

N2 Rath Roundabout to Kilmoon Cross

Appendix
Constraints Report

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1. Introduction

This report provides an overview of the constraints for the proposed N2 Rath Roundabout to Kilmoon Cross scheme in accordance with the TII Project Management Guidelines 2020. This constraints study also took cognisance of the TII Guidelines for the Planning of National Road Schemes and has referenced the topics identified in Article 3 of the revised EIA Directive (2014/52/EU).

1.1 Scheme Overview

Meath County Council is working in partnership with Fingal County Council and in association with Transport Infrastructure Ireland, to develop a scheme along a section of the N2 between Rath Roundabout and Kilmoon Cross. Roughan & O'Donovan – AECOM Alliance have been appointed by Meath County Council to progress the scheme development through Phases 1 to 4 of the TII Project Management Guidelines 2020.

The N2 between Rath Roundabout and Kilmoon Cross is a 5.5km stretch of single carriageway road with hard shoulders of varying width. The proposed road scheme is located immediately north of Ashbourne, County Meath and forms part of the N2 National Primary route which links Dublin to Derry. This section of the N2 experiences a number of existing traffic problems including major delays and long tailbacks in the morning and evening peak periods and safety is compromised due to a number of at-grade junctions and private accesses along the existing road.

1.2 Approach to Constraints Report

The initial step in the Option Selection process is to identify the nature and extent of significant constraints within a defined study area. A constraint is a natural or artificial consideration that could affect, restrict, limit or constrain the location or any aspect of a project within the identified study area.

This report outlines the process by which the Constraints Study Area was defined, and documents the significant constraints identified. The constraints identified were mapped to facilitate the development of a number of feasible options that avoided the constraints where possible. TII's Project Manager's Manual for Major National Road Projects (2020) splits constraints into three categories: natural constraints, artificial constraints and external parameters. Natural constraints are considered naturally occurring landscapes and features, artificial constraints are those that form part of the built environment while external parameters include design standards, policy and procedural and legal issues.

The constraints gathering exercise mainly comprised of a desktop study with the nature of certain constraints verified by means of site visits. The sections below outline the constraints identified within the N2 Constraints Study Area.

It is noted that the compilation of this report straddled the period between the completion of the new Meath County Development Plan review process and the new plan taking effect. Therefore, both the superseded Meath County Development Plan 2013-2019 and the recently adopted Meath County Development Plan 2021-2027 are referenced in this report.

1.3 Defining the Constraints Study Area

The study area selected for investigation should cover an area which will enable appropriate options to be developed and examined, in accordance with the TII Project Manager's Manual 2020.

The Constraints Study Area is located north of Ashbourne town at Rath Roundabout and extends north of Kilmoon Cross. The existing N2 traverses the Constraints Study Area in a north-south direction. There are a number of residential properties located adjacent to this stretch of the N2, as well as agricultural, commercial and industrial buildings and a cemetery.

The Constraints Study Area was identified at project inception and was amended during Phase 1. These amendments included the extension of the Constraints Study Area further north to include for potential tie-in options at the Kilmoon Cross junction, as well as the extension slightly further west to centre the Constraints Study Area around the existing N2 whilst including local roads to the west of the N2 adjacent to Tayto Park.

The Constraints Study Area is shown in a local context in Figure 1-1 overleaf, demarcated by the red dashed line, as well as Drawing CH-0001 in Appendix A. This covers an area approximately 8km long from north to south, and 2km from east to west.

Consideration was given to extending the Constraints Study Area further to the east and west, however there were a number of significant constraints. These included Tayto Park to the west, an area of Highly Sensitive Landscape to the east, as well as areas of high elevation to the east and west. Based on this, the Constraints Study Area was deemed to be of a sufficient size to facilitate the development of feasible options and was carried forward for use in the Constraints Study.

Following the definition of the study area, all constraints, at an appropriate level of detail, should be identified therein. This process facilitates the development of feasible options, as well as the systematic assessment of the potential impacts associated with these options during Phase 2 of the TII Project Management Guidelines 2020.

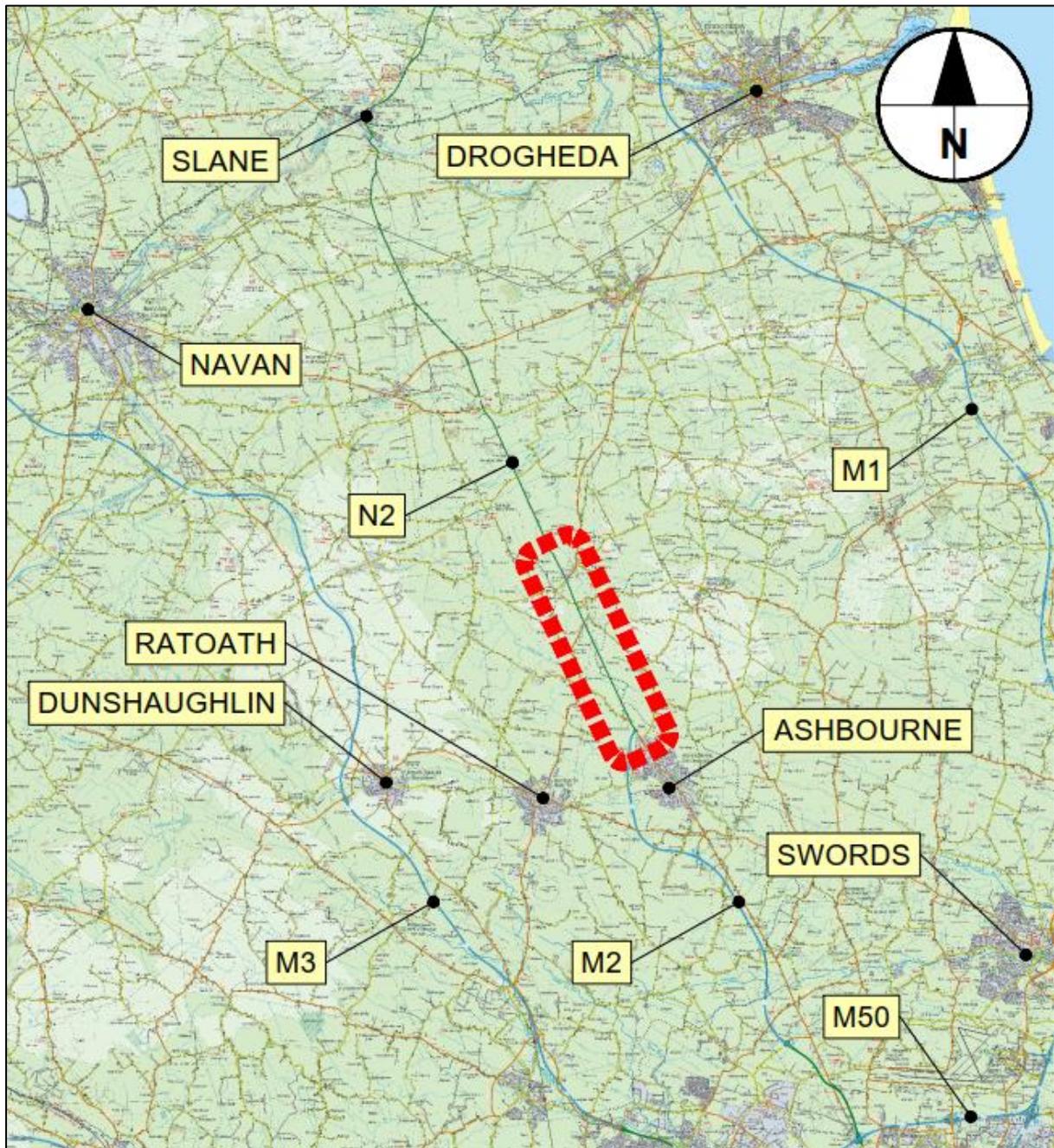


Figure 1-1 - Extent of the Constraints Study Area

1.4 Public Consultation 01 – Study Area, Constraints and Scheme Options

The Constraints Study is the initial step in the option selection process and does not normally involve a formal public consultation. In accordance with the TII Project Manager's Manual 2020, the first non-statutory public consultation should be held to inform stakeholders of the preliminary options developed and the findings of the constraints study. The first non-statutory public consultation was held after the constraints study had taken place on the 12th March 2020 and is explained in more detail in the Stage 1 – Preliminary Options Assessment chapter of the Option Selection Report.

During this first public consultation period, the study area, constraints and preliminary scheme options were put on public display, this provided an opportunity for the public to contribute to the decision-making process. As part of this process, a number of measures were undertaken in order to raise awareness of the proposed scheme amongst members of the public, as listed below:

- **Press Coverage** – Radio advertisements on LMFm, newspaper advertisements in the local newspapers the *Meath Chronicle* and the *Fingal Independent*, Facebook / Twitter posts shared by both Meath and Fingal County Council and numerous councillors, the scheme was also publicised on both Meath and Fingal County Council websites.
- **Project Website** – A website for the Scheme (www.n2rath2kilmoon.ie) was established which went live to the public on the 12th March 2020. The website is periodically updated containing the latest information on the progress of the scheme and includes the contact details of the project team and a submission box to allow members of the public to engage with the scheme.
- **Stakeholder Letter** – Letters were issued to a number of stakeholders to facilitate engagement with the scheme. These included government departments, statutory undertakers, ecology, geology and hydrology groups, as well as a range of local businesses and associations. The letter sent to these stakeholders is saved as LT-0001 in Appendix A.
- **Key Stakeholder Letter** – Letters were also issued to a number of prescribed bodies / key stakeholders to facilitate engagement with the scheme. The key stakeholders are listed overleaf, and the letter sent to these stakeholders is saved as LT-0002 in Appendix A.

List of Key Stakeholders / Prescribed Bodies

- National Parks and Wildlife Service
- Inland Fisheries Ireland
- Office of Public Works
- Meath County Council
- Fingal County Council
- Transport Infrastructure Ireland
- Department of Housing, Local Government and Heritage - NM's
- Department of Housing, Local Government and Heritage
- Department of Communications, Climate Action and Environment
- National Museum of Ireland
- Arts Council of Ireland
- Fáilte Ireland
- HSE National Office - Health and Wellbeing
- An Taisce
- Gas Networks Ireland
- ESB
- Irish Water
- Iarnród Éireann (Dublin Division)
- Coras Iompair Eireann (CIE)

2. Natural Constraints

The natural constraints identified within the Constraints Study Area for the N2 Rath Roundabout to Kilmoon Cross are listed and discussed in detail below, and have been divided into the following subheadings for clarity:

- Biodiversity (incorporating Flora and Fauna);
- Water (incorporating Flood Risk and Hydrology);
- Land and Soils (incorporating Soils, Geology and Hydrogeology); and
- Landscape and Visual.

2.1 Biodiversity (Incorporating Flora and Fauna)

Methodology

A desk study exercise was undertaken to identify designated sites, protected habitats and species potentially occurring in proximity to the Constraints Study Area. This Area is defined as the area in which preliminary options are considered.

The study included a review of the National Parks and Wildlife Service (NPWS) database to determine the boundaries of designated sites, the submission of information requests and a review of the site synopses to identify the Qualifying Interests and general nature conservation features of importance. A review of OSI mapping and aerial photographs was also undertaken to identify other habitats in the vicinity of the Constraints Study Area that may be subject to impacts through severance of connecting corridors, pollution run-off during construction and other potential impacts.

For the purposes of this review, a wider 'Zone of Influence' was considered that was based on the line of the existing N2 between the Rath and Kilmoon, with a buffer of 15 km, and included the downstream extents of all watercourses within the Constraints Study Area. This Zone of Influence considered the project's requirements and deliverables against the biodiversity receptors within the project footprint, in addition to all ecological receptors that could be connected to and subsequently impacted by the project through abiotic and biotic vectors.

Designated Sites

Designated sites fall into a number of categories based on the associated level of protection afforded:

- Special Areas of Conservation (SAC) are strictly protected sites designated under Directive 92/43/EEC (“the Habitats Directive”). Special Protection Areas (SPA) are strictly protected sites classified in accordance with Article 4 of Directive 2009/147/EC (“the Birds Directive”). SAC and SPA are collectively referred to as Natura 2000 sites.
- Natural Heritage Areas (NHA) are considered important for the habitats that are present or which hold species of plants and animals whose habitat needs protection. These areas are afforded statutory protection under the Wildlife Act, 1976 (as amended) (“the Wildlife Act”).
- Proposed National Heritage Areas (pNHA) are sites of significance for wildlife and habitats but which have not yet been statutorily proposed or designated as NHA. These areas were proposed for protection on a non-statutory list which was published in 1995.
- Nature Reserves are areas of importance to wildlife, which are protected under Ministerial Order. Most are owned by the State. However, some are owned by organisations or private landowners.

There are five designated Natura 2000 sites within the wider zone of influence. A further 12 pNHA and one Nature Reserve also lie within the wider zone of influence. There are no designated sites within the Constraints Study Area. Designated sites occurring within the wider zone of influence are shown in Figure 2-1 as well as in Drawing EG-0002 in Appendix B. These sites are also listed in Table 2-1.

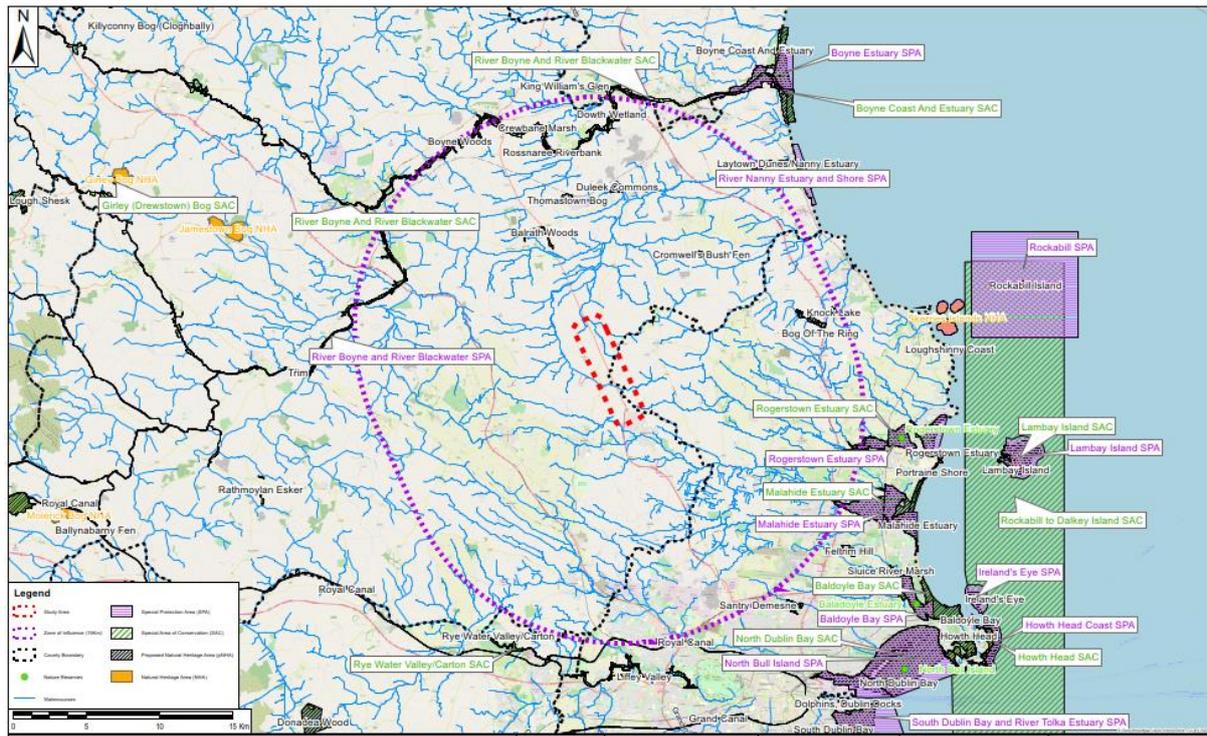


Figure 2-1 – Designated Sites within the Zone of Influence

Table 2-1 - Designated Sites within the Zone of Influence

Name	Site code	Approximate distance
River Boyne and River Blackwater SAC	002299	11 km north
River Boyne and River Blackwater SPA	004232	11 km north
River Nanny Estuary and Shore SPA	004158	18 km downstream
Rogerstown Estuary SAC	000208	16 km downstream
Rogerstown Estuary SPA	004015	16 km downstream
Balrath Woods pNHA	001579	4 km north
Thomastown Bog pNHA	001593	7 km east
Rosnaree Riverbank pNHA	001589	11.2 km north
Crewbane Marsh pNHA	000553	12 km north
Slane Riverbank pNHA	001591	14 km north
Boyne Woods pNHA	001592	13.5 km north
Duleek Commons pNHA	001578	8.5 km north-east
Cromwell's Bush Fen pNHA	001576	8.8 km east
Bog of the Ring pNHA	001204	13 km east
Laytown Dunes/Nanny Estuary pNHA	000554	18 km downstream
Dowth Wetland pNHA	001861	13.2 km north
Rogerstown Estuary pNHA	000208	16 km downstream
Rogerstown Estuary Nature Reserve	n/a	18 km downstream

European Designated Sites

The following sections describe each of the Natura 2000 sites in the zone of influence. The information has been taken from the NPWS site synopses.

River Boyne and River Blackwater SAC

This SAC is 11 km north of Kilmoon and is not connected to the Constraints Study Area. This site consists of the freshwater element of the River Boyne as far as the Boyne Aqueduct, the Blackwater as far as Lough Ramor and the Boyne tributaries including the Deel, Stoneyford and Tremblestown Rivers. These riverine stretches drain a considerable area of Meath and Westmeath, and smaller areas of Cavan and Louth.

The Boyne and its tributaries form one of Ireland's premier game fisheries and the area offers a wide range of angling, from fishing for spring salmon and grilse to sea trout fishing and extensive brown trout fishing. Atlantic Salmon (*Salmo salar*) use the tributaries and headwaters as spawning grounds.

This area is also important for the populations of two other species listed on Annex II to the Habitats Directive, namely River Lamprey (*Lampetra fluviatilis*), which is present in the lower reaches of the Boyne River, and Otter (*Lutra lutra*), which can be found throughout the site. In addition, the site also supports Pine Marten (*Martes martes*), Badger (*Meles meles*) Irish Hare (*Lepus timidus*), Stoat (*Mustela*

erminea) and Red Squirrel (*Sciurus vulgaris*) and the amphibian, the Common Frog (*Rana temporaria*) which are protected under the Wildlife Act.

The site supports populations of several species listed on Annex II to the Habitats Directive, and habitats listed on Annex I, as well as examples of other important habitat types. Although the wet woodland areas appear small there are few similar examples of this type of alluvial wet woodland remaining in the country, particularly in the north-east. The semi-natural habitats, particularly the strips of woodland which extend along the river banks, and the marsh and wet grasslands, increase the overall habitat diversity and add to the ecological value of the site, as does the presence of a range of Red Data Book plant and animal species and the presence of nationally rare plant species.

The following species and habitats are listed as Qualifying Interests of the area:

- [7320] Alkaline fens;
- [91E0] Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion*, *Alnion incanae*, *Salicion albae*);
- [1099] River Lamprey (*Lampetra fluviatilis*);
- [1106] Salmon (*Salmo salar*); and
- [1355] Otter (*Lutra lutra*).

River Boyne and River Blackwater SPA

This SPA is 11 km north of Kilmoon and is not connected to the Constraints Study Area. The River Boyne and River Blackwater SPA is a long, linear site that comprises stretches of the River Boyne and several of its tributaries; most of the site is in Co. Meath, but it extends also into Counties Cavan, Louth and Westmeath. It includes the following river sections: the River Boyne from the M1 motorway bridge, west of Drogheda, to the junction with the Royal Canal, west of Longwood, Co Meath; the River Blackwater from its junction with the River Boyne in Navan to the junction with Lough Ramor in Co. Cavan; the Tremblestown River/Athboy River from the junction with the River Boyne at Kilnagross Bridge west of Trim to the bridge in Athboy, Co. Meath; the Stoneyford River from its junction with the River Boyne to Stonestown Bridge in Co. Westmeath; the River Deel from its junction with the River Boyne to Cummer Bridge, Co. Westmeath. The site includes the river channel and marginal vegetation.

