.

As noted above in Section 8.2.1.2 (a), it is not considered likely that the development, as proposed, will cause any direct impacts to any identified archaeological monuments. However, it is noted that in general, ground reductions associated with a development of this kind, in areas of previous generally undisturbed ground, have the ability to uncover and disturb hitherto unrecorded subsurface features, deposits, structures and finds of archaeological interest and potential. Without the adoption and implementation of a suitable mitigation strategy, any subsurface archaeological features or artefacts that might be located within the site during the construction phase of the development might not be identified and recorded.

Given the above, and in order that potential subsurface, and hitherto unidentified and unrecorded, features of archaeological heritage interest that might exist within the subject development/construction corridor, can be identified at an early stage, particularly in advance of the construction phase of the development, the following pre-construction mitigation measures are suggested:

- A programme of Archaeological Testing should be undertaken within the greenfield/agricultural lands within the extent of the Construction Corridor (Parcels 1, 3 5 and 5). Such testing to be under licence from the Department of Housing, Local Government and Heritage.

- Following clearance of the undergrowth along the banks of the stream positioned along the west of the L6064, an Archaeological wade and metal-detecting survey should be undertaken, under licence from the Department of Housing, Local Government and Heritage.

- Following completion of the Programme of Pre-Development Archaeological Investigations, a report describing the results of such should be prepared. The report should include an impact statement with respect to any subsurface or watercourse-related features of archaeological interest/potential that might have been discovered/identified and include a mitigation strategy for the archaeological resolution of such features (e.g. Mitigation by Excavation, Recording and Publication) in advance of the commencement of construction works.

9.1.3 Architectural Heritage

As noted above in Section 7, there are no protected structures within the meaning of the Planning and Development Act, 2000 situated within the boundaries of the proposed Construction Corridor or in the wider Cultural Heritage Study Area. Likewise, no structures of architectural heritage interest/merit are listed by the National Inventory of Architectural Heritage as being located within such areas.

As noted in Section 8.2.1.3 it is considered that, in terms of architectural heritage, a neutral impact will occur during the construction phase associated with the scheme. Consequently, no mitigation measures are considered necessary at pre-construction/construction phase.

9.2 Operational (Post-Construction) Phase

9.2.1. Local History

The general historical background to the subject development area was introduced above in Section 5. In summary, there are no significant historical events associated with the proposed development lands which have the ability to be impacted upon by the proposed development, when operational.

9.2.2. Archaeological Heritage

The general archaeological background to the subject development area was introduced above in Section 6.2. In summary, there are no previously recorded archaeological monuments located within the proposed Construction Corridor or wider Cultural Heritage Study Area.

Consequently, as noted in Section 8.2.2.2, it is considered that, in terms of archaeological heritage, a neutral impact will occur during the operational/post-construction phase of the development and no mitigation measures are considered necessary.

9.2.3. Architectural Heritage

As noted above in Section 7, there are no protected structures within the meaning of the Planning and Development Act, 2000 situated within the boundaries of the proposed Construction Corridor or in the wider Cultural Heritage Study Area. Likewise, no structures of architectural heritage interest/merit are listed by the National Inventory of Architectural Heritage as being located within such areas.

Consequently, as noted in Section 8.2.2.3, it is considered that, in terms of architectural heritage, a neutral impact, of slight significance level, will occur during the operational phase associated with the scheme. Consequently, it is considered that no mitigation measures are required with respect to the operational/post-construction phase of the development.

10. Predicted Residual Impacts

10.1. Local History

There are no predicted impacts in terms of Cultural Heritage.

10.2. Archaeological Heritage

There are no predicted impacts in terms of Cultural Heritage.

10.3. Architectural Heritage

There are no predicted impacts in terms of Cultural Heritage.

10.4 ‘Worst-Case’ Scenario

A ‘worst case’ scenario with respect to Cultural Heritage would arise where the development was permitted to commence without any suggested mitigation requirements being implemented/without the appointment of an archaeologist to undertake the mitigation requirements. In such scenarios, previously unidentified subsurface features of archaeological interest/potential and/or artefacts of archaeological/historical interest which might be uncovered during the course of the works would, most likely, be destroyed and not recorded.

10.5. Monitoring and Reinstatement Measures

Post-construction monitoring issues or reinstatement measures with respect to cultural heritage are not considered a requirement with respect to the subject development.