The site is of special conservation interest for Kingfisher (*Alcedo atthis*), which is listed on Annex I to the Birds Directive. A survey in 2010 recorded 19 pairs of Kingfishers (based on 15 probable and 4 possible territories) in the SPA. A survey conducted in 2008 recorded 20-22 Kingfisher territories within the SPA. Other species which occur within the site include Mute Swan (90), Teal (166), Mallard (219), Cormorant (36), Grey Heron (44), Moorhen (84), Snipe (32) and Sand Martin (553) – all figures are peak counts recorded during the 2010 survey.

River Nanny Shore and Estuary SPA

This site is hydrologically connected to the Constraints Study Area via the Hurley River and is approximately 18 km downstream of the existing N2. The site comprises the estuary of the River Nanny and sections of the shoreline to the north and south of the estuary (c. 3 km in length). The estuarine channel, which extends inland for almost 2 km, is narrow and well sheltered.

This is an important site for wintering waders, with nationally important populations of Golden Plover (1,759), Oystercatcher (1,014), Ringed Plover (185), Knot (1,140) and Sanderling (240) present (all figures are mean peaks for the 5-year period 1995/96- 1999/2000). The populations of Knot and Sanderling are of particular note as they represent approximately 4% of their respective national totals. Herring Gull (609) also occurs here in nationally important numbers. A range of other waterbirds also occurs, including Cormorant (35), Light-bellied Brent Goose (145), Mallard (76), Grey Plover (55), Lapwing (1,087), Dunlin (721), Bar-tailed Godwit (59), Curlew (107), Redshank (150), Turnstone (59), Blackheaded Gull (926), Common Gull (66) and Great Black-backed Gull (70). The site is of most importance as a roost area for the birds, but the intertidal flats also provide feeding habitat.

The River Nanny Estuary and Shore SPA is of ornithological importance as it supports five species of wintering waterbirds and one gull species in numbers of national importance. The regular occurrence of two species listed on Annex I to the Birds Directive, i.e. Golden Plover and Bar-tailed Godwit, is of note.

The following species and habitat are listed as Qualifying Interests of the site:

- [A130] Oystercatcher;
- [A137] Ringed Plover;
- [A140] Golden Plover;
- [A143] Knot;
- [A144] Sanderling ;
- [A184] Herring Gull; and
- [A999] Wetland & Waterbirds.

Rogerstown Estuary SAC

This site is located 16 km downstream of the south east corner of the Constraints Study Area along a tributary of the Ballyboghill Stream, which flows into Rogerstown Estuary. Therefore, this site is hydrologically connected to the Constraints Study Area.

Rogerstown Estuary is situated about 2 km north of Donabate in Co. Dublin. It is a relatively small, narrow estuary separated from the sea by a sand and shingle bar. The estuary is divided by a causeway and narrow bridge, built in the 1840s to carry the Dublin-Belfast railway line.

The estuary drains almost completely at low tide. The intertidal flats of the outer estuary are mainly of sands, with soft muds in the north-west sector and along the southern shore. The area of intertidal flats in the inner estuary is reduced as a result of the local authority landfill site on the north shore. The

sediments are mostly muds, which are very soft in places. Common Cordgrass is widespread in parts, and in summer, dense green algal mats grow on the muds. In the extreme inner part, the estuary narrows to a tidal river. Two plant species which are legally protected under the Flora (Protection) Order, 1999, occur within the site: Hairy Violet (*Viola hirta*) occurs on the sand spit and Meadow Barley (*Hordeum secalinum*) occurs in the saline fields of the inner estuary.

Rogerstown Estuary is an important waterfowl site, with Brent Goose having a population of international importance (1176). A further 16 species have populations of national importance are also found here. This site is a good example of an estuarine system, with all typical habitats represented, including several listed on Annex I of the E.U. Habitats Directive. Rogerstown is an internationally important waterfowl site and has been a breeding site for Little Terns. The presence within the site of three rare plant species adds to its importance.

The site is designated as a SAC under the Habitats Directive. The following are listed as the Qualifying Interests of the site:

- [1130] Estuaries;
- [1140] Tidal Mudflats and Sandflats;
- [1310] Salicornia Mud;
- [1330] Atlantic Salt Meadows;
- [1410] Mediterranean Salt Meadows;
- [2120] Marram Dunes (White Dunes); and
- [2130] Fixed dunes (grey dunes).

Rogerstown Estuary SPA

This site is located 16km downstream of the south east corner of the Constraints Study Area along a tributary of the Ballyboghill Stream, which flows into Rogerstown Estuary. Therefore, this site is hydrologically connected to the Constraints Study Area.

Rogerstown Estuary is situated about 2 km north of Donabate in north County Dublin. It is a relatively small, funnel shaped estuary separated from the sea by a sand and shingle peninsula; the site extends eastwards to include an area of shallow marine water. The estuary receives the waters of the Ballyboghill and Ballough rivers and has a wide salinity range, from near full seawater to near full freshwater. The estuary is divided by a causeway and narrow bridge, built in the 1840s to carry the Dublin-Belfast railway line. At low tide extensive intertidal sand and mud flats are exposed and these provide the main food resource for the wintering waterfowl that use the site.

The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: Greylag Goose, Light-bellied Brent Goose, Shelduck, Shoveler, Oystercatcher, Ringed Plover, Grey Plover, Knot, Dunlin, Black-tailed Godwit and Redshank. The E.U. Birds Directive pays particular attention to wetlands and, as these form part of this SPA, the site and its associated waterbirds are of special conservation interest for Wetland & Waterbirds. Rogerstown Estuary is an important winter waterfowl site and supports a population of Light-bellied Brent Goose of

international importance (1,069) - all counts are mean peaks over the five winters 1995/96 – 1999/2000. A further 10 species have populations of national importance as follows: Greylag Goose (160), Shelduck (773), Shoveler (59), Oystercatcher (1,345), Ringed Plover (188), Grey Plover (229), Knot (2,454), Dunlin (2,745), Black-tailed Godwit (195) and Redshank (490). The Greylag Geese are part of a larger population which spends most of the winter on Lambay Island. Other species which occur regularly include Wigeon (358), Teal (346), Mallard (214), Red-breasted Merganser (30), Golden Plover (1,059) Lapwing (2,129), Sanderling (50), Curlew (505) and Turnstone (77). Large numbers of gulls including Herring Gull, Great Black-backed Gull and Black-headed Gull are attracted to the area, partly due to the presence of an adjacent local authority landfill site. Little Egret, a species which has recently colonised Ireland, also occurs at this site.

Some of the wader species also occur on passage, notably Black-tailed Godwit with numbers often exceeding 300 in April. The estuary is a regular staging post for scarce migrants, especially in autumn when Green Sandpiper, Ruff, Little Stint, Curlew Sandpiper and Spotted Redshank may be seen. Shelduck breed within the site. Rogerstown Estuary SPA is an important link in the chain of estuaries on the east coast. It supports an internationally important population of Light-bellied Brent Goose and nationally important populations of a further 10 species. The presence of Little Egret and Golden Plover is of note as these species are listed on Annex I of the E.U. Birds Directive.

The site is designated as a SPA under the Birds Directive. The following species and their habitat are listed as the Qualifying Interests of the site:

- [A043] Greylag Goose;
- [A046] Light-bellied Brent Goose;
- [A048] Shelduck;
- [A056] Shoveler;
- [A130] Oystercatcher;
- [A137] Ringed Plover;
- [A141] Grey Plover;
- [A143] Knot;
- [A149] Dunlin;
- [A156] Black-tailed Godwit;
- [A162] Redshank; and
- [A999] Wetland & Waterbirds.

Nationally Designated Sites

There are 12 pNHA and one Nature Reserve within the Zone of Influence. The site synopses, where available, are summarised in the following sections. There are no site synopses available for seven of the pNHAs and the nature reserve. These sites are listed in Table 2-2 along with their locations in relation to the existing N2.

Table 2-2 - pNHA in proximity to the Constraints Study Area

Site Name	Proximity to Constraints Study Area
Laytown Dunes/ Nanny Estuary pNHA	18 km downstream. This site, which covers roughly the same footprint as the River Nanny Shore and Estuary SPA described in Section 1.2.1 is hydrologically connected to the Constraints Study Area.
Dowth Wetland pNHA	13.2 km north east of the Constraints Study Area along the River Boyne. There is no hydrological connection between the Constraints Study Area and this pNHA.
Rosnaree Riverbank pNHA	11.2 km north of the Constraints Study Area along the River Boyne. There is no hydrological connection between the Constraints Study Area and this pNHA.
Crewbane Marsh pNHA	12 km north of the Constraints Study Area along the River Boyne. There is no hydrological connection between the Constraints Study Area and this pNHA.
Slane Riverbank pNHA	14 km north of the Constraints Study Area along the River Boyne. There is no hydrological connection between the Constraints Study Area and this pNHA.
Boyne Woods pNHA	13.5 km north of the Constraints Study Area along the River Boyne. There is no hydrological connection between the Constraints Study Area and this pNHA.
Rogerstown Estuary pNHA	16 km downstream. This site, which covers roughly the same footprint as the Rogerstown Estuary SAC and SPA described in Section 1.2.1 is hydrologically connected to the Constraints Study Area.
Rogerstown Estuary Nature Reserve	18 km downstream. This site covers the outer section of Rogerstown Estuary and is hydrologically connected to the Constraints Study Area.

Balrath Woods pNHA

This linear woodland straddles the existing N2 approximately 4 km north of the Constraints Study Area. The woodland is made up of three separate blocks which are dominated by oak. Other tree species include beech, ash, birch and wych elm. The shrub layer consists of Blackthorn, Holly, Bramble and Hazel. Non-native species include Horse-chestnut, Spruce and Sycamore. Cherry Laurel, Dogwood and Snowberry occur at the site. The field layer is made up of ivy and lesser celandine. The wetter areas of the site contain Alder and Willows and a corresponding field layer. A rarer species, Common Wintergreen (*Pyrola minor*) was recorded in Balrath Woods and adds to the conservation value of the site. The importance of this site is that it is a mature woodland with natural character. The main threat to the site is clearance, which has taken place in the past.

Thomastown Bog pNHA

Thomastown Bog is a raised bog 3 km west of Duleek and 7 km north of the Constraints Study Area. There is no hydrological connection between the Constraints Study Area and this site. Most of the site is considered wet woodland which floods during periods of high rainfall. The most common tree species are alder, willow species, Pedunculate Oak and Hawthorn. A typical wet woodland field layer exists and includes Yellow Iris, Wild Angelica Ragged Robin and Meadowsweet. The habitats surrounding the site are wet grassland and reed beds. The site is largely undisturbed due to difficulty of access.

Duleek Commons pNHA

Duleek Commons is 1 km north west of Duleek and c. 8.3 km north east of the Constraints Study Area. There is no hydrological connection between the Constraints Study Area and this site. The site consists of a drained marsh associated with the floodplain of a stream rising in Thomastown Bog which runs into the River Nanny. The centre of the marsh is wet and supports a range of wetland plants. Duleek Commons represents a locally rare habitat which is in good condition and is therefore of importance. The main threat to the site is drainage.

Cromwell's Bush Fen pNHA

Cromwell's Bush Fen is a small wetland 6 km south-west of Duleek and 8.8 km east of the Constraints Study Area. There is no hydrological connection between the Constraints Study Area and this site. The site contains a range of fen communities from open water to dry coarse grassland. The wetter areas contain stands of reeds and rushes. Wetland habitats are not typical in the east midlands. The site also supports a range of wetland birds including Teal, Snipe, Woodcock and Mallard. The floating plant Frog-bit (*Hydrocharis morsus-ranae*) has been recorded at the site. Threats to this site include drainage and nutrient input.

Bog of the Ring pNHA

This site is 13 km east of the Constraints Study Area and 5km south west of Balbriggan. There is no hydrological connection between the Constraints Study Area and this site. The site is a flat low-lying area with impeded drainage. The site was drained 40 years ago. The site is covered with Yellow Iris (*Iris pseudacorus*), rushes and Meadowsweet (*Filipendula ulmaria*). Wetter areas contain reeds, Frog-bit and bladderworts (*Utricularia* spp.). The site is used in winter by Golden Plover, occasional Whooper Swan, Short-eared Owl. Breeding species include Snipe, Meadow Pipit, Stonechat, Reed Bunting, Skylark and Sedge Warbler. Marshes are rare in County Dublin and therefore this site is of interest.

Habitats

The desk study undertaken for this report included a high-level review of the habitats present. In general, the Constraints Study Area contains a patchwork of improved farmland separated by hedgerows. There is an area of rush dominated wet grassland at the southern end of the Constraints Study Area which is drained by the River Hurley, this is shown in Drawing EG-0001 in Appendix C. A second watercourse is the Curraghtown/Riverstown Stream are at the northern end of the Constraints Study area. Both of these watercourses are highly modified. The habitats identified in the Constraints Study Area are:

- Freshwater Watercourses (FW)
- Semi-natural Woodlands (WN)
- Scrub/Transitional Woodland (WS)
- Freshwater Marsh (GM)
- Semi-natural Grassland (GS)
- Improved Grassland (GA)
- Treeline/Hedgerow (WL)
- Built Land (BL)

Watercourses (including Fish and Aquatic Invertebrates)

A desk study review of literature pertinent to the aquatic environment was conducted that included a review of Inland Fisheries Ireland's fish sampling records, conducted under the Water Framework Directive (WFD). A review of the Environmental Protection Agency (EPA) Q-value status and WFD surface water status for the watercourses was also undertaken.

The River Hurley and the Curraghtown/Riverstown Stream are within the Constraints Study Area. Both of these watercourses drain into the River Nanny which supports Atlantic Salmon, Brown Trout and Eel. Lamprey have not been recorded in this catchment but are likely present.

The River Hurley and River Nanny water monitoring stations indicate that this catchment has Q-values¹ of 3 or 3-4, indicating poor to moderate WFD status. Dedicated surveys of protected freshwater invertebrates such as Freshwater Pearl Mussel (*Margaritifera margaritifera*) and White-clawed Crayfish (*Austropotamobius pallipes*) were not deemed necessary as the Constraints Study Area is located entirely outside any *Margaritifera*-Sensitive Areas. In addition, the closest potential proximity of White-clawed Crayfish to the Project is in the River Boyne catchment, a separate catchment. This methodology followed best practice guidance (TII/NRA, 2009) which states that: "*It will only be appropriate to undertake detailed surveys where significant impacts are anticipated on potentially valuable assemblages of fish, or important populations of a particular species.*"

¹ Biotic indices ("**Q Values**") reflect average water quality at any location

Protected Species

The National Parks & Wildlife Service (the NPWS) and the National Biodiversity Data Centre (NBDC) provide records of species protected under European and national legislation. The following species have been recorded within hectad O05, which covers the Constraints Study Area. Further information of the most notable species have been included below.

- Badger
- Otter
- Soprano Pipistrelle Bat
- Common Pipistrelle Bat
- Brown Long-eared Bat
- Daubenton's Bat
- Leisler's Bat
- Hedgehog
- Irish Hare
- Common Frog
- Barn Owl
- Yellowhammer
- Lapwing
- Curlew
- Kingfisher
- Black-headed Gull
- Herring Gull

Otter

The otter is a protected species as it is listed on Annex II and IV to the Habitats Directive and the Fifth Schedule to the Wildlife Act. The Hurley River provides potential otter habitat, particularly as it forms the headwaters of the River Nanny.

The project has the potential to impact otter directly through habitat loss and indirectly through habitat degradation and pollution of watercourses which could lead to impacts downstream. Otter habitat in the form of watercourses should be considered a constraint of the N2 Rath to Kilmoon Constraints Study Area.

Kingfisher

The Kingfisher is listed on Annex I of the EU Birds Directive. Kingfisher require eroding banks, into which they can create their nest burrow and tree perches over the river from which to hunt. With respect to the potential impact identified, it is considered that habitat loss and degradation would be limited by the highly modified nature of the watercourses in the study area. Kingfisher habitat in the form of watercourses should be considered a constraint of the Constraints Study Area.

Bats

All bat species are listed on Annex IV to the Habitats Directive and the Fifth Schedule to the Wildlife Act. As such, they and their habitat are protected. The watercourses, pockets of woodland/scrub and hedgerows provide suitable habitat for bats to forage and roost, and bats are assumed to be present where these habitats occur.

Badger

Badgers are protected under the Wildlife Act and are common and widespread in Ireland and it is assumed that Badger setts are present in the hedgerows and pockets of woodland in the Constraints Study Area.

Birds

The Constraints Study Area and surrounding areas are likely to support a range of farmland and wetland bird species including a number of Red-listed species that were identified in the desk study. These species could be present and nesting within the Constraints Study Area. However, some areas provide more favourable conditions than others. All nesting birds are protected from disturbance by the Wildlife Act. This should be considered with respect to the construction programme and the requirement to undertake any required site clearance works outside of the bird nesting season (March to August, inclusive). In particular, breeding birds such as Lapwing and Barn Owl need to be considered. Wetland birds such as Lapwing and Snipe potentially breed in the area of wet grassland south of the Hurley River.

These species are assumed to be present in the Hurley River and the River Nanny downstream. Atlantic Salmon is listed on Annex II to the Habitats Directive and is also afforded protection under the Inland Fisheries Act, 2010 (as amended).

Other Species

Other notable species that would most likely utilise the area include Stoat, Fox, Pine Marten, Common Frog, Smooth Newt and Hedgehog. Any proposed works at drainage ditches should be undertaken outside the frog and newt spawning season (January to June, inclusive). Where works are deemed necessary within this period, an amphibian survey will be required to inform potential mitigation works and a licence from NPWS may be required prior to undertaking any translocation of spawn, tadpoles/efts or immature frogs/newts. The Hurley River is likely to contain salmonids, European Eel and other fish species that must be considered.

Invasive Species

An invasive species survey of the Constraints Study Area was not undertaken at constraints stage, however it will be considered alongside the project habitat surveys. Of particular concern are plant species listed on the Third Schedule to the European Communities (Birds and Natural Habitats) Regulations, 2011 (as amended) (“the Habitats Regulations”). The following is a list of the species that could have the potential to be encountered within the Constraints Study Area:

- Himalayan Knotweed (*Persecaria wallichii*)
- Himalayan Balsam (*Impatiens glandulifera*)
- Giant Hogweed (*Heracleum mantegazzianum*)
- Japanese Knotweed (*Fallopia japonica*)

As the management of some of these species is particularly onerous, consideration should be given to avoiding any stands where possible. Where stands cannot be avoided, reference should be made to the following documents, which provides detailed recommendations for the control of invasive species and noxious weeds:

- Chapter 6 and Appendix 3 of the NRA Publication “The Management of Noxious Weeds and Non-Native Invasive Plant Species on National Roads” (NRA, 2008)
- Invasive Species Ireland “Best Practice Management Guidelines for Japanese Knotweed” [Available online at: <http://invasivespeciesireland.com/toolkit/invasive-plant-management>]
- The Knotweed Code of Practice: Managing Japanese Knotweed on development sites (Environment Agency, 2006)

Summary

Biodiversity constraints that will potentially influence the feasibility of route options include an area of rush dominated wet grassland located south of the Hurley River. It is considered of importance as wetland birds such as Lapwing and Snipe potentially breed in the area. Other constraints requiring consideration when assessing the feasibility of a proposed route option include watercourses that drain into European and Nationally designated sites and areas where the road will cross water courses as these areas provide habitat for protected species. The Constraints Study Area is hydrologically connected to the following designated sites:

- River Nanny Estuary SPA – (via the Hurley River)
- Rogerstown Estuary SPA – (via a tributary of the Ballyboghill Stream)
- Rogerstown Estuary SAC – (via a tributary of the Ballyboghill Stream)

Other considerations include the presence of bats and bat habitat, the presence of protected mammals such as badgers and otters and the presence of breeding farmland and wetland birds in the Constraints Study Area, and the potential for invasive species in the Constraints Study Area.

2.2 Water (Incorporating Flood Risk and Hydrology)

Methodology

A desktop study was undertaken in order to gather baseline data in the Constraints Study Area and to identify the environmental sensitivity and setting of the water environment. This involved identifying and retrieving published information on the hydrology, flood risk and water quality of the defined Constraints Study Area, in accordance with the TIIs 'Guidelines on Procedures for Assessment and Treatment of Geology, Hydrology and Hydrogeology for National Road Schemes'. Areas covered include:

- Surface Water Features;
- Catchments;
- Flooding; and
- Surface Water Resources (including surface abstraction sites and identified rivers and lakes for water supply).

The following is a list of sources of information consulted for use in the desk-based study of the topics listed above:

- Ordnance Survey of Ireland (OSI) National Townland and Historical Map Viewer for historical maps (Historic Map 6-inch 1837-1842; Historic Map 25-inch 1888-1913; Historic Map 6-inch Cassini 1830-1930);
- EPA Map Viewer;
- Office of Public Works (OPW) Flood Maps & floodinfo.ie
- Fingal County Council SFRA
- Meath County Council SFRA
- OPW FSU Database
- Hydrogeology mapping was obtained from the Geological Survey Ireland Spatial Resource. The resource includes information on bedrock aquifers, groundwater vulnerability, and groundwater wells and springs².

Results

Surface Water Features

The principal water bodies within the Constraints Study Area are shown in Drawing HF-0001 in Appendix C.

The primary surface water feature in the Constraints Study Area is the Hurley River (EPA Code 08H01) which rises to the east of the Constraints Study Area, south of Garristown. It flows initially in a westerly direction, crossing the existing N2 circa 1.75 km north of the Rath Roundabout before heading north-west. It turns again to flow north-east and crosses the N2 once more circa 2.65 km north of the Constraints Study Area extents. The Hurley River is a tributary of the River Nanny and joins it circa 5.4 km north of the Constraints Study Area.

² GSI on-line Spatial Resource
<https://dcenr.maps.arcgis.com/apps/MapSeries/index.html?appid=a30af518e87a4c0ab2fbde2aaac3c228>
60602546-ACM-GEN-SW_Z_Z_Z-RP-Z-0011

A number of smaller tributaries and sub-tributaries of the Hurley River, namely the Riverstown (EPA Code 08R09), Curraghtown (EPA Code 08C22) and Cushinstown (EPA Code 08C29) Rivers are also located within the Constraints Study Area boundary. The Riverstown River rises to the west of Garristown and confluences with the Curraghtown River between the R152 and N2, north of Kilmoon Cross. It continues as the Riverstown River, crossing the existing N2 at the northern limits of the Constraints Study Area. The Cushinstown River joins the Riverstown River a short distance downstream of the existing N2. The Riverstown River later joins the Hurley River circa 3.4 km north of the Constraints Study Area.

The Dunshaughlin Stream also briefly crosses the south-west corner of the Constraints Study Area prior to crossing the current M2 and heading on east through Ashbourne.

Catchments

The Hurley River has a total catchment area of circa 93 km² at its confluence with the River Nanny. The majority of the catchment is rural with an urban extent (URBEXT) value of 0.0051. The catchment is also relatively flat with a main-stream slope (S1085) value of 3.50 m/km. Part of the catchment in the vicinity of the upstream crossing of the existing N2 has been subject to past drainage improvement works with an area of benefitting land shown on the OPW Drainage viewer both upstream and downstream of this crossing point. These works form part of a "Drainage District" which indicate that the works would have been undertaken by the Commissioners of Public Works between 1842 and the 1930s. The purpose of the schemes was to improve land for agriculture, by lowering water levels during the growing season to reduce waterlogging on the land beside watercourses known as callows. The local authorities now have the responsibility for these areas.

The Riverstown River has a total catchment area of circa 23 km² at its confluence with the Hurley River. The Cushinstown River contributes circa 1.3 km² of this with the Curraghtown River contributing a further 4.8 km². The Riverstown catchment is steeper than the Hurley River with a S1086 of 6.45 m/km. It is also reported as being entirely rural with an URBEXT of 0.

Flooding

The flood zones from the Strategic Flood Risk Assessment (SFRA) from the Meath County Development Plan and the Preliminary Flood Risk Assessment (PFRA) from the Fingal County Development Plan are shown in Drawing HF-0002 in Appendix C. The present-day river flood extents from the OPW mapping are shown in Drawing HF-0003 in Appendix C.

Historic flood records indicate two locations within the Constraints Study Area which are both flagged as "recurring events"; These are listed as "Coolfore to Rath Cross" and "Primatestown". Reports for Coolfore to Rath Cross describe it as "due to the River Hurley and its tributaries and occurs every year with it being particularly extensive in November 2000 and November 2002" (report is dated March 2005). The same report also covers Primatestown and says "Stream overflows it banks and floods road after heavy rain every year. 1 property is affected."

None of the watercourses within the Constraints Study Area have been modelled in any degree of detail with available flood extents coming from the OPW PFRA mapping. This shows a significant flood risk area around River Hurley at the southern crossing of the existing N2. It also shows flooding along the Riverstown and Curraghtown Rivers and again, a significant flood risk area associated with these watercourses to the north of Kimoon Cross between the existing N2 and R152.

Further examination of the above watercourses would be required, to better determine the extents of the floodplain at later stages in the in project.

No information was available on groundwater or pluvial flooding within the Constraints Study Area.

Surface Water Resources

There are no known surface water resources that have been identified within the Constraints Study Area. A water treatment plant is present at Curragha adjacent to the Hurley River on the upstream side of the R155 road bridge however it is understood that this facility treats groundwater extracted from boreholes within the site and is not a surface water abstraction facility.

Water Quality

As previously mentioned, the primary surface water feature in the Constraints Study Area is the Hurley River. The Hurley River is considered of 'moderate' river water quality status and is considered 'at risk' of meeting the WFD objective (i.e. achieving and maintaining 'Good Ecological Status')³. As discussed in the biodiversity section above, the River Hurley drains into the River Nanny which supports Atlantic Salmon, Brown Trout and Eel.

The Hurley River is not protected under the Salmonid Regulations (S.I 293 1988); which outlines the WFD River Network that are designated protected Salmonid Waters.

There are two Section 4 (under the Water Pollution Acts) discharges within the Constraints Study Area, these are Local Authority Licensed industries that discharge trade effluent into waters. One of these is for Kilbrew Nursing Home near the Hurley River in Kilbrew, the other is for Kilmoon Service Station near the Riverstown River in Cushinstown. It is noted that there is an additional Section 4 discharge just outside of the Constraints Study Area for Largo Foods (Exports) Ltd near the Hurley River (downstream of the study area) in Kilbrew.

³ <https://www.catchments.ie/maps/> Accessed on the 24/01/2020

Hydrogeology

The bedrock aquifer within the Constraints Study Area is predominantly defined as a 'Locally Important Aquifer - which is generally moderately productive'. There are also smaller areas of 'Locally Important Aquifer - which is moderately productive only in local zones (to the south of the Constraints Study Area near Ashbourne), 'Poor Aquifer - which is generally unproductive except for local zones (a small section within the Constraints Study Area near Coolfore)' and 'Poor Aquifer - which is generally unproductive' (a small section of the Constraints Study Area near the R152)⁴. The aquifers within the Constraints Study Area are shown in the Hydrogeology Map (Drawing GS-0008) in Appendix C.

Groundwater vulnerability within the Constraints Study Area consists of a mix of Low, Moderate, High, and Extreme. Areas of low groundwater vulnerability occur predominantly along and in vicinity to the existing N2, areas of moderate to extreme groundwater vulnerability occur to the south of the Constraints Study Area in proximity to Ashbourne, to the east and west of the existing N2 near Coolfore and to the east and west of the existing N2 in proximity to Kilmoon. These areas within the Constraints Study Area are shown in the Groundwater Vulnerability Map (Drawing GS-0009) in Appendix C.

Geological Survey Ireland (GSI) define groundwater vulnerability as "*...a term used to represent the intrinsic geological and hydrogeological characteristics that determine the ease with which groundwater may be contaminated by human activities*",

A public supply source protection area (Curragha PWS) is located between Coolford, Baltrasna, Knavinstown and Borranstown. A range of groundwater wells and springs were identified using the GSI spatial resource, however, ROD-AECOM notes that the GSI groundwater dataset may be incomplete as there is no statutory requirement to register boreholes. Those springs and wells identified are presented in the Geological Constraints Map (Drawing GS-0010) in Appendix C.

Summary

The primary surface water feature in the Constraints Study Area is the Hurley River (EPA Code 08H01), the Dunshaughlin Stream also briefly crosses the south-west corner of the Constraints Study Area and a number of tributaries and sub-tributaries of the Hurley River also occur within the Constraints Study Area.

The OPW PFRA mapping identified a significant flood risk area around River Hurley at the southern crossing of the existing N2. It also shows flooding along the Riverstown and Curraghtown Rivers and again, a significant flood risk area associated with these watercourses to the north of Kimoon Cross between the existing N2 and R152.

Further examination of the above watercourses would be required, likely including the development of hydraulic flood models, to better determine the extents of the floodplain at later stages in the in project.

⁴ GSI on-line Spatial Resource
<https://dcenr.maps.arcgis.com/apps/MapSeries/index.html?appid=a30af518e87a4c0ab2fbde2aac3c228>
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Should crossing of streams or rivers be required, bridges, culverting or the diversion of streams would need to be considered.

2.3 Land and Soils (Incorporating Soils, Geology and Hydrogeology)

Methodology

A desktop study was undertaken in order to gather land/soils baseline information in the Constraints Study Area and to identify the environmental sensitivity and setting. This involved identifying and retrieving published information on the geology and hydrogeology of the defined Constraints Study Area, in accordance with the NRA's 'Guidelines on Procedures for Assessment and Treatment of Geology, Hydrology and Hydrogeology for National Road Schemes'.

The following published information was considered:

- The Landscape Character Assessment report which constitutes part of the Meath County Development Plans of 2013-2019⁵ and 2021-2027⁶ were sourced electronically. These reports identify and describe the landscape character of the entire County.
- Geological mapping within and surrounding the Constraints Study Area is available online and was sourced electronically from the Geological Survey of Ireland (GSI) map viewer⁷. This presents information on subsoil deposits and solid geology at a scale of 1:100k.
- Plans showing subsoil deposits and solid geological mapping are presented in the Subsoil Deposits Plan (Drawing GS-0003) and Bedrock Geology Plan (Drawing GS-0002) in Appendix C.
- Soil survey information within and surrounding the Constraints Study Area was sourced electronically from the Environmental Protection Agency (EPA) of Ireland map viewer⁸.
- Information on historic and current quarrying and mining information for the Constraints Study Area were sourced electronically from the GeoHive map viewer⁹ and from the Mining Maps of Ireland map viewer¹⁰.
- Land use information was sourced electronically from the GeoHive map viewer⁴ including the following Historical Ordnance Survey maps:
 - 6 Inch Map (Colour) dated 1837-1842;
 - 6 Inch Map (B&W) dated 1837-1842;
 - 25 Inch Map dated 1888-1913; and
 - Digital Globe Map dated 2011-2013.
- Land use information within the Constraints Study Area was also sourced electronically from the Environmental Protection Agency – 'Corine' dataset³. Land use information is also presented in the Corine Landcover Plan (Drawing GS-0011) in Appendix C.
- A review of the information gathered from the Geological Survey of Ireland (GSI) map viewer 2 has not identified any areas of landslips.
- Radon mapping obtained from the Environmental Protection Agency (EPA) of Ireland map viewer 3 shows the maximum radon potential in the Constraints Study Area to be in the range of 10-20%.

⁵ Meath County Council (2012), Meath County Development Plan 2013-2019

⁶ Meath County Council (2020), Meath County Development Plan 2021-2027

⁷ Geological Survey of Ireland (GSI) map viewer

⁸ Environmental Protection Agency (EPA) of Ireland map viewer

⁹ GeoHive map viewer

¹⁰ Mining Maps of Ireland map viewer

Results

Geomorphological Study

The physical landscape of the Constraints Study Area includes undulating open farmland with rough pasture. It is rural in character throughout except for the urban settlement of Ashbourne at the southern end of the Constraints Study Area. The topography is typically set between 70-100 m Above Ordnance Datum (AOD).

The Landscape Character Assessment reports which constitute part of the Meath County Development Plans identify and describe the landscape character of the entire County. The reports subdivided the county into "Character Units". Each unit contains an area of land of uniform appearance of landscape, i.e. the land within the area has similar landscape elements of slope, vegetation and land use. Policies for development have been applied to each Character Unit as it is seen that the effects of development on the landscape will be relatively consistent within them.

The Constraints Study Area lies entirely within the Character Unit Area 6: Central Lowlands. The following analysis of Character Unit Area 6 is contained in the Landscape Character Assessment of County Meath:

"Large lowland landscape area composed of rolling drumlins interspersed with numerous large estates and associated parkland. The central lowlands have a diverse geological make up with the north east comprising of shaly limestone and sandstone and micaceous and pebbly sandstone. The rest of the lowlands formed from calp limestone. In the north east of the central lowlands deep and shallow well-drained soils have been developed for agriculture with estate landscapes more prevalent. In the south west a mixture of well drained soils and peaty soil have created a more diverse landscape with areas of fertile agricultural land interspersed with conifer plantations and birch woodland."

Solid Geology

Bedrock geology, based on online mapping, is presented in the Bedrock Geology Plan (Drawing GS-0002) in Appendix C. Geological mapping records bedrock within the Constraints Study Area belonging to four distinct formations: Lucan, Loughshinny, Walshestown and Denhamstown along with other minor intrusions.

The Lucan Formation consists of fine-grained, occasionally cherty, micritic limestones.

The Loughshinny Formation is shown by mapping to outcrop in localised areas at the northern end of the Constraints Study Area. Geological mapping records this formation as laminated to thinly-bedded, argillaceous, pyritic, locally cherty limestone interbedded with shale. A karst landform is recorded within this formation from a borehole drilled close to the western boundary of the Constraints Study Area.

The Walshestown Formation consists predominantly of shales, with subordinate siltstones, fine sandstones bands, calcareous mudstone and occasional limestones.

The Denhamstown Formation consists of greywacke sandstones and siltstones at the base, and metabentonites toward the top of the formation.

Structural Geology

Several major faults are recorded on available geological field slips, and these have been presented in the Bedrock Geology Plan (Drawing GS-0002) in Appendix C. The dominant fault line in the site area trends southwest to northeast. Additionally, there are several minor faults trending locally NW-SE and NE-SW.

Subsoil Deposits

Subsoil deposits, based on online mapping, have been shown in the Subsoil Deposits Plan (Drawing GS-0003) in Appendix C. Till is shown to be widespread across the Constraints Study Area. Till is reported to typically comprise gravelly sandy clays with cobbles and boulders.

Lacustrine sediments are shown to be present locally at the southern end of the Constraints Study Area and transecting the current N2 further north. Lacustrine sediments are typically very well sorted with commonly laminated beds of silts, clays and can contain thin layers of organic material or sand. Alluvial deposits typically comprising gravels, sands and silts are shown in mapping to be present locally and are believed to be related with watercourses within the Constraints Study Area. A small area along the south-eastern boundary of the Constraints Study Area is characterised as being underlain by deposits of 'urban' origin.

Peat is not shown on published mapping; however, it is potentially present as isolated pockets in low lying upland areas with level or shallow gradients.

Additional constraints associated with superficial soil deposits are shown in the Historical Borehole Locations Plan (Drawing GS-0005) and the Site Walkover Plan (Drawing GS-0007) in Appendix C.

Soil Deposits

The soil type has been classified according to the World Reference Base for Soil Resources (2007) online mapping. This is shown in the Soil Deposits Plan (Drawing GS-0004) in Appendix C. The predominant soil types in the Constraints Study Area and surrounding land are Gleys. Localised areas along the east and west of the current N2 also comprise Luvisols.

Contaminated Land

No historic or currently licensed landfill sites have been identified within the Constraints Study Area. No historic industrial uses have been identified within the Constraints Study Area.

Current industrial facilities identified at the southern end of the Constraints Study Area are mainly of commercial and retail end uses. A water treatment plant has also been identified in this area. These facilities generally relate to the Ashbourne Business Park and Industrial Estate. The Industrial Estate was developed some time in the 1990's with a further extension to the east during 2006 which formed the Business Park. Other potential sources of contamination are shown in the Potential Sources of Contamination Map (Drawing GS-0006) in Appendix C. The map was generated based on the information provided in the sources detailed in Section 2.3 – Methodology and also observations from the AECOM site visit (January 2020) and google maps.

Historic Mines, Pits, Quarries

Two areas of historic quarrying have been identified within the Constraints Study Area. These are shown in the Historical Mineral Extraction Map (Drawing GS-0001) and in the Geological Constraints Map (Drawing GS-0010) in Appendix C. This information was retrieved from the GeoHive map viewer which references 1830's Ordnance Survey Historic mapping. Further details of quarrying activities are not available. Recent aerial photography indicates that these quarries are currently overgrown.

Other Land Uses

The Constraints Study Area was historically used mainly as arable land with some pastures to the north. Some contamination can be expected across the site from pesticides and herbicides.

Economic Geology

No active quarries have been identified within the Constraints Study Area. No past or current coal mining has been identified within the Constraints Study Area.

Geological Heritage

No geological heritage sites have been identified within the Constraints Study Area.

Radon

Radon mapping obtained from the EPA Ireland map viewer shows the maximum radon potential over the majority of the Constraints Study Area being <1%. The maximum radon potential at the northeast corner of the Constraints Study Area is however observed to be higher and in the range of 10-20%. This is shown in the Geological Constraints Map (Drawing GS-0010) in Appendix C.

In outside air, radon levels are low, but it collects in enclosed places, such as houses, workplaces and other buildings, thus the risk from Radon is primarily from build up over time within confined spaces, such as buildings. Whilst radon escapes easily from the ground into the air, the World Health Organisation (WHO) states that "Outdoors, radon quickly dilutes to very low concentrations and is generally not a problem. The average outdoor radon level varies between 5–15 Bq/m³ (Becquerel)".

Summary

Based on the findings of this study, the factors that may affect the scheme currently under consideration are listed in Table 2-3.

Table 2-3 - Summary of Land and Soils Constraints

Type	Irish National Grid Co-ordinates (approx.)	
Compressible soils/potential instability	Where alluvial and estuarine subsoil deposits are anticipated. Refer to Subsoil Deposits Plan (Drawing GS-0003) in Appendix C for location details.	
	E 703187	N 756022
Unstable ground/potential groundwater collapse (karst feature)	Note that other unidentified karst features are likely to be present over the Constraints Study Area based on the recorded solid geology.	
Potential for differential settlement due to Made Ground	Locally at the southern end of the Constraints Study Area relating to the Ashbourne Business Park and Industrial Estate. Refer to Subsoil Deposits Plan (Drawing GS-0003) and Geological Constraints Map (Drawing GS-0010) in Appendix C for location details.	
Potential contamination sources		
Potential for chemical attack on buried concrete	Site-wide.	
Presence of historic in-filled quarries/pits	E 703187	N 755744
	E 703627	N 757314
Elevated radon potential	Locally at the northeast corner of the Constraints Study Area. Refer to Geological Constraints Map (Drawing GS-0010) in Appendix C for location details.	