APPENDIX 1
Consulted Documentary Sources

Aalen, F.H.A, Whelan, K & Stout, M. 1997. *Atlas of the Irish Rural Landscape.* Cork University Press.
2011. *Atlas of the Irish Rural Landscape (Revised & Expanded Second Edition), Cork University Press.*

Barry, T.B. 1987. *The Archaeology of Medieval Ireland.* Routeledge, London and New York.

Bateman, J. 1883. *The Great Landowners of Great Britain and Ireland.* Harrison, London.

Bence-Jones, M. 1988. *A Guide to Irish County Houses.* Constable, London.

Burnell, T. 2006. *The Anglicised words of Irish Placenames.* Nonsuch Publishing, Dublin.

Costello, C. 1991. *Guide to Kildare and West Wicklow.* Leinster Leader, Naas.

DoAHGI. 1999. *Framework and Principles for the Protection of the Archaeological Heritage.* Stationery Office, Dublin.

Edwards, N. 1990. *The Archaeology of Early Medieval Ireland*. Batsford Ltd., London.

Griffith, R. 1854. *General Valuation of Rateable Property of Ireland – Co. Dublin.* Dublin.

Flanagan, D. & Flanagan, L. 1994. *Irish Place Names.* Gill & Macmillan, Dublin.

Halpin, A & Newman, C. 2006. *Ireland: An Oxford Archaeological Guide.* Oxford University Press.

Herity, M (ed). 2002. *Ordnance Survey Letters Kildare – Letters Containing Information Relative to the Antiquities of the County of Kildare Collected During The Progress Of The Ordnance Survey In 1837, 1838 and 1839.* Four Masters Press, Dublin.

Hogg, W.E. 1998. *The Millers & The Mills of Ireland of about 1850.* Millbrook Printing, Dublin.

Killanin, Lord. & Duignan, M.V. 1989. *The Shell Guide to Ireland.* McGraw-Hill Ryerson, Montreal (Revised & updated edition by P. Harbison).

Lewis, S. 1837. *A Topographical Dictionary of Ireland.* 2 Vols. Lewis & Co., London.

Murphy, M & Potterton, M. 2010. The Dublin Region in the Middle Ages: Settlement, Land-use and Economy. Discovery Programme/Four Courts Press, Dublin.

National Roads Authority. 2003. *Archaeological Guidelines for Reporting on Constraint, Route Selection, Environmental Impact Assessment on Archaeological Aspects of NRA Road Schemes*. Draft Consultation Document.
2005a. *Guidelines for the Assessment of Archaeological Heritage Impacts of National Road Schemes.*
2005b. *Guidelines for the Assessment of Architectural Heritage Impacts of National Road Schemes.*

O'Farrell, P. 2003. *A History of County Kildare.* Gill & Macmillan, Dublin.

OSFM: Ordnance Survey Field Memoranda. MSS. Ordnance Survey Office.

OSNB: Ordnance Survey Name Books, Co. Kildare. NLI Microfilm.

Rynne, C. 2006. *Industrial Ireland, 1750-1930. An Archaeology.* Collins Press, Cork.

Simmington, R.C. (ed). 1954. The Civil Survey – Co. Kildare, 1654-56. Irish Manuscripts Commission, Dublin.

Swift, M. 1999. *Historical Maps of Ireland.* Parkgate Books, London.

Taylor, G & Skinner, A. 1778. *Taylor and Skinner's Maps of the Roads of Ireland, Surveyed 1777.*

Waddell, J. 1990. *The Bronze Age Burials of Ireland*. Galway University Press.

APPENDIX 2
Classification of Archaeological Monuments

A number of monument types have been identified within the study area. What follows is a brief introduction, describing the main characteristics and the broad cultural and chronological context of such monument types. This is based on the system adopted by the Archaeological Survey of Ireland (www.archaeology.ie).

CLASSIFICATION	SCOPE NOTE
Enclosure	An area defined by an enclosing element and occurring in a variety of shapes and sizes, possessing no diagnostic features which would allow classification within another monument category. These may date to any period from prehistory onwards.
Field System	A group or complex of fields which appear to form a coherent whole. These date to any period from the Neolithic (c. 4000-2400 BC) onwards.