2.4 Landscape and Visual

The landscape appraisal of constraints has regard for relevant guidance including the:

- TII: Landscape Character Assessment (LCA) and landscape and visual impact assessment (LVIA) of proposed national roads: Standards Document, PE-ENV-01105, January 2019, Draft for Consultation;
- LI/IEMA: Guidelines for Landscape and Visual Impact Assessment (GLVIA), 2013, 3rd Edition;
- NRA/TII: Environmental Impact Assessment of National Road Schemes - A Practical Guide;
- NRA/TII: A Guide to Landscape Treatments for National Road Schemes in Ireland;
- NRA/TII: Guidelines for Protection and Preservation of Trees, Hedgerows and Scrub Prior to, during and Post Construction of National Road Schemes;
- Environmental Protection Agency (EPA) 'Guidelines on the Information to be contained in Environmental Impact Statements', 2002;
- EPA EIS Manual 'Advice Notes on Current Practice (in the preparation of Environmental Impact Statements)', 2003;
- EPA Draft "Advice Notes for Preparing Environmental Impact Statements", September 2015, where appropriate; and,
- EPA "Guidelines on the information to be contained in Environmental Impact Assessment Reports", Draft, August 2017.

The TII guidance in particular promotes consistency in the approach to landscape assessment of road projects, including the effects on landscape character and on views from sensitive visual receptors. Defined as a consequential process, the assessment methodology for landscape and visual effects, detailed within the standards documents, has been used to inform this assessment.

The assessment has also been supported by using guidance from the Landscape Institute (LI) and Institute of Environmental Management and Assessment (IEMA) 'Guidelines for Landscape and Visual Impact Assessment' (2013), 3rd Edition; hereafter referred to as the GLVIA.

Methodology

A desktop review was undertaken to identify any potential landscape and visual constraints within a study area of 1.5 km from the boundary of the Constraints Study Area. Landscape and visual constraints have been illustrated in Drawings LV-0001 and LV-0002 in Appendix C.

The following topics are discussed:

- Landscape character, including topography and landscape features;
- Sensitive landscape elements;
- Visual designations; and,
- Sensitive visual receptors.

The following is a list of sources of information consulted for use in the desk-based study:

- Fingal County Development Plan 2017-2023;
- Meath County Development Plan 2013-2019 (*now superseded*);
- Meath County Development Plan 2021-2027 (*recently adopted*);

- GSI ‘Spatial Resources Viewer’;
- CORINE (2018) land cover dataset (accessed via the EPA Map Viewer);
- Irish trails, <http://www.irishtrails.ie/>; and
- Ordnance Survey Ireland, 1:50,000 Discovery Mapping.

Results

Landscape Character

The topography of the study area is shown in Figure 2-2, as well as Drawing CH-0001 in Appendix C. The topography is typically set between 70-100 m Above Ordnance Datum (AOD), it is generally flat and drains to the north / north east with the Hurley River being the main drainage artery. There are topographic features, such as Windmill Hill on the north-eastern part of the study area in County Meath, and areas of high ground in the western part of the study area in County Dublin (Fingal).

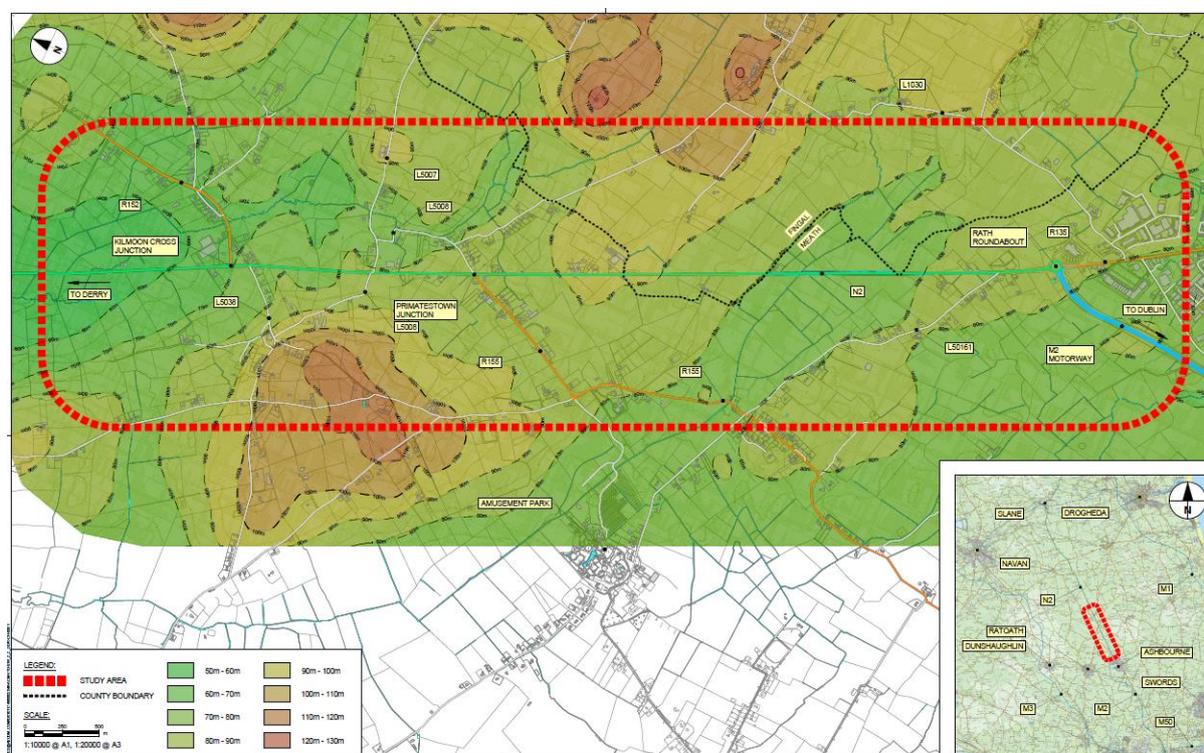


Figure 2-2 - Topography within Constraints Study Area

Meath

The Meath Landscape Character Assessment determined the landscape value and sensitivity for each landscape character area.

“The value of each LCA refers to the contribution the area makes to the inherent character of County Meath. Value takes account of scenic quality, tranquillity, remoteness, rarity, cultural associations, history, conservation, recreational interests and broader social, economic and environmental aspects”.

“The sensitivity of a LCA is defined as its overall resilience to sustain its character in the face of change and its ability to recuperate from loss or damage to its components”.

The LCA outlines also recommendations and potential capacities for this landscape character area.

The Constraints Study Area is located within the following two Landscape Character Areas (LCA) according to the Landscape Character Assessment (MCLA) accompanying the Meath County Development Plan 2013-2019 (now superseded) and the Meath County Development Plan 2021-2027 (recently adopted):

LCA 10 - The Ward Lowlands

The MLCA states that this area is of low landscape value, high landscape sensitivity and regional landscape importance. The landscape contains large areas of pasture and arable farmland in the southeast of County Meath. Within the study area it contains sections of the town of Ashbourne and extends to the Fingal border. This LCA is under significant development pressure due to the proximity of the Dublin metropolitan area. The N2 and M2 are main transport routes located within the study area. Built development is extensive and includes light industrial business parks, retail parks, ribbon development and one-off housing along the main roads. Adjacent landscape to these developments is often degraded as the urban fringe is out of character with the adjacent rural setting. The landscape character has been partially eroded by the loss of hedgerows, poor management and larger fields close to the urban fringe.

Views within the more rural setting in this landscape character area are often limited by road side vegetation consisting of mature hedgerows, bands of trees or built structures. Gaps or stretches with low hedgerows can open up views across a rural landscape with often large fields or towards the urban fringe.

The landscape character assessment defines 'Low Value' areas as:

"Areas in fair to poor condition or which have undergone change to the extent that they do not have a distinctive local character or particular aesthetic quality".

'High Sensitivity' areas are defined as:

"A vulnerable landscape likely to be fragile and susceptible to change. Frequency and sensitivity of users is likely to be high. The introduction of a change is likely to significantly alter the character to the extent that it would be difficult or impossible to restore".

The potential capacity for new road development is considered as follows:

"Medium potential capacity to accommodate new road development because busy transport corridors are part of the existing character. However, the design of transport corridors (both new and upgrading of existing roads) should be carefully planned to minimise and mitigate against adverse impacts on the landscape and avoid further loss of landscape structure. Where possible, road corridors should be replanted to minimise their impacts in the long term and increase their value and green corridors through this LCA".

LCA 6 - Central Lowlands

The MCLA states that this landscape character area is of high landscape value and moderate landscape sensitivity. The landscape consists of a patchwork of pastoral fields with hedgerow boundaries or bands of trees. Residential dwellings concentrate along the main roads in form of ribbon developments or one-off houses within the study area. The land within the study area is still only gently undulating. Longer distance views are therefore quickly screened and generally limited by mature vegetation. Gaps or stretches with low hedgerows can open up views across a rural landscape and more elevated lands to the east and west.

The landscape character assessment defines 'High Value' areas as:

"Areas which are considered to be of value by virtue of their positive characteristics, sense of place or local associations. These areas may be of regional or local importance. Moderate Value: Areas which retain a positive character and a sense of place or are of local interest or importance".

'Moderate Sensitivity' areas are defined as:

"A landscape that can accommodate a certain amount of change without affecting the overall character. There are unlikely to be large numbers of people using or viewing this landscape".

The potential capacity for new road development is considered as follows:

"Medium potential capacity to accommodate road infrastructure and upgrades to existing roads as the small scale wooded nature of the landscape has the potential to screen such developments and there are few archaeological features present".

The overall Constraints Study Area has a network of underground and above ground cultural heritage features. Please refer to the Cultural Heritage section in this report for further details. Aspects of the Historic Landscape Character (HLC) will be considered in further detail as part of the EIAR during Phase 3 (Design & Environmental Evaluation) of the TII PMGs 2020.

The Meath County Development Plan 2013-2019 (now superseded) and Meath County Development Plan 2021-2027 also include a Road Objective for upgrade and traffic calming works along the N2. However, the now superseded Ashbourne Local Area Plan 2009-2015 outlines policies and objectives in relation to the upgrade works of the N2.

Tayto Park, a major tourism attraction in the area, is located within the western section of the wider study area.

Fingal

The Landscape Character Assessment, included within Fingal County Development Plan 2017-2023, identifies 6 Landscape Character Types (LCT). Two of these are partially covered by the Constraints Study Area. The majority of the eastern study area is located within the 'High Lying' landscape character type. This LCT is considered to be of High Landscape Value and of High Landscape Sensitivity due to a number of National Heritage Areas situated within this LCT. Please refer to the Cultural Heritage section in this report for further details. The development plan states:

*“The **High Lying Character Type** is categorised as having a high value. The elevated area is very scenic, with panoramic views and strong hedgerows. It also has an important ecological value particularly as the ‘Bog of the Ring’ proposed Natural Heritage Area is situated here. There is little obtrusive or inappropriate development in the area and there is a pronounced absence of any substantial coniferous woodland. The area’s importance is highlighted by the High Amenity zoning covering substantial parts of the area”.*

The most distinct elevated area within the wider study area is Garristown Hill and its surroundings. A prominent and visible feature is the base of a windmill at Garristown Hill. This wider area is located within a landscape of high sensitivity to development and high landscape value in the eastern section of the study area and are of county or national importance. The development plan states that *“particular parts of these areas have a low capacity to absorb new development”*.

Relevant principles for development include the following:

- *“Skylines, horizon and ridgelines should be protected from development;*
- *Sites with natural boundaries should be chosen, rather than elevated or open parts of fields; and*
- *Field and roadside hedgerows should be retained. Proposals necessitating the removal of extensive field and roadside hedgerows should not be permitted”.*

The following relevant landscape character assessment objectives are stated in the development plan:

Objective NH33

“Ensure the preservation of the uniqueness of a landscape character type by having regard to the character, value and sensitivity of a landscape when determining a planning application”.

Objective NH34

“Ensure development reflects and, where possible, reinforces the distinctiveness and sense of place of the landscape character types, including the retention of important features or characteristics, taking into account the various elements which contribute to their distinctiveness such as geology and landform, habitats, scenic quality, settlement pattern, historic heritage, local vernacular heritage, land-use and tranquillity”.

Objective NH36

“Ensure that new development does not impinge in any significant way on the character, integrity and distinctiveness of highly sensitive areas and does not detract from the scenic value of the area. New development in highly sensitive areas shall not be permitted if it:

- *Causes unacceptable visual harm*
- *Introduces incongruous landscape elements*
- *Causes the disturbance or loss of (i) landscape elements that contribute to local distinctiveness, (ii) historic elements that contribute significantly to landscape character and quality such as field or road patterns, (iii) vegetation which is a characteristic of that landscape type and (iv) the visual condition of landscape elements”.*

Objective NH37

“Ensure that new development meets high standards of siting and design”.

Objective NH38

“Protect skylines and ridgelines from development”.

Objective NH39

“Require any necessary assessments, including visual impact”.

The south-eastern section of the study area includes a portion of the **‘Low Lying’ Landscape Character Type**. This LCT is considered to be of Modest Landscape Value and to be of Low Landscape Sensitivity. The development plan states that:

“This is an area characterised by a mix of pasture and arable farming on low lying land with few protected views or prospects. The Low Lying Character Type has an open character combined with large field patterns, few tree belts and low roadside hedges ... This low lying area is dominated by agriculture and a number of settlements. The area is categorised as having a modest value. It contains pockets of important value areas”

Sensitive Visual Receptors

There are no designated scenic driving routes, national walking routes, including waymarked looped walks and on-road cycling routes located within the study area. A number of residential dwellings and commercial properties sit along the existing N2 alignment. They either face the road or are enclosed by larger gardens from the N2. Other residential receptors are located along the remaining road network as part of ribbon developments or one-off housing. In general, residential receptors are highly sensitive as they would experience changes to the landscape character and the visual amenity on a daily basis.

According to Meath County Development Plan locally significant protected View 73 is located within the study area along a country road between Robinson’s Cross Roads on R108 and Windmill Hill. The protected view comprises *“Extensive views to the north east, mid distance heavily wooded. Dwellings, infrastructure and agriculture on left hand side. View to skyline with distinctive tower is locally distinctive”*

as stated in Meath County Development Plan 2013-2019, Appendix 12. Other potentially relevant and protected views in the wider study area to the west include the following panoramic views:

- *View 44 Hill of Tara (Average Distance of approximately 11.5km from the proposed development)*
- *View 47 Church of Skryne (Average Distance of approximately 8.5km)*

Views 44 and 47 are located at local high points but are at a considerable distance from the study area. Potential long distance views to any of the route options will be considered during the various assessment stages.

The mapped objectives of the green infrastructure plan (refer to Green Infrastructure 1, Sheet No.14), which is included in Fingal County Development Plan, indicate a number of views to be preserved along local roads to the north, east and south of Garristown, which is located in the wider eastern study area. These views include sections of panoramic long distance views to the north and west and can be experienced from the local road network. There are no specific protected viewpoints or general public access to elevated locations other than the road network.

Interaction of landscape and visual effects with other environmental factors including historic landscapes

The landscape and visual impact assessment will focus on the physical and visual appearance and character of the landscape as it is experienced today.

Landscape is also a consideration under other environmental aspects and assessments, e.g. the natural landscape (biodiversity), the geological landscape (geology and soils), the cultural / historical landscape (archaeology and architecture), the human landscape (community, social, etc.).

While it is evident that an interaction of effects exists between the landscape and visual environment and these other related landscape environments / environmental factors – not least in terms of potential for interactions of effects – assessments under these areas are generally addressed separately by other competent specialists in the adjoining sections of this report.

Summary

A Highly Sensitive Landscape is located in the eastern section of the study area. The area is considered to be of High Landscape Value and of High Landscape Sensitivity due to several National Heritage Areas and its elevated nature. The protection of the existing landscape character, its vegetation and the avoidance of further erosion of the remaining rural features in large parts of the study area are some of the key constraints, followed by the minimisation of changes to the visual amenity within the various landscape character areas and types as residential receptors, which are located along the existing N2 or along the remaining road network in the study area, will be highly sensitive to visual change. They will experience changes on a daily basis and may experience open views of the proposed development and associated changes to the surrounding landscape and contours. The avoidance of the viewshed of protected View 73 should also be envisaged. The retention of existing vegetation will provide considerable screening opportunities in panoramic views from the eastern part of the study area.

3. Artificial Constraints

The artificial constraints identified within the Constraints Study Area for the N2 are listed and discussed in detail below, and have been divided into the following subheadings for clarity:

- Engineering;
- Land Use and Planning;
- Agronomy;
- Cultural Heritage (Incorporating Architectural Heritage and Archaeology);
- Utilities;
- Noise and Vibration;
- Air Quality and Climate
- Population, Economy, Business and Tourism;

3.1 Engineering

As part of the constraints study for the N2 Rath Roundabout to Kilmoon Cross scheme, a desktop study of the road network was undertaken within the Constraints Study Area. This included looking at;

- the existing road network,
- pedestrians and cyclists;
- Public Transport; and
- Safety Implications.

This aimed to highlight the engineering constraints within the area that might hinder the development of the project.

Existing Road Network

As part of the constraints study for the Scheme, a desktop study of the existing road network was undertaken to locate any constraints.

The existing road network in the environs of the N2 scheme is illustrated Figure 3-1. Key roads of interest along with the existing N2 are as follows;

1. R152 (Kilmoon Cross Junction)
2. L5038
3. L5007
4. R155 (Primatestown Junction)
5. L50161
6. M2 / R135 (Rath Roundabout)

The junctions between the existing N2 and the roads above form one of the key constraints of the existing road network. Most of the junctions are substandard in terms of TII's guidance standards.

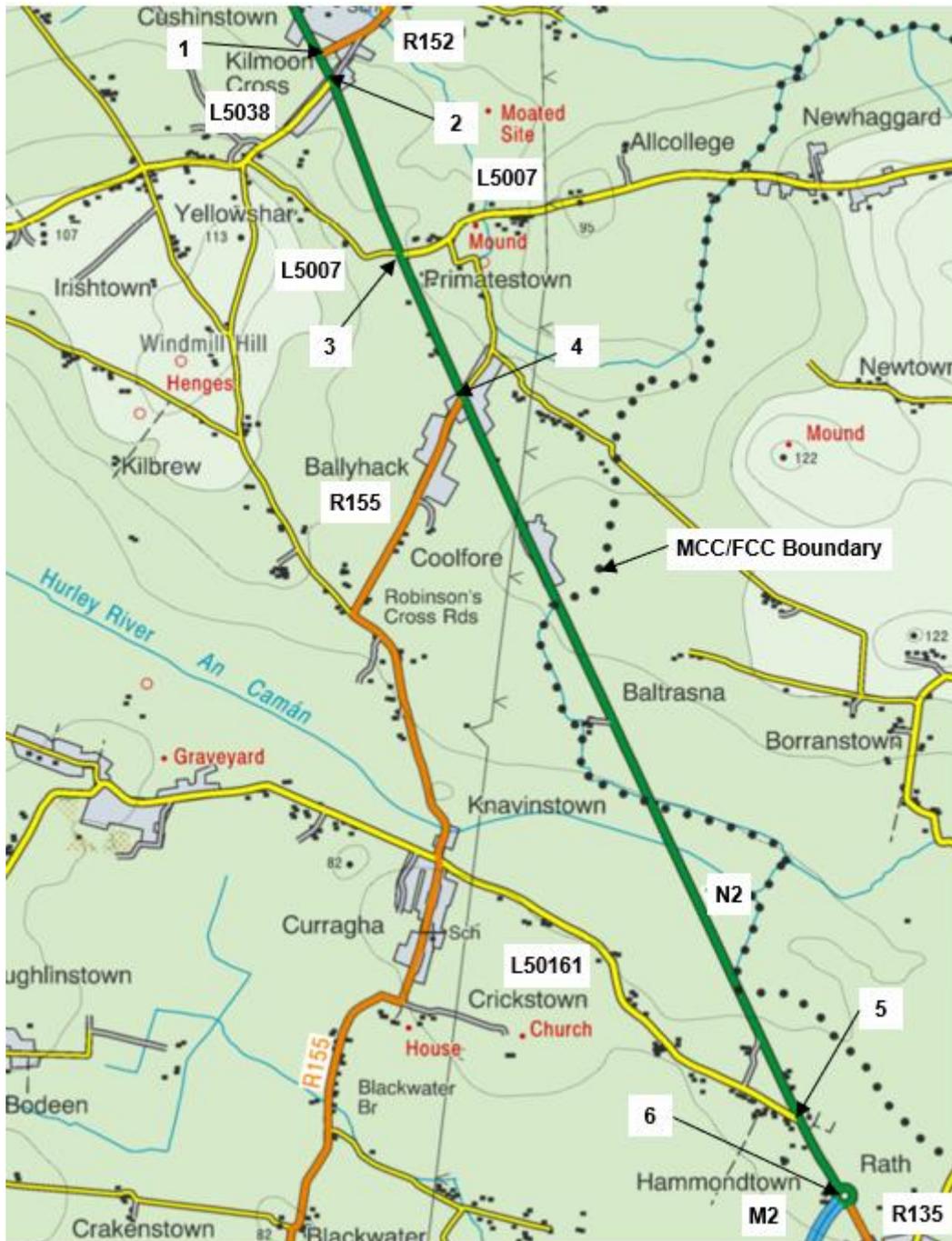


Figure 3-1 – Key existing junctions along the N2

Pedestrians and Cyclists

As part of the constraints study a desktop study was undertaken to identify any current or future pedestrian & cyclist facilities that must be considered within the Constraints Study Area.

Cycling Facilities

At present, there is a very short length of cycleway along this stretch of the N2 running for approximately 200m in each direction. This runs from the L50161 junction and continues along the N2 for a short distance to the north before ending. The cycleway is not segregated but road markings ensure a small degree of separation with the vehicle traffic on the route. As this cycleway is disconnected from any other cycle routes nearby it is unlikely to entice many potential users.

In terms of proposed cycle routes, a number of rural and urban cycle routes have been proposed as part of the Cycle Network Plan for the Greater Dublin Area (GDA CNP 2013). Urban route AS1 is proposed to follow the R135 through Ashbourne town up to the Rath Roundabout as shown in Figure 3-2. The section of this route from Ashbourne Main Street up to the Rath Roundabout has previously been granted part 8 approval, at the time of writing cycle network design is currently being undertaken for this section.

Rural route M15 is proposed to connect the towns of Dunshaughlin and Ratoath to Ashbourne as shown in Figure 3-3. This route will enter Ashbourne from the west via the Ballybin road which will then connect with urban route AS2. At Rath Cross junction, rural route M15 continues up the Ballymadun road towards Garristown, changing notation to rural route F11 when crossing the county border from Meath into Fingal. From Garristown, this route continues northwards towards Duleek, again changing notation to rural route M16 when crossing back over the county border from Fingal into Meath.

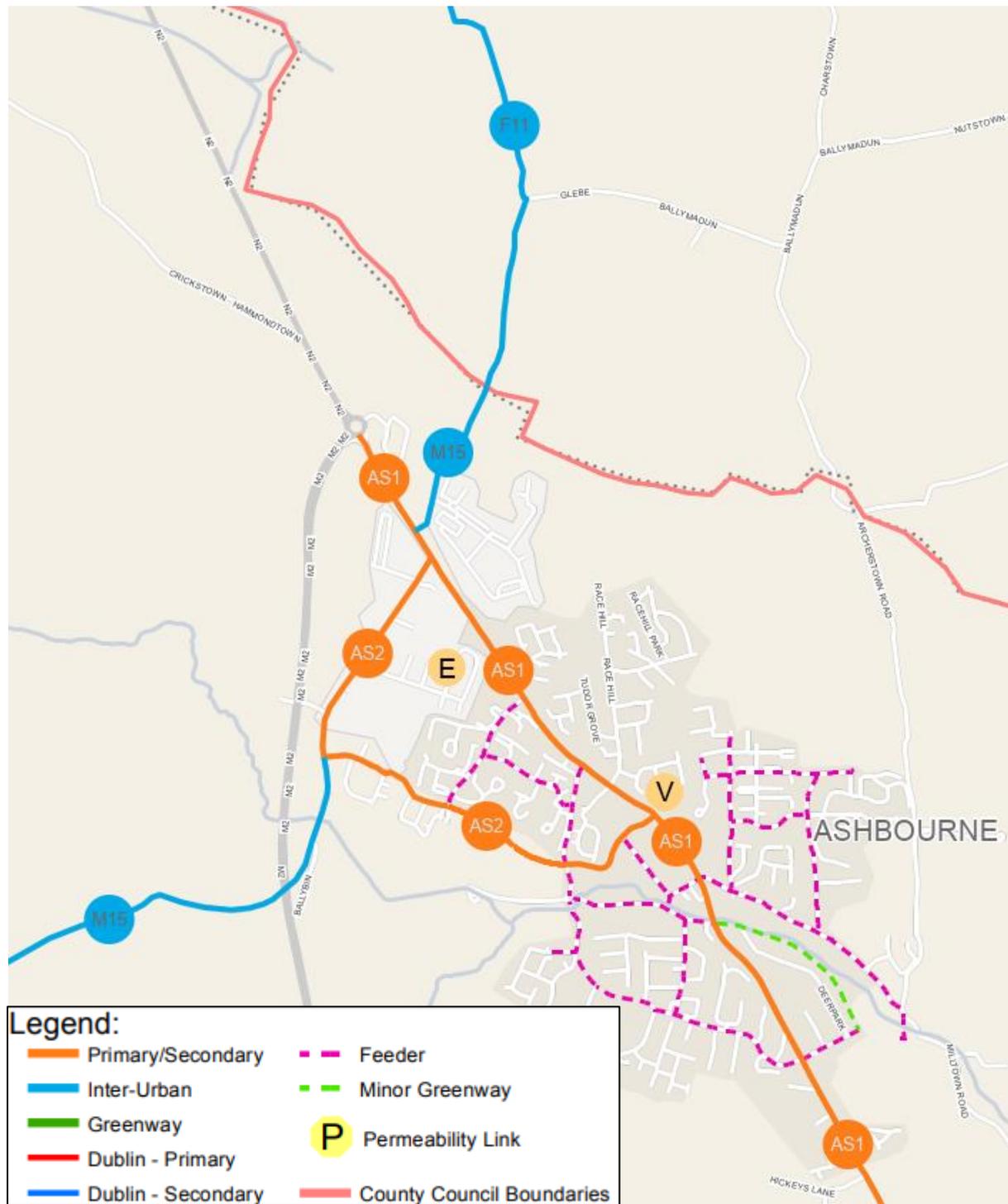


Figure 3-2 – Proposed Urban Cycle Network in Ashbourne (GDA CNP 2013)

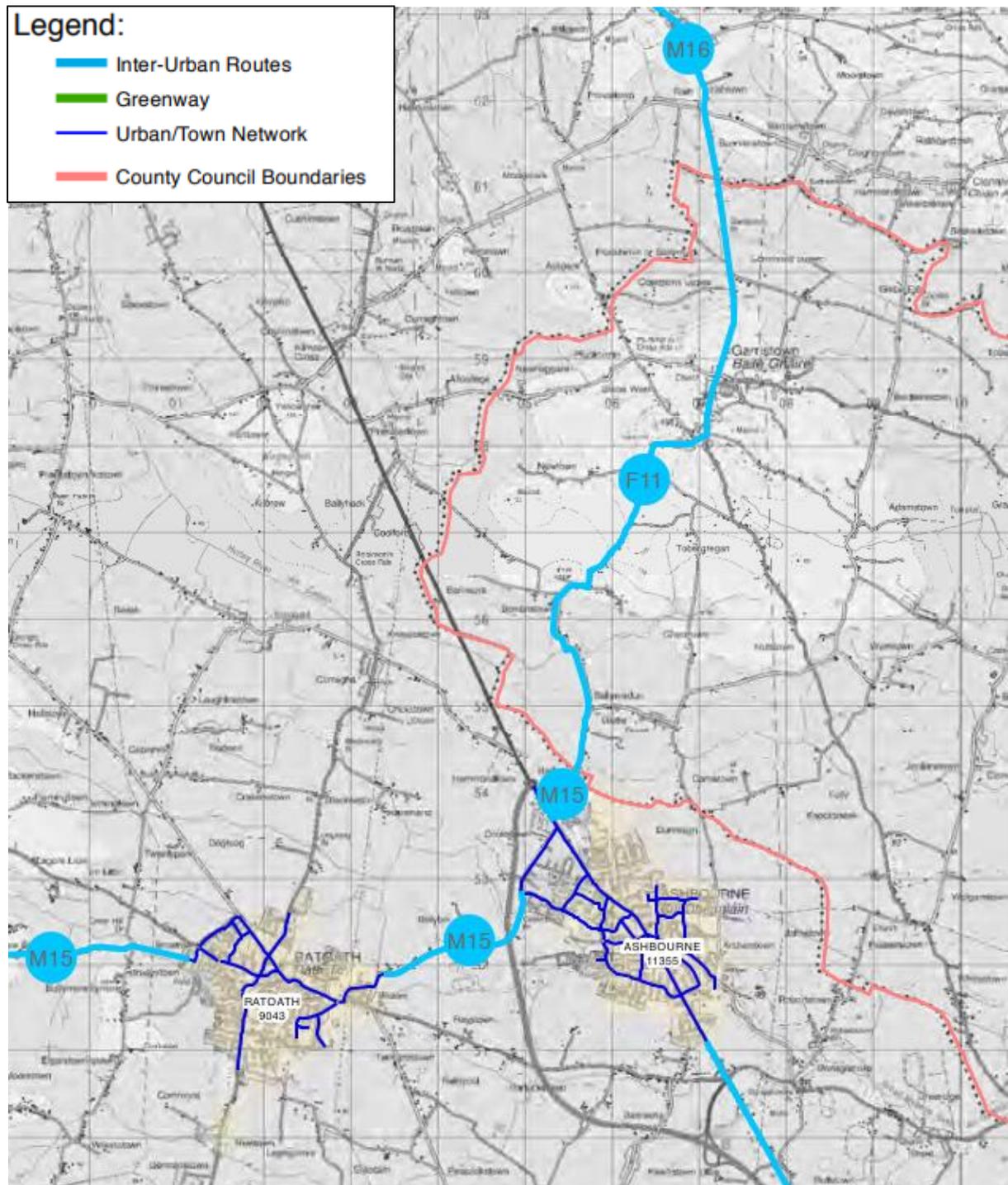


Figure 3-3 – Proposed Inter-Urban Cycle Routes in Fingal and Meath (GDA CNP 2013)

Pedestrian Facilities

There is currently a minor network of footpaths and pedestrian facilities in the vicinity of the community facilities. It is recognised that there is an overall poor level of pedestrian provision in this area, and there are no planned works in this area.

Public Transport

A desktop study was undertaken to identify any possible public transport constraints located within the Constraints Study Area. As it stands, there are only a very small number of public transport services identified in the area, as set out in Table 3-1, with all of them using the existing N2. Notable services include the Ashbourne Connect which offers a direct service into Dublin via several stops in Ashbourne.

Table 3-1 - Total No. of Inbound Bus and Coach Services on a Weekday (NTA)

Corridor	Dublin Bus	Bus Eireann	Commercial*	Total
M2/N2	0	83	32	115

* Includes Bus Eireann and Dublin Bus Commercial services such as Airlink

There are currently no rail options within or close to the Constraints Study Area. The closest rail lines with passenger services include the line from Dublin to Belfast via Drogheda and Dundalk located approx. 18 km to the east, as well as the line from Dublin to Maynooth with a branch line to M3 Parkway via Clonsilla located approx. 10 km to the south west.

The line from Drogheda to Navan is located approx. 10 km to the north, although this line is only served by freight trains carrying ore from the Tara Mine to Dublin Port via Drogheda. The closest historical rail line was an extension of the present line from Dublin to M3 Parkway which continued onto Kingscourt via Navan with a branch line to Athyboy.

There are no plans to develop rail services within or close to the Constraints Study Area, as confirmed by Iarnród Éireann. The closest future rail proposals include MetroLink which will connect Dublin to Swords via Dublin Airport, as well as the DART + scheme which will involve the electrification of the existing rail line from Dublin to Maynooth and M3 Parkway. There is also a proposal to extend the present line from Dublin to M3 Parkway up to Navan, although this is currently under review.

Safety Implications

There are several existing safety issues for this section of the N2 and the surrounding roads. This is due to the number of direct accesses and sub-standard (as per TII Standards) junctions within the Constraints Study Area.

Collision Statistics

Collision data from 2005 – 2016 has been obtained from the Road Safety Authority (RSA) and the details of the collisions has been set out in Table 3-2. The collision data includes both the N2 and the surrounding local roads. More recent collision data has not yet been released by the RSA.

Looking at the data, the number of fatal and serious collisions on the N2 and surrounding area has declined over the time period, but the number of minor collisions has remained at a steady level.

Table 3-2 - RSA Collision Data (2005-2016)**N2 Rath to Kilmoon Cross Accident Records**

Severity	Type	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007	2006	2005
Fatal	Pedestrian	0	0	0	0	0	0	0	0	0	0	0	0
	Bicycle	0	0	0	0	0	0	0	0	0	0	0	0
	Motorcycle	0	0	0	0	0	0	0	0	0	0	0	0
	Car	0	0	0	0	0	0	0	0	0	1	0	0
	Goods vehicle	0	0	0	0	0	1	0	0	0	0	0	0
	Bus	0	0	0	0	0	0	0	0	0	0	0	0
	Other	0	0	0	0	0	0	0	0	1	0	0	0
	All	0	0	0	0	0	1	0	0	1	1	0	0
Serious	Pedestrian	0	0	0	0	0	0	0	0	0	0	0	0
	Bicycle	0	0	0	0	0	0	0	0	0	0	0	0
	Motorcycle	0	0	0	0	0	0	0	0	1	0	0	0
	Car	0	0	0	0	0	0	0	0	3	0	0	1
	Goods vehicle	0	0	0	0	0	0	0	0	0	0	0	0
	Bus	0	0	0	0	0	0	0	0	0	0	0	0
	Other	0	0	0	0	0	0	0	0	0	0	0	0
	All	0	0	0	0	0	0	0	0	4	0	0	1
Minor	Pedestrian	0	0	1	0	0	0	0	0	0	0	0	0
	Bicycle	0	1	0	0	0	0	0	0	0	0	0	0
	Motorcycle	0	0	0	0	0	1	0	0	0	1	0	0
	Car	3	2	5	3	3	1	2	3	4	2	5	1
	Goods vehicle	1	0	0	0	0	0	2	2	0	1	0	0
	Bus	0	0	0	0	0	0	0	0	0	0	0	0
	Other	0	0	0	0	0	0	0	0	0	0	0	0

	Other	0	0	0	0	0	0	0	0	0	0	0	
	All	4	3	6	3	3	2	4	5	4	4	5	1
All	Pedestrian	0	0	1	0	0	0	0	0	0	0	0	0
	Bicycle	0	1	0	0	0	0	0	0	0	0	0	0
	Motorcycle	0	0	0	0	0	1	0	0	1	1	0	0
	Car	3	2	5	3	3	1	2	3	7	3	5	2
	Goods vehicle	1	0	0	0	0	1	2	2	0	1	0	0
	Bus	0	0	0	0	0	0	0	0	0	0	0	0
	Other	0	0	0	0	0	0	0	0	1	0	0	0
	All	4	3	6	3	3	3	4	5	9	5	5	2

Assessment of Road Safety Impacts

An initial assessment of road safety has been undertaken along the existing infrastructure within the Constraints Study Area that is set out above. Using this baseline information, it is possible to estimate the impact on road safety due to the introduction of the scheme.

Looking at the types of collisions that have been recorded along this section of road, junctions and direct accesses can be attributed to several of them. These accesses and junctions slow traffic especially during peak hours. The stop-start nature of heavy traffic causes accidents.

The assessment indicated that the proposed project will improve road safety as a result of the following:

- Reduction in the number of direct accesses onto this section of N2
- Improvements or removal of junction access which will bring the road in line with current TII Geometric Design Standards
- Reduce the levels of congestion on this section of the N2.
- Improve NMU (*Non-Motorised User*) facilities within the area making it safer for pedestrians, cyclists etc.

As the scheme progresses to Stage 1 of the Options Selection Process, further work will be carried out to assess the impact of road safety as part of the Road Safety Impact Assessment. A series of Road Safety Audits will then be carried out during the design development to ensure that the scheme provides safety benefits for all road users.

3.2 Land Use and Planning

Land Use Zoning

As part of the constraints study for the N2 Scheme, a desktop study into land use and planning was undertaken. The Constraints Study Area traverses the county boundary between the jurisdictions of Meath County Council and Fingal County Council. Therefore, all relevant plans and policies in relation to each local authority have been assessed as part of this constraints study. The land use zoning in the County Development Plans of Meath and Fingal respectively are shown in Drawing LE-0001 in Appendix C.

Meath County Development Plan 2013-2019 (MCDP 2013-2019)

It is noted that the Meath County Development Plan 2013-2019 (MCDP 2013-2019) is now superseded, but this has been considered in conjunction with the recently adopted Meath County Development Plan 2021-2027 (MCDP 2021-2027).

The Meath County Development Plan 2013-2019 (MCDP 2013-2019) sets out the overall strategy for the proper planning and sustainable development for County Meath. To provide for the physical, economic and social development of the County, that aligns with the national and regional development objectives set out by the above regional level policies, as far as practicable.

The land use zoning from the MCDP 2013-2019 is shown in Figure 3-4, this includes the two Framework Plans to the north of Ashbourne.

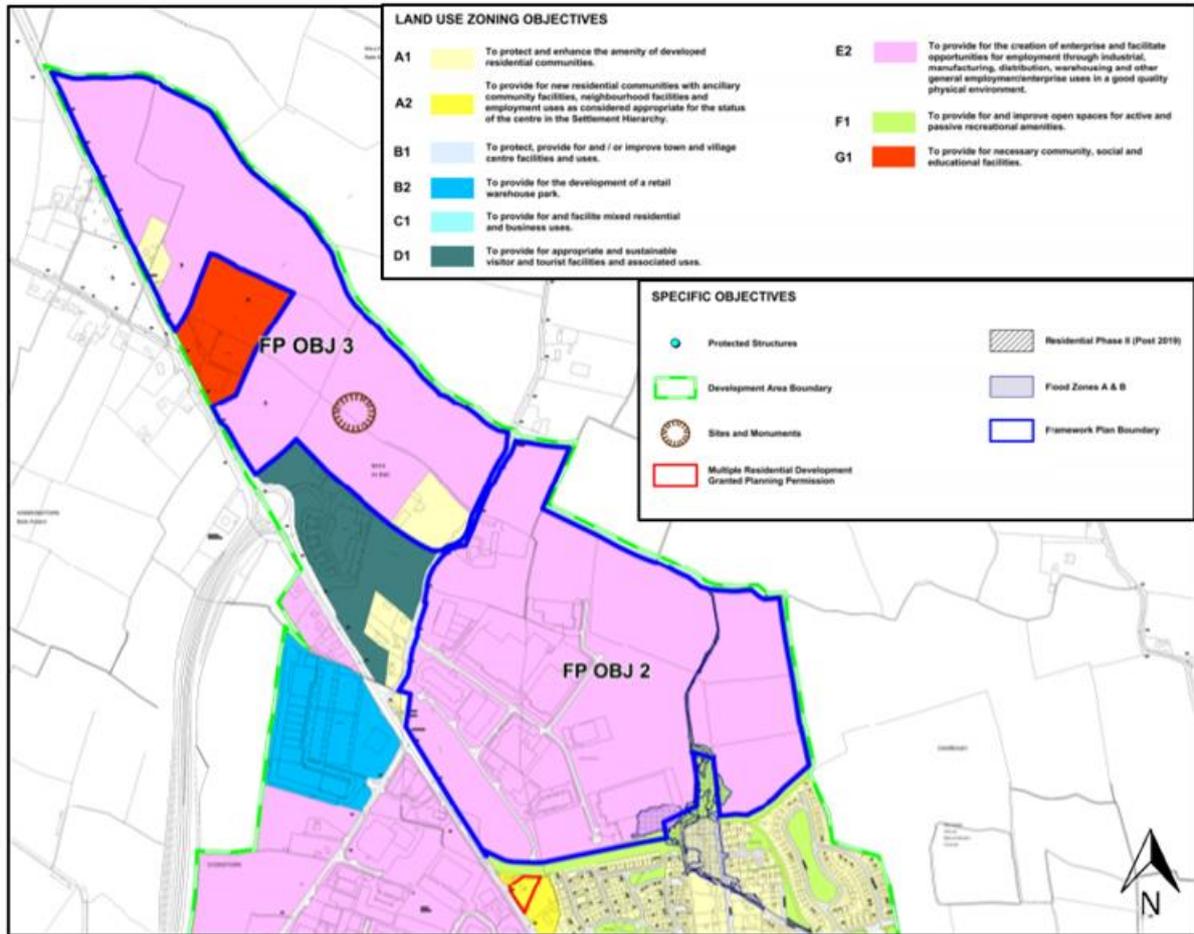


Figure 3-4 - Land Use Zonings within the Constraints Study Area. (MCDP 2013-2019).

The predominant land zonings in the Constraints Study Area from the MCDP 2013-2019 are listed in Table 3-3, along with the objectives, permitted uses and open to consideration uses.

Table 3-3 - Predominant Land Use Zonings within the Constraints Study Area – MCDP 2013-2019

Land Use	Permitted Uses	Open for Consideration Uses
A1: To protect and enhance the amenity of developed residential communities	B & B / Guest House, Community Facility / Centre, Home Based Economic Activities, Residential / Sheltered Housing, and Water Services / Public Services.	Allotments, Bring Banks, Convenience Outlet, Childcare Facility, Education (Primary or Second Level), Halting Site / Group Housing, Healthcare Practitioner, Leisure / Recreation / Sports Facilities, Petrol Station, Public House, Retirement Home / Residential Institution / Retirement Village, and Veterinary Surgery
D1: To provide for appropriate and sustainable visitor and tourist facilities and associated uses	B & B / Guest House, Caravan Park, Children Play / Adventure Centre, Community Facility / Centre, Conference/Event Centre, Medical & related uses, Craft Centre / Craft Shop, Cultural Facility, Hotel / Motel / Hostel, Leisure / Recreation / Sports Facilities, Restaurant / Café, Water Services / Public Services.	Amusement Arcade, Cinema, Convenience Outlet, Childcare Facility, Cultural Facility, Dance Hall / Night Club, Offices
E2: To provide for the creation of enterprise and facilitate opportunities for employment through industrial, distribution, manufacturing, warehousing and other general employment/enterprise uses in a good quality physical environment.	Agri – Business, Bring Banks, Builder's Providers, Car Park (incl. Park and Ride), CHP / Waste to Energy Facilities, Domestic Fuel Depot, Energy Installation, Enterprise & Business Start Ups, Enterprise / Training Centre, Factory Shop, Furniture Showroom (only where product displayed is manufactured on site), Go Kart Track, Industry – General, Industry – Light, Heavy Vehicle Park, Logistics, Mart / Co-op, Motor Repair / Servicing, Plant & Tool Hire, Recycling Facility (Civic & Amenity), Science & Technology Based Enterprise, Telecommunication Structures, Transport Depot, Warehousing, Water Services / Public Services.	Abattoir, Car Dismantler / Scrap Yard, Childcare Facility, Construction & Demolition Waste Recycling Facility, Garden Centre, Leisure Facilities, Motor Sales, Offices 100 – 1,000 sq. m., Petrol Station, Restaurant / Café, Veterinary Surgery, Waste Recycling / Transfer / Sorting Centre, Wholesale Warehousing / Cash and Carry. Uses which are 'open for consideration' or not identified as 'permitted' under the E2 zoning objective will only be considered where they do not compromise the objective of the overall zoning objective of E2 lands, for general enterprise and employment uses.
G1: To provide for and improve open spaces for active and passive recreational amenities.	Allotments, Car Park (incl. Park and Ride), Cemetery/Crematorium, Children Play / Adventure Centre, Childcare Facility, Community Facility / Centre, Cultural Facility, Education (Primary or Second Level), Education (Third Level), Health Centre, Hospital, Leisure / Recreation / Sports Facilities, Place of Public Worship, Playing Pitches, Recycling Facility (Civic & Amenity), Water Services / Public Services.	Bring Banks, Funeral Home, Gymnasium, Halting Site / Group Housing, Healthcare Practitioner, Residential / Sheltered Housing, Restaurant / Café, Retirement Home / Residential Institution / Retirement Village, Telecommunication Structures.

Source: Meath County Development Plan 2013 – 2019

Table 3-4 highlights all relevant policies and objectives in relation to potential planning constraints from the MCDP 2013-2019.

Table 3-4 - Relevant Policies and Objectives - MCDP 2013-2019

Reference	Chapter	Policy/Objective
ED POL 8	Chapter 4 Economic Development Strategy	To encourage developments which rely on proximity to national road infrastructure and which generate significant levels of freight traffic to locate close to the national road network having regard to the Spatial Planning & National Roads Guidelines for Planning Authorities.
ED POL 20	Chapter 4 Economic Development Strategy	To normally permit development proposals for the expansion of existing authorised industrial or business enterprises in the countryside where the resultant development does not negatively impact on the character and amenity of the surrounding area. In all instances, it should be demonstrated that the proposal would not generate traffic of a type and amount inappropriate for the standard of the access roads. This policy shall not apply to the National Road Network.
TRAN SP 7	Chapter 6 Transportation	To support the Road Safety Authority in the implementation of the 'Road Safety Strategy 2007-2013' in conjunction with the National Roads Authority, An Garda Síochana and other relevant agencies.
TRAN SP 14	Chapter 6 Transportation	To ensure the protection of the existing roads infrastructure while improving the capacity and safety of the road network to meet future demands.
TRAN SP 15	Chapter 6 Transportation	To protect investment in the capacity, efficiency and safety of national roads by applying the guidance contained in the 'Spatial Planning and National Roads - Guidelines for Planning Authorities' and collaboration with the NTA and the NRA.
TRAN POL 28	Chapter 6 Transportation	To safeguard the capacity and safety of the National road network by applying the provisions of the Department of Environment Community and Local Governments – 'Spatial Planning and National Roads-Guidelines for Planning Authorities'
TRAN POL 29	Chapter 6 Transportation	To provide for and carry out improvements to sections of national, regional and county roads that are deficient in respect of alignment, structural condition or capacity, where resources permit, and to maintain that standard thereafter.
TRAN POL 30	Chapter 6 Transportation	To regulate, control and improve signage throughout the county and avoid proliferation of roadside signage, especially outside the 50-60kmh speed limit areas in a manner that would reduce the effectiveness of essential signage such as directional and other authorised road traffic signs, create visual clutter and distractions for road users and/or reduce visibility at junctions, interchanges and bends.
TRAN POL 31	Chapter 6 Transportation	To promote the carrying out of Road Safety Audits on new road schemes, road and junction improvements and traffic management schemes in accordance with the NRA Design Manual for Roads and Bridges and advice contained in the DTO Traffic Management Guidelines.
RD POL 36	Chapter 10 Rural Development	To develop and maximise the opportunities of the county's national primary and secondary roads as key strategic infrastructure vital to the county's continued economic development and to protect this strategically important infrastructure from unplanned ribbon development or random one-off housing development.
RD POL 37	Chapter 10 Rural Development	To ensure that future development affecting national primary or secondary roads, shall be assessed in accordance with the guidance given in the document 'Spatial Planning and National Roads - Guidelines for Planning Authorities'.
RD POL 40	Chapter 10 Rural Development	To restrict new accesses for one-off dwellings where the 80km per hour speed limit currently applies in order to safeguard the specific functions and to avoid the premature obsolescence of identified regional and important county link roads

Reference	Chapter	Policy/Objective
		(see Map No. 10.6) through the creation of excessive levels of individual entrances and to secure the investment in non-national roads.
RD POL 43	Chapter 10 Rural Development	To ensure that the required standards for sight distances and stopping sight distances are in compliance with current road geometry standards as outlined in the NRA document Design Manual for Roads and Bridges (DMRB) specifically Section TD 41-42/09 when assessing individual planning applications for individual houses in the countryside.

Source: Meath County Development Plan 20213 – 2019

Meath County Development Plan (2021-2027)

Section 251A(4) of the Planning and Development Act 2000 (as amended) had recently been removed, allowing the Meath County Development Plan 2021-2027 (MCDP 2021-2027) process to recommence.

The Emergency Measures in the Public Interest (Covid-19) Act 2020 gave the Minister for Housing, Planning and Local Government the power to freeze all time-limits in the planning code. Specifically, under the new section 251A of the Planning and Development Act, 2000 (as amended), a 56-day freeze began on 29th March 2020 and concluded on Saturday 23 May 2020. The 29th March 2020 was the start date selected by the Minister for Housing, Planning and Local Government in SI 100 of 2020, the commencement order which brought section 251A into force.

The Chief Executive's Report on the submissions received with regard to the MCDP 2021-2027 was issued for consideration on 13th August 2020.

The Meath County Development Plan 2021-2027 (MCDP 2021-2027) was adopted at a Special Planning Meeting on 22nd September 2021. The MCDP 2021-2027 came into effect on the 3rd November 2021. The recently adopted MCDP 2021-2027 has been considered in conjunction with the now superseded Meath County Development Plan 2013-2019 (MCDP 2013-2019).

The land use zoning from the MCDP 2021-2027 is shown in Figure 3-5, this includes the Master Plan area to the north of Ashbourne.

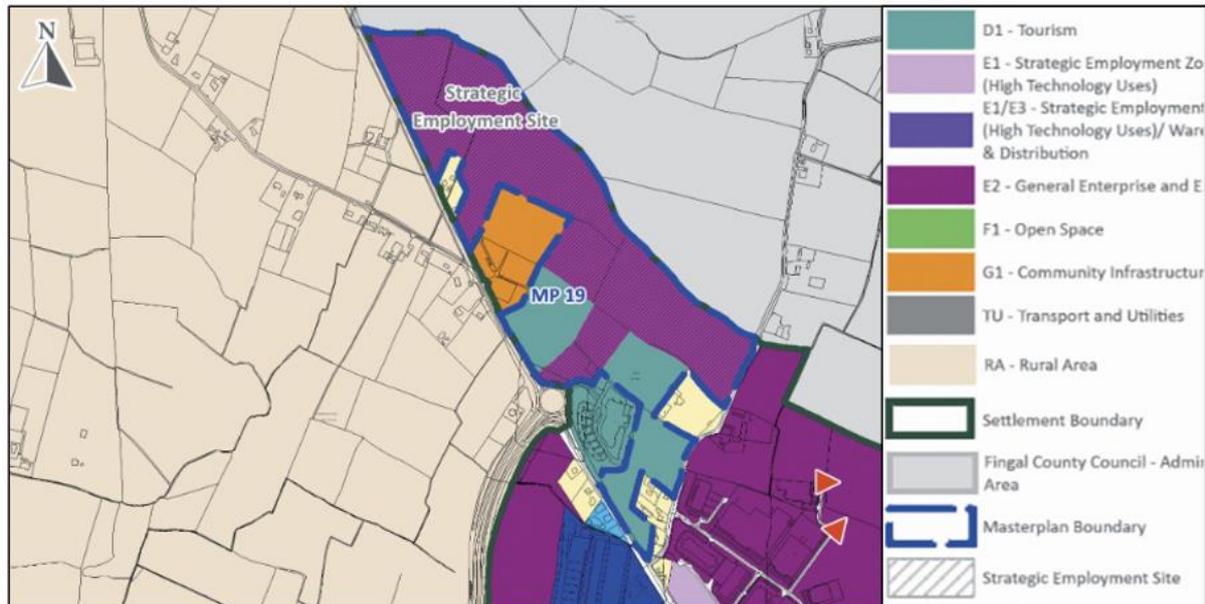


Figure 3-5 - Land Use Zonings within the Constraints Study Area. (MCDP 2021-2027).

The predominant zonings from the MCDP 2021-2027 in the Constraints Study Area are listed in Table 3-5, along with the objectives and permitted and open to consideration uses.

Table 3-5 - Predominant Land Use Zonings within the Constraints Study Area - (MCDP 2021-2027)

Land Use	Permitted Uses	Open for Consideration Uses
A1: To protect and enhance the amenity and character of existing residential communities.	Residential, Sheltered Housing, B & B / Guest House, Community Facility / Centre, Home Based Economic Activities, Utilities.	Bring Banks, Convenience Outlet, Childcare Facility, Halting Site, Sheltered Housing, Healthcare Practitioner, Leisure / Recreation / Sports Facilities, Bar, Retirement Home / Residential Institution / Retirement Village, and Veterinary Surgery.
D1: To provide for appropriate and sustainable visitor and tourist facilities and associated uses.	B & B / Guest House, Caravan Park, Children Play / Adventure Centre, Community Facility / Centre, Conference/Event Centre, Medical & related uses, Craft Centre / Craft Shop, Cultural Facility, Hotel / Motel / Hostel, Leisure / Recreation / Sports Facilities, Restaurant / Café, Water Services / Public Services.	Amusement Arcade, Cinema, Convenience Outlet, Childcare Facility, Cultural Facility, Dance Hall /Night Club, Offices <100m ² , Public House, Shop, niche type commercial supports, Telecommunication Structures.
E2: To provide for the creation of enterprise and facilitate opportunities for employment through industrial, manufacturing, distribution, warehousing and other general employment/enterprise uses in a good quality physical environment.	Bring Banks, Builder's Providers, Childcare Facility, Car Park (incl. Park and Ride), CHP / Waste to Energy Facilities, Domestic Fuel Depot, Energy Installation, Enterprise & Business Start Ups, Enterprise / Training Centre, Factory Shop, Furniture Showroom (only where product displayed is manufactured on site), Go Kart Track, Industry – General, Industry – Light, Heavy Vehicle Park, Logistics, Mart / Co-op, Motor Repair / Servicing, Plant & Tool Hire, Recycling Facility (Civic & Amenity), Science & Technology Based Enterprise, Telecommunication Structures, Transport Depot, Warehousing, Utilities.	Abattoir, Car Dismantler / Scrap Yard, Construction & Demolition Waste Recycling Facility, Garden Centre, Leisure Facilities, Motor Sales, Offices 100 – 1,000m ² , Service Station, Restaurant / Café, Veterinary Surgery, Waste Recycling / Transfer / Sorting Centre, Wholesale Warehousing / Cash and Carry. Uses which are 'open for consideration' or not identified as 'permitted' under the E2 zoning objective will only be considered where they do not compromise the objective of the overall zoning objective of E2 lands, for general enterprise and employment uses.
G1: To provide for necessary community, social, and educational facilities.	Allotments, Car Park (incl. Park and Ride), Cemetery/Crematorium, Children Play / Adventure Centre, Childcare Facility, Community Facility / Centre, Cultural Facility, Education, Health Centre, Hospital, Leisure / Recreation / Sports Facilities, Place of Public Worship, Playing Pitches, Playgrounds, Recycling Facility (Civic & Amenity), Utilities.	Bring Banks, Funeral Home, Gymnasium, Halting Site / Group Housing, Healthcare Practitioner, Residential / Sheltered Housing, Restaurant / Café, Retirement Home / Residential Institution / Retirement Village, Telecommunication Structures.
RA Rural Areas Objective: To protect and promote in a balanced way, the development of agriculture, forestry and sustainable rural related enterprise, community facilities, biodiversity, the rural landscape, and the built and cultural heritage.	Agriculture, Agricultural Buildings, Agri-Tourism, Boarding Kennels, Burial Grounds, Extractive Industry / Quarrying, Equestrian, Farm Shop, Forestry related activities, Horticulture, Caravan and Camping Park, Golf Course, Open Space, Research and Development, Residential, Restaurant / Cafe, Sustainable Energy Installations, Utility Structures.	Community Facility, Cultural Facility, Education, Garden Centre, Micro Businesses, Playing Fields, Recreational Facility, Sports Club, Telecommunication Structures, Workshop, Veterinary Clinic.

Source: Meath County Development Plan (2021-2027)

The zoning designation within the Constraints Study Area from the MCDP 2021-2027 has minor changes to *Permitted* and *Open to Consideration Uses* in comparison to the MCCDP 2013, particularly to the Rural Area Objective, which has now included permitted uses and open to consideration.

There are also Rural Nodes within the constraints study area, that have a land use zoning objective Rural Node (RN). These Rural Nodes are located at Curraghera and Cushinstown respectively. The zoning objective for RN zoned land seeks;

to provide for small scale infill residential development, small scale employment opportunities, community facilities and supporting services serving local needs while maintaining the rural nature of the node.

Table 3-6 highlights all relevant policies and objectives in relation to potential planning constraints from the MCDP 2021-2027.

Table 3-6 - Relevant Policies and Objectives - MCDP 2021-2027

Reference	Chapter	Policy/Objective
ED POL 10	Chapter 4 Economy and Employment Strategy	To ensure that zoning for employment uses will be carried out in a manner which protects investment in the national road network, in accordance with Chapter 2 of the DECLG guidelines on 'Spatial Planning and National Roads.
MOV POL 24	Chapter 5 Movement Strategy	To safeguard the capacity and safety of the National road network by applying the provisions of the Department of Environment Community and Local Governments – 'Spatial Planning and National Roads-Guidelines for Planning Authorities, 2012'.
MOV POL 25	Chapter 5 Movement Strategy	To implement the actions of the Meath Road Safety Strategy and promote road and traffic safety measures in conjunction with Government Departments, the Road Safety Authority and other agencies.
MOV POL 28	Chapter 5 Movement Strategy	To promote the carrying out of Road Safety Audits on new road schemes, road and junction improvements and traffic management schemes in accordance with the TII Publication TII-GE-STY-01024 and advice contained in the DTTAS (DTO) Traffic Management Guidelines 2012.
MOV POL 30	Chapter 5 Movement Strategy	To liaise with the NTA and TII (where appropriate) on appropriate control measures within its remit, designed to better manage the demand for road space to allow the efficient movement of essential traffic.
MOV POL 32	Chapter 5 Movement Strategy	To ensure the protection of the existing roads infrastructure while improving the capacity and safety of the road network to meet future demands.
MOV POL 33	Chapter 5 Movement Strategy	To avoid the creation of any additional access point from new development/ intensification of traffic from existing entrance onto national roads outside the 60kph speed limit, except at the following locations: 1. N52 south of Balrath Cross to facilitate bioenergy manufacturing plant and CHP plant(Map 5.3.1); 2. Navan North (Junction 9) to Mullaghboy Roundabout on N51 (New Junction Only) (Map 5.3.2); 3. Navan South (Junction 8) to Kilcarn Roundabout on R147 (New Junction Only) (Map 5.3.3); 4. N2 at Slane in the vicinity of the existing Grasslands Fertilizers facility (Seveso Site) (Map 5.3.4); 5. N51 at Slane Distillery and Castle (Map 5.3.5); 6. N2 at Knockharley in the vicinity of existing regional landfill facility (Map 5.3.6); 7. N2 at Rath Roundabout to junction of Curraghera Road (Map 5.3.7). Each of these projects will subject to the outcome of the Appropriate Assessment process. Where adverse effects on European site integrity

Reference	Chapter	Policy/Objective
		are identified, alternative routes or designs will be developed to ensure that the project will not adversely affect the integrity of any European Site(s), either alone or in combination with any other projects. If despite the implementation of mitigation measures, there remains a risk that the proposals will adversely affect the integrity of any European Site(s), the project will not be progressed unless an alternative solution can be implemented which avoids/ reduces the impact to a level that the integrity of the European Site(s) is (are) unaffected.
MOV OBJ 36	Chapter 5 Movement Strategy	To facilitate the delivery of all of the road's projects outlined in the National Development Plan 2021-2030 and National Transport Authority's Transport Strategy for the GDA 2016-2035, in conjunction with the NTA, TII, Department of Transport, Tourism and Sport and other stakeholders. Development of these road projects will be subject to the outcome of the Appropriate Assessment process. Where adverse effects on European site integrity are identified, alternative routes or designs will be developed to ensure that the project will not adversely affect the integrity of any European Site(s), either alone or in combination with any other projects. If despite the implementation of mitigation measures, there remains a risk that the proposals will adversely affect the integrity of any European Site(s), the project will not be progressed unless an alternative solution can be implemented which avoids/reduces the impact to a level that the integrity of the European Site(s) is (are) unaffected.
MOV OBJ 37	Chapter 5 Movement Strategy	To develop an annual strategic road network plan for upgrading and required works for national, regional and strategically important local roads for the targeting of funding.
MOV OBJ 38	Chapter 5 Movement Strategy	To develop in consultation with the TII, a programme for the upgrading, improvement and maintenance of the national road network within the County.
MOV OBJ 43	Chapter 5 Movement Strategy	To support essential public road infrastructure including, bypasses of local towns and villages and proposed national road schemes and where necessary reserve the corridors of any such proposed routes free of development, which would interfere with the provision
MOV OBJ 44	Chapter 5 Movement Strategy	To continue to deliver targeted capacity road upgrades within the County to eliminate congestion blackspots.
MOV OBJ 50	Chapter 5 Movement Strategy	To prepare updated Road Safety Plans in line with the National Road Safety Strategy and in consultation with the Road Safety Authority and relevant stakeholders.
RUR POL 62	Chapter 9 Rural Development Strategy	To avoid the removal of existing roadside boundaries where they are more than 3 m from the road edge (edge of carriageway), except to the extent that this is needed for a new entrance, and where required for traffic safety reasons. (Please refer to policies contained in Section 8.9.7 Woodlands, Hedgerows and Trees in this regard).
RUR POL 64	Chapter 9 Rural Development Strategy	To ensure that the required standards for sight distances and stopping sight distances are in compliance with current road geometry standards as outlined in the NRA document Design Manual for Roads and Bridges (DMRB) specifically Section TD 41-42/09 when assessing individual planning applications for individual houses in the countryside.
MOV OBJ 26	Chapter 10 Climate Strategy	To revise road junction layouts, where appropriate, to provide dedicated pedestrian crossings, reduce pedestrian crossing distances, provide more direct pedestrian routes, and reduce the speed of turning traffic.
MOV OBJ 56	Chapter 10 Climate Strategy	To ensure that any transport maintenance and improvement strategies ensure future climates are considered, to allow appropriate selection of materials and prioritisation of road for repair

Reference	Chapter	Policy/Objective
DM OBJ 19	Chapter 11 Development Management Standards and Land Use Zoning Objectives	To seek to provide building setbacks along Motorways, National Primary, National Secondary, Regional and Local Roads to allow for future road improvements.
DM POL 27	Chapter 11 Development Management Standards and Land Use Zoning Objectives	Proposals for petrol filling stations in close proximity to the National Road Network shall have regard to the "Spatial Planning and National Roads Guidelines for Planning Authorities", Department of Environment Community and Local Government, 2012 and the Dangerous Substances (Retail and Private Petroleum Stores) Regulations 1979 to 2010 (or any such other relevant standards and legislation that may be enacted).

Source: Meath County Development Plan (2021-2027)

It should be noted that the MCDP 2021-2027 has indicated that Planning Authorities may identify stretches of national roads where a less restrictive approach may be applied as part of the Development Plan process. In such situations, two scenarios may potentially arise, firstly developments of national and regional strategic importance and secondly, lightly trafficked sections of National Secondary Routes.

The MCDP 2021-2027 has identified the section of the N2 between Rath Roundabout and the L50161 (Curraghera Road) junction where exceptional circumstances to the general policy may be considered (MCDP 2021-2027 - Movement Strategy, Pg.33).

Ashbourne Local Area Plan 2009 - 2015

The MCDP 2021-2027 has replaced the Ashbourne Local Area Plan (LAP) 2009-2015, pending the preparation of a new LAP. However, the most recent Ashbourne Local Area Plan (LAP) 2009-2015 has been considered as part of the constraints study for completeness.

Ashbourne is located on the N2 linking the North West of Ireland and Dublin. The provision of the Ashbourne bypass has alleviated much of the traffic congestion in the town, improving the environment for pedestrians and cyclists and increasing the accessibility of Ashbourne for industrial and commercial development.

The development of the road infrastructure is not just to provide the necessary capacity that will result as the town grows but is as equally important to enable the appropriate enhancement of the public realm.

In consideration to the previous Ashbourne Local Area 2009–2015, an extension to this period has been implemented as per section 11C of the Planning and Development Act 2000 (as amended), which refers to;

11C - Where after the passing of the Electoral, Local Government and Planning and Development Act 2013 provision is made by law for the dissolution of town councils (being town councils within the meaning of section 11A(1) then, irrespective of whether or not any relevant decision was made pursuant to section 11A(2)—

(a) the development plan for the administrative area of such a town council (in this section referred to as the 'dissolved administrative area') shall continue to have effect to the extent provided for by that plan and be read together with the development plan for the administrative area within which the dissolved administrative area is situated.

Furthermore, it has been stated in the Meath County Development Plan (2021-2027) that a detailed Local Area Plan for Ashbourne will be prepared during the lifetime for the Meath Development Plan (2021-2027).

There are five Framework Plan areas designated in Ashbourne Local Area Plan 2009 – 2015 (LAP 2009). These Frameworks are considered by the Planning Authority to provide an effective means of guiding new development and providing essential social and physical infrastructure in a phased and sustainable manner. As mentioned previously, two of the Framework Plans are located within the Constraints Study Area, these are explained in more detail on the following page.

Policies & Objectives for Ashbourne LAP 2009 – 2015 - Framework Plan Objective 2

This Framework Plan objective¹¹ relates to lands at Ashbourne Business Park.

This Framework Plan relates to lands at Ashbourne Business Park extending to 47.4 hectares in area. It is intended that these lands shall provide for light industrial and industrial office type employment in a high quality campus environment. The Framework Plan for these lands shall include, inter alia:

- *A comprehensive landscaping scheme;*
- *Details of overall site and building layout;*
- *Provision of adequate public lighting and footpaths throughout the lands;*
- *High quality design, finish and layout;*
- *Infrastructural and services requirements including access for vehicles, pedestrians, cyclists and people with disabilities, car parking and vehicle turning;*
- *Access via the existing entrance off the L5018 or utilising existing access points onto the national road network. Access arrangements shall be determined as part of the Framework Plan;*
- *Provision of a civic amenity facility, and;*
- *Provision of a machinery/storage depot of approximately 0.5 hectares/1 acre (objective ECON DEV OBJ 10 of Ashbourne Local Area Plan refers). (Ashbourne LAP, Pg.628)*

Additional Policies & Objectives for Ashbourne LAP 2009 – 2015 - Framework Plan Objective 3

This Framework Plan objective is situated within the Constraints Study Area, it emphasises on the potential opportunities for future development on these lands, as listed below;

This Framework Plan relates to lands off the N2 and L5018 to the northwest of the Ashbourne Business Park. These lands extend to 30.46ha in area and are identified as one of the 5 key strategic sites for economic development within County Meath with the Economic Development Strategy for County Meath 2014-2022.

Existing residences have been omitted from this zoning and zoned according to their current use. A Framework Plan has been prepared by the Planning Authority in relation to these lands. Any development within this area shall generally accord with the agreed Framework Plan. Section 4.3 of the Meath County Development Plan 2013- 2019 outlines that a specific local zoning objective may be applied to lands within a broad zoning category where the Council is seeking to achieve a special objective.

The Framework Plan 2 lands are identified with an E2, 'General Enterprise & Employment' land use zoning objective. However, these lands represent a unique opportunity as an extremely well serviced site within the fringe of South Meath and Metropolitan Dublin. The site is well placed along the route of the main Eirgrid east/west inter-connector between Woodland, Co. Meath and Deeside (UK) which offers great opportunities for enterprises that require guaranteed delivery of power. Furthermore, the site is bisected by both the Aurora Telcom National Network and An Bord Gáis pipeline providing excellent fibre based broadband and power connections. (Ashbourne LAP, Pg.629)

¹¹ <https://meathcountydevelopmentplan.files.wordpress.com/2011/01/ashbourne-additional-policies.pdf>

Table 3-7 highlights all relevant policies and objectives in relation to potential planning constraints from the Ashbourne LAP 2009;

Table 3-7 - Relevant Policies and Objectives – Ashbourne LAP 2009

Reference	Chapter	Policy/Objective
INF POL 1	Chapter 7	To support major road improvements by reserving the corridors of any such proposed routes free of development, which would interfere with the provision of such proposals.
INF POL 2	Chapter 7	To co-operate with the National Roads Authority and other Local Authorities.
INF POL 4	Chapter 7	To provide for the future transportation needs of Ashbourne in a sustainable manner.
INF POL 5	Chapter 7	To integrate land use planning and transportation planning.
INF POL 7	Chapter 7	To establish a clear road hierarchy, in which each of the road links has a function and where the mixing of national, regional and local traffic is reduced to the minimum possible.
INF POL 9	Chapter 7	To require developers to provide a Traffic and Transport Assessment, as carried out by competent professionals in this field, where new developments will have a significant effect on travel demand on a National Road, having regard to the "Traffic and Transport Assessment Guidelines" published by the National Roads Authority in September 2007. Where a Traffic and Transport Assessment identifies necessary on and off site improvements for Ashbourne Local Area Plan Chapter 7 58 the development to be able to proceed, the developer will be expected to fund the improvements by entering into a formal agreement with the appropriate Planning Authority. Any additional works required as a result of the Traffic and Transport Assessment shall be funded by the developer.
INF POL 10	Chapter 7	To require noise mitigation measures to be implemented in any future planning applications within zones of influence of national roads or planned new national roads
INF OBJ 10	Chapter 7	To explore in conjunction with Fingal County Council road links to Fingal County over the lifetime of the Local Area Plan.
INF POL 28	Chapter 7	To require that new development should not itself be subject to an inappropriate risk of flooding nor should it cause or exacerbate such a risk at other locations.
INF OBJ 17	Chapter 7	To require all significant developments impacting on flood risk areas to provide a Flood Impact Assessment, to identify potential loss of flood plain storage and how it would be offset in order to prevent impacts on the river flood regime.
INF OBJ 18	Chapter 7	To require that all planning applications for significant new development provide for the delivery of broadband infrastructure in tandem with each phase of development.
INF POL 41	Chapter 7	To locate service cables, wires and piping, including electricity, telephone and television underground, where possible, and that existing overhead cables and associated equipment should be progressively located underground with future capacity considered and appropriate ducting put in place.

Source: Ashbourne LAP 2009

Fingal County Development Plan (2017 – 2023)

As part of the study area is within the jurisdiction of Fingal County Council, a review of all relevant plans and policies in relation to Fingal have been assessed as part of this constraints study. The current development plan that has been assessed for this constraints study is the Fingal County Development Plan 2017 – 2023 (FCDP 2017).

The lands located within Fingal County Council jurisdiction are zoned as RU (Rural) and GE (General Employment) in the Fingal County Development Plan 2017- 2023 as shown in Figure 3-6.



Figure 3-6 - FCCDP 2017 Map Viewer - Land Use Zonings within the Constraints Study Area

The zoning objectives and permitted in principle / not permitted uses for RU and GE zoned lands are set out in Table 3-8.

Table 3-8 - FCDP 2017-2023. Zoning, Permitted in Principle and Not Permitted uses

Zoning Objective / vision	Permitted in Principle Uses	Not Permitted Uses
<p>RU (Rural)</p> <p>Objective: Protect and Promote in a balanced way, the development of agriculture and rural- related enterprise, biodiversity, the rural landscape, and the built and cultural heritage.</p> <p>Vision: Protect and promote the value of the rural area of the County. This rural value is based on: *Agricultural and rural economic resources *Visual remoteness from significant and distinctive urban influences *A high level of natural features Agriculture and rural related resources will be employed for the benefit of the local and wider population. Building upon the rural value will require a balanced approach involving the protection and promotion of rural biodiversity, promotion of the integrity of the landscape, and enhancement of the built and cultural heritage.</p>	<p>Agricultural Buildings</p> <p>Agri-Tourism</p> <p>Bed and Breakfast</p> <p>Boarding Kennels</p> <p>Burial Grounds Childcare Facilities</p> <p>Community Facility</p> <p>Extractive Industry/Quarrying</p> <p>Farm Shop</p> <p>Guest House</p> <p>Golf Course</p> <p>Health Practitioner</p> <p>Holiday Home/Apartments</p> <p>Office Ancillary to Permitted Use</p> <p>Office Ancillary to Permitted Use</p> <p>Research and Development</p> <p>Recreational Facility/Sports Club</p> <p>Campsite</p> <p>Residential</p> <p>Veterinary Clinic</p> <p>Sustainable Energy Installation</p> <p>Utility Installations</p> <p>Restaurant/Café</p>	<p>Agribusiness</p> <p>Exhibition Centre</p> <p>Office >100sqm and <1,000sqm</p> <p>Agricultural Farm Supplies</p> <p>Fast Food Outlet/Take-Away</p> <p>Office ≥1,000sqm</p> <p>Agricultural Machinery Sales and/or Maintenance</p> <p>Food, Drink and Flower Preparation /Processing</p> <p>Public House</p> <p>Air Transport Infrastructure</p> <p>Fuel Depot/Fuel Storage</p> <p>Residential Care Home/ Retirement Home</p> <p>Amusement Arcade</p> <p>Funeral Home/Mortuary</p> <p>Retail - Local < 150 sqm nfa</p> <p>Betting Office</p> <p>Health Centre</p> <p>Retail - Convenience ≤ 500 sqm nfa</p> <p>Builders Provider/Yard</p> <p>Heavy Vehicle Park</p> <p>Retail - Comparison ≤ 500 sqm nfa</p> <p>Car Hire Holding Area</p> <p>High Technology</p> <p>Retail - Comparison >500sqm nfa</p> <p>Caravan Park</p> <p>Manufacturing Hospital Retail Supermarket ≤ 2,500 sqm nfa</p> <p>Residential</p> <p>Industry</p> <p>Retail - Superstore > 2,500 sqm nfa</p> <p>Cargo Yards</p> <p>General Industry</p> <p>Retail - Hypermarket > 5,000 sqm nfa</p> <p>Carpark Light Industry</p> <p>Retail - Factory Outlet Centre</p> <p>Non-Ancillary Conference Centre</p> <p>High Impact</p> <p>Retail Warehouse</p> <p>Dancehall/Nightclub</p> <p>Logistics</p> <p>Retail - Warehouse Club</p> <p>Enterprise Centre</p> <p>Office ≤ 100sqm</p> <p>Retail - Factory Outlet Centre</p> <p>Retail Warehouse</p> <p>Retail - Warehouse Club</p> <p>Retirement Village</p> <p>Road Transport Depot</p> <p>Sheltered Accommodation</p>

Zoning Objective / vision	Permitted in Principle Uses	Not Permitted Uses
		Taxi Office Training Centre Vehicle Sales Outlet – Small Vehicles Vehicle Sales Outlet – Large Vehicles Vehicle Servicing/Maintenance Garage Warehousing Wholesale
GE (General Employment) – Provide opportunities for general enterprise and employment.	Builders Provider/Yard Civic Waste Facility Enterprise Centre Food, Drink and Flower Preparation /Processing Fuel Depot/Fuel Storage High Technology Manufacturing Industry General Industry Light Logistics Office Ancillary to Permitted Use Open Space Petrol Station Research and Development Restaurant/Café Retail - Local < 150 sqm Road Transport Depot Sustainable Energy Installation Telecommunications Structures Training Centre Utility Installations Vehicle Sales Outlet - Small Vehicles Vehicle Sales Outlet - Large Vehicles Vehicle Servicing/Maintenance Garage Warehousing Waste Disposal and Recovery Facility (Excluding High Impact) Wholesale	Abattoir Aerodrome/Airfield Traveller Community Accommodation Air Transport Infrastructure Amusement Arcade Retail - Warehouse Club Betting Office Boarding Kennels Retail - Hypermarket > 5,000 sqm nfa Caravan Park – Holiday Caravan Park – Residential Retail - Comparison >500sqm nfa Cultural Facility Dancehall/Nightclub Residential Care Home/ Retirement Home Exhibition Centre Extractive Industry/Quarrying Place of Worship General Aviation Golf Course Hospital Health Practitioner Holiday Home/Apartments Guest House Hotel Office ≥ 1,000sqm Farm Shop Public House Residential Education Residential Institution Retail - Comparison ≤ 500 sqm Concrete/Asphalt Retail - Superstore Retail Warehouse Burial Grounds Retail - Factory Outlet Centre Sheltered Accommodation Bed and Breakfast Retirement Village Agri-Tourism Waste Disposal and Recovery Facility
Objective Vision Facilitate opportunities for compatible industry and general employment uses, logistics and warehousing activity in a good quality physical environment. General Employment areas should be highly accessible, well designed, permeable and legible.		

Source: Fingal County Development Plan 2017 - 2023

It should be noted that any uses that are neither 'Permitted in Principle' nor 'Not Permitted' would be assessed further, in respect of their contribution towards the Zoning Objective and Vision and their compliance and consistency with the policies and objectives of the Fingal County Development Plan 2017-2023.

Table 3-9 highlights all relevant policies and objectives in relation to potential planning constraints from the FCDP 2017-2023.

Table 3-9 - Relevant Policies and Objectives – FCDP 2017-2023

Reference	Chapter	Policy/Objective
Objective PM32	Chapter 3 Placemaking	Have regard to the joint Department of Transport, Tourism and Sport and the Department of Environment, Community and Local Government's Design Manual for Urban Streets and Roads (DMURS), (2013) and the National Transport Authority's Permeability Best Practice Guide (2015), in the provision of good urban design.
Objective ED113	Chapter 6 Economic Development	Encourage developments which are likely to generate significant levels of freight traffic to locate close to the existing County or national road network having regard to the DOECLG's Spatial Planning and National Roads Guidelines for Planning Authorities (2012).
Objective MT36	Chapter 7 Movement Infrastructure	& Objective MT36 Maintain and protect the safety, capacity and efficiency of National roads and associated junctions in accordance with the Spatial Planning and National Roads Guidelines for Planning Authorities, DECLG, (2012), the Trans-European Networks (TEN-T) Regulations and with regard to other policy documents, as required.
Objective MT37	Chapter 7 Movement Infrastructure	& Implement traffic calming on particular roads and in appropriate areas of the County, especially residential areas, to reduce vehicle speeds in the interests of road safety and residential amenity. Ensure that where appropriate, traffic calming is included as a pre-condition as part of the development of all new estates or extensions to existing estates.
Objective MT38	Chapter 7 Movement Infrastructure	& Maximise capacities of junctions by using traffic management measures thereby reducing congestion.
Objective MT42	Chapter 7 Movement Infrastructure	& Protect the strategic transport function of national roads, including motorways through the implementation of the DoECLG 'Spatial Planning and National Roads – Guidelines for Planning Authorities'.
Objective MT44	Chapter 7 Movement Infrastructure	& Utilise, where appropriate, the provisions of Section 48 and 49 of the Planning and Development Act, 2000 (as amended) to generate financial contributions towards the capital costs of providing local and strategic transport infrastructure, services or projects in the County. This will be done in conjunction with adjoining Local Authorities where appropriate.
Objective DMS83	Chapter 12 Development Management Standards	Ensure roadside verges have a minimum width of 2.4 metres at locations where large trees are proposed and where necessary provide for constructed tree pits as part of the landscape specification. Road verges shall be a minimum of 1.2 metres wide at locations where small canopy trees are proposed.
Objective DMS126	Chapter 12 Development Management Standards	Restrict unnecessary new accesses directly off Regional Roads. Ensure premature obsolescence of all county/local roads does not occur by avoiding excessive levels of individual entrances. Ensure that necessary new entrances are designed in accordance with DMRB or DMURS as appropriate, thereby avoiding the creation of traffic hazards.

Source: Fingal County Development Plan 2017-2023

Land Ownership

An application was sent to the Property Registration Authority Ireland (PRAI) to obtain landownership data. The data was then used to produce a land ownership map of the study area with an associated register of the data obtained from the PRAI. An anonymised version of this map is shown in Figure 3-7, this is also included in drawing CH-0001 in Appendix B. Each landholding is shaded in a different colour, areas with no shading are landholdings that are unregistered with the PRAI.

This data shows that land within the study area is owned by a mix of residents and companies and varies between some very large agricultural landholdings to clusters of much smaller residential landholdings, with ribbon development along some regional and local roads.

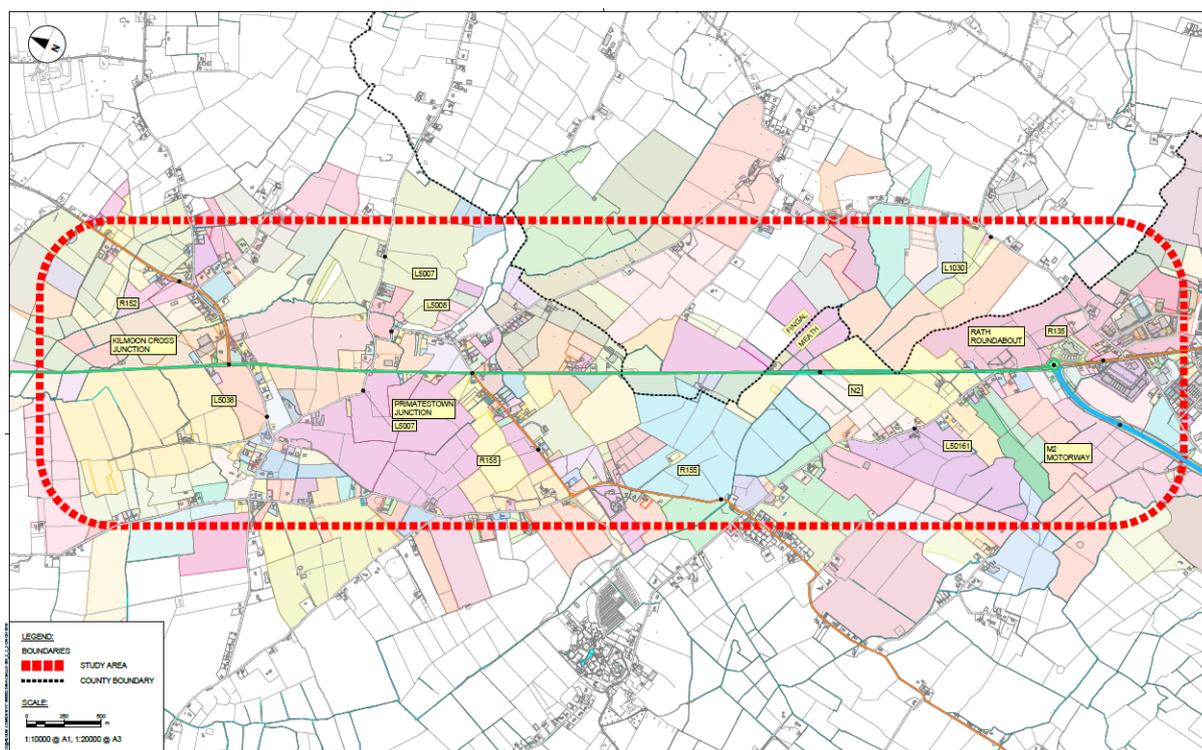


Figure 3-7 - Land Ownership within Constraints Study Area

Local Amenities, Community Activities and Facilities

In order to identify all potential constraints, it is appropriate to carry out an appraisal of the main socio-economic/community activities and facilities within the Constraints Study Area and its close proximities. A desktop assessment was undertaken in order to identify all potential constraints including sites outside the Constraints Study Area that could be affected by the scheme.

There are a limited number of Local Amenities, Community Activities and Facilities within the immediate area which could be sensitive to construction works, noise, vibration and traffic impacts. The major facilities within close proximity to the Constraints Study Area which should be considered during the options selection process are;

-
- Pillo Hotel Ashbourne
 - The Snailbox Restaurant/Bar & Accommodation
 - St Andrews National School, Curragha
 - Cushenstown Pre School
 - Cushenstown National School
 - Curraha GAA Club
 - Cushinstown Athletic Club
 - Tayto Park
 - Kilmoon Cross Nurseries (Floral Nurseries)
 - The Becks (Public House)
 - Kilbrew Nursing Home
 - Balrath Woods Playground
 - Curraha Catholic Church
 - Church of Immaculate Conception

There are several other businesses that are situated within the Study Area which could also be affected by any proposed construction works and subsequent impacts. Liaison will be held with any impacted businesses to understand potential impacts and look to minimise them where possible.

The 'Commons' at Primatestown

There is an area of unregistered land to the north of Primatestown known as 'The Commons'. By definition, common land is land subject to rights enjoyed by one or more persons to take or use part of a piece of land or of the produce of a piece of land which is owned by someone else – these rights are referred to as 'rights of common'. This land represents a shared amenity asset for local residents.

3.3 Agronomy

This section considers agricultural constraints within the Constraints Study Area which is approximately 1500 hectares. The main land use within the area is agricultural. Approximately 20% of the study in the South East is in County Dublin and the remainder is in County Meath..

The agronomy constraints assessment comprised a desk-top study of available published data. The available desktop data sources referred to were;

- Aerial mapping (Google and Bing) was used to examine current land use;
- Digital OS field mapping supplied by client was used to provide accurate mapping;
- Land registry boundary data was used to determine the folio boundaries of high sensitive enterprises; and
- Teagasc soil mapping was used to determine soil types.

A windshield survey of the Constraints Study Area was conducted on December 9th 2019 to verify land use.

Soils in the Constraints Study Area

The topography in the Constraints Study Area is generally flat and drains to the north / north east with the Hurley River being the main drainage artery. The soils are shown in Drawing LE-0002 in Appendix C. The dominant soil is the Straffan Soil Series (0700d). This is a deep clay loam with limestones and makes up approximately 85% of the Constraints Study Area. It is suitable for arable and grassland. The Elton series (1000a) in the west of the Constraints Study Area accounts for approximately 10% of the Constraints Study Area. This is a finer loamy soil generally suited to grassland production. The Boyne series (05RIV) is an alluvial soil. This is generally associated with river valleys and low-lying areas and therefore its agricultural potential is dependent on how well it is drained. It is suited mainly for grassland production.

Agriculture in the Constraints Study Area

The average farm size is likely to be approximately 50 hectares which is larger than the national average of approximately 32 hectares and larger than the averages for both County Meath and County Dublin. An overview of the agricultural statistics are set out in Table 3-10.

Grassland for beef cattle is the dominant land use. Grassland accounts for approximately 70% of the land use in the four electoral divisions. However, on examination of aerial photography the arable area within the Constraints Study Area is approximately 35 – 40% of total farmed area.

Table 3-10 - 2010 CSO agricultural statistics for 4 relevant Electoral Divisions

	Kilbrew	Rathfeigh	Skreen	Garristown
Total Number of farms	63	35	61	55
Total area farmed (ha)	2415	2103	3244	2740
Average size of farms (ha)	38.3	60.1	53.2	49.8
Grassland (ha)	1732	1444	2552	1955
Arable (ha)	683	659	692	785
Cereals (ha)	521	403	531	487
Other crops (ha)	162	256	161	298
Number of beef / other cattle	3154	2313	3758	3022
Number of dairy cows	521	586	1121	457
Total number of sheep	1756	574	2450	1213
Number of horses	91	20	89	55

Dairy cows make up approximately 20% of all cattle in the four electoral divisions with approximately 1 cow per 4 hectares. Therefore, it would be expected that there are approximately 250 – 300 cows in the Constraints Study Area. However only one dairy farm was noted in Hammonds town and this farm appears to have less than 100 cows.

The average number of equines is approximately 1 per 40 hectares or approximately 30 - 40 in the Constraints Study Area. However, there are many small holdings – possibly holdings that would not declare themselves in an agricultural census. There is a dog kennel in Borranstown. These are shown in Drawing LE-0003 in Appendix C.

Potato and vegetable cropping are important land uses in the Constraints Study Area accounting for approximately 70 hectares of the arable area. The visual assessment identified two intensive horticultural enterprises (Ashbrook Garden Centre and Kilmoon Cross Nurseries).

Willow for renewable energy is grown in the southern part of the Constraints Study Area. This is generally low – medium sensitivity, but may be high sensitivity if used as part of a treatment system for organic waste.

One poultry shed was noted in Curraghtown – but it is small and does not appear to be actively used. The grassland farms are a mixture of beef and/or sheep, equine and dairy farming and the tillage farms are a mixture of winter cereals and vegetable cropping. The vegetable cropping includes potatoes and brassicas (e.g. broccoli).

Drawing LE-0004 in Appendix C highlights the sensitive agricultural constraints in the Constraints Study Area and Table 3-11 below illustrates the ranking of sensitivity.

Table 3-11 - Criteria for categorisation of sensitivity of farms

Farm Enterprise Type	Sensitivity
	High – Very high
	Very high
	High
	Medium
	Medium
	Medium - High
	Low - Very low

Summary

Land quality in the Constraints Study Area is good and therefore any land-take should be minimised. There is no differential between any parts of the Constraints Study Area in terms of land quality. Farmyards identified in Drawing LE-0003 in Appendix C are constraints. The sensitivity of these yards is illustrated in Drawing LE-0004 in Appendix C. Intensive horticulture sites are of very high sensitivity.

There are no very high sensitivity grass based enterprises in the Constraints Study Area, although there are a few stud farms highlighted as being high and a dairy farm which is high.

In general, the arable areas range from medium to high. However, vegetable cropping rotation will vary and therefore location will vary. In general, the arable area is of medium sensitivity.

3.4 Cultural Heritage (Incorporating Architectural Heritage and Archaeology)

This section of the report describes the archaeological, architectural, and cultural heritage constraints identified within the Constraints Study Area. The assessment includes all recorded archaeological, architectural, and cultural heritage sites and areas of archaeological potential within the constraints area. A detailed report is provided in Appendix E, a summary of this report is included in the text below however it should only be read in conjunction with the detailed report.

Methodology

This study has been carried out in accordance with a number of guidelines produced by Transport Infrastructure Ireland (TII, 2005a and 2005b; formerly the National Roads Authority). Research for this constraints study was undertaken as a desktop exercise. Lidar data was considered where available. The following sources were consulted in order to identify archaeological, built heritage, and cultural heritage constraints:

- UNESCO List of World Heritage Sites;
- Record of Monuments and Places (RMP) for County Meath and Dublin;
- Sites and Monuments Record for (SMR) County Meath and Dublin;
- National Monuments in State Care Database;
- Preservation Orders List;
- Historic maps relating to the Constraints Study Area;
- Meath County Development Plan 2021–2027 (*recently adopted*);
- Meath County Development Plan 2013-2019 (*now superseded*);
- Fingal County Development Plan 2017-2023;
- Aerial photographs;
- Excavations Bulletin (1970-2019);

Details of the Archaeological and Historical Background and a Summary of Archaeological Previous Fieldwork are available in the full Archaeological Constraints Report (Appendix E).

Summary of Cultural Heritage Constraints

There are no Architectural Conservation Areas within the constraints area or the surrounding environs.

There are 19 individual or groups of recorded monuments within the constraints area and its immediate environs that are included in the RMP or scheduled for future inclusion (Figure 2 and Figure 3, Appendix E). These sites are subject to statutory protection under the National Monuments Act and the Planning and Development Act and are listed in Table 3-12 below and Table 2 of Appendix E. These recorded monuments should be considered to represent key archaeological constraints.

In addition to the Recorded Monuments, there are seven Archaeological Sites (SMR site) recorded within the Constraints Study Area and its immediate environs which are not proposed for inclusion in the next revision of RMP as they represent the records of sites that have been subject to archaeological

excavation. These sites are not subject to statutory protection and are listed in Table 3-13 below and Table 3 of Appendix E.

Table 3-12 - Recorded Monuments located within the Constraints Area

AH NO..	RMP NO.	TOWNLAND	CLASSIFICATION	ITM	RMP STATUS
AH 1	ME038-006/001	Kilmoon	Church and graveyard	702103, 758861	Yes
AH 2	ME038-033	Cushinstown	Burial ground (EX 8)	702406, 758800	Yes
AH 3	ME039-001	Curraghtown	Moated site	703437, 758935	Yes
AH 4	ME039-002	Primatestown	Mound	703392, 758425	Yes
AH 5	ME039-003	Primatestown	Enclosure	703417, 758263	Yes
AH 6	ME038-011	Irishtown	Henge	702070, 757841	Yes
AH 7	ME038-032	Kilbrew	Souterrain	702041, 757641	Yes
AH 8	ME038-010/001	Kilbrew	Henge & 18th/19th century house	701912, 757599	Yes
AH 9	ME039-004	Crickstown	Field system	703252, 755700	Yes
AH 10	ME039-005	Crickstown	Font (present location)	703205, 755299	Yes
AH 11	ME039-008/001-3	Crickstown	Church, graveyard, font & graveslab	703574, 754820	Yes
AH 12	DU006-007	Ballymadun, Borranstown	Water mill - unclassified	705175, 755554	Yes
AH 13	DU006-008	Ballymadun	Enclosure	705450, 755052	Yes
AH 14	DU006-001002	Ballymadun	Ringfort - unclassified	705857, 754749	Yes
AH 15	DU006-001001	Ballymadun	Armorial plaque	705966, 754574	Yes
AH 16	ME039-016	Rath	Enclosure (EX 2)	705201, 754344	Yes
AH 24	ME039-009	Cookstown	Ringfort – rath (EX 5)	704774, 753036	Yes
AH 25	ME039-020	Knavinstown	Enclosure	703510, 755869	Yes
AH 26	ME039-021	Knavinstown	Ringfort - rath	703487, 755768	Yes

Table 3-13 - SMR sites located within the Constraints Area

AH NO..	SMR NO.	TOWNLAND	CLASSIFICATION	ITM	EXCAVATION NO.
AH 17	ME039-011	Rath	Structure	704980, 754177	EX 1
AH 18	ME039-015	Rath	Barrow - ditch barrow	704950, 754162	
AH 19	ME039-014	Rath	Barrow - ditch barrow	704954, 754142	
AH 20	ME039-013	Rath	Barrow - ditch barrow	704974, 754116	
AH 21	ME039-017	Rath	Kiln	704796, 754091	EX 11
AH 22	ME039-012	Rath	Barrow - ditch barrow	704881, 753991	EX 1
AH 23	ME039-010	Rath	Structure	704892, 753943	

A review of the Excavation Bulletin (1970–2019) revealed that there has been a number of previous archaeological investigations carried out to date within the constraints area and its immediate environs. These are detailed in Table 4 of Appendix E.

Nine Areas of Archaeological Potential (AAPs) have been identified within the Constraints Study Area and are listed within Table 5 of Appendix E, as well as Figure 4 and Figure 5 of Appendix E. These include topographic features, such as Windmill Hill (AAP 1), areas that are adjacent to a significant amount of excavated archaeological remains (AAP 2) and specific sites of archaeological potential, such as the possible medieval settlement at Primatestown (AAP 3), the site of a mound (AAP 4) and a possible field system (AAP 8).

There are five protected structures located within the constraints area and its immediate environs although BH 3 (Kilmoon House) is no longer extant due to its collapse and cannot be considered to represent a key constraint. These are listed in Table 3-14 below, as well as Figure 2 and Figure 3 of Appendix E. Four of the structures are also listed in the National Inventory of Architectural Heritage, including BH 3.

Protected structures should be considered as key cultural heritage constraints during the design of the upgraded infrastructure with direct impacts and impacts on settings avoided where possible.

Table 3-14 - Protected Structures within the Constraints Area

BH NO.	RPS NO.	TOWNLAND	CLASSIFICATION	ITM
BH 1	ME033-106*	Roadmain	House	703288, 759758
BH 2	ME039-100*	Cushinstown	Toll house	702755, 759101
BH 3**	ME039-101*	Primatestown	Kilmoon House	702784, 759048
BH 4	ME039-103*	Crickstown	Saint Andrew's Roman Catholic Church	703194, 755291
BH 5	ME039-102	Kilbrew	Kilbrew House	702982, 756468

* Also listed in the NIAH

** No longer extant

Four structures are listed in the NIAH within the constraints area and its immediate environs, these are listed in Table 3-15 below. These structures are all listed as protected structures and so receive protection from that designation.

Table 3-15 - NIAH Structures within the Constraints Area

BH No	NIAH Ref	Townland	Classification	ITM
BH 1	14403304*	Roadmain	House	703288, 759758
BH 2	14403901*	Primatestown	Toll House	702755, 759101
BH 3**	14403902*	Primatestown	Kilmoon House	702784, 759048
BH 4	14403903*	Crickstown	Saint Andrew's Roman Catholic Church	703194, 755291

* Listed as an RPS

** No longer extant

Six designed landscapes were identified within the constraints area. These are listed in Table 3-16 below, as well as Figure 4 and Figure 5 of Appendix E. None of the designed landscapes could be considered to be fully intact and have either lost their principal structure or elements of the original landscape design (or both). However, they retain cultural heritage interest and should be considered as a constraint during the design of the required infrastructure on a case by case basis.

Table 3-16 - Designed Landscapes within the Constraints Area

DL No.	NIAH Garden Survey ID	Townland	Demense Name	Description
DL 1	5118	Curraghtown	Meadesbrook ITM: 703917, 759387	A small demesne, the access drive of which extends into the constraints area to the west although this has been affected by the realignment of the local road. Visible on the first edition OS mapping of 1836 and later OS maps of 1907-9. While development has occurred in the north of the demesne, the principal structure survives and many of the boundaries are extant.
DL 2	5088	Kilbrew	Kilbrew House ITM: 702129, 756142	A large demesne which extends into the constraints area from the west. Visible in the first edition OS mapping of 1836 with the principal building annotated as being in ruins at this time. The demesne, especially the southern section has seen extensive development and much of its character has been eroded. Fragments of boundaries and tree belts survive, but much of the wider demesne has been subsumed into an agricultural landscape.
DL 3	n/a	Kilmoon	Glebe House ITM: 701994, 758778	A small demesne that is labelled on the first edition OS map (1836) as Glebe. It contains St. Munna's Church (ME038-006) and graveyard (ME038-006001) and a rectory. The principal structure no longer survives and the small parkland has degraded slightly, although the mature boundaries remain present.
DL 4	n/a	Borranstown	Laurel Mount ITM: 705251, 756420	There is a small demesne visible on the first edition OS map of 1843, labelled as Laurel Mount to the immediate east of the constraints area. The principal building survives and landscape survives in a reasonable condition.
DL 5	n/a	Crickstown	n/a ITM: 704597, 754733	A small unnamed demesne is visible in the south of the constraints area, adjacent to the existing N2 roadway This is visible on the first edition OS mapping of 1836, and has remained largely unchanged since then. The principal buildings and outbuildings appear to survive along with the mature boundaries and planting.
DL 6	n/a	Kilbrew	Kilbrew House ITM: 702938, 756492	First marked on the first edition OS map of 1836 as what appears to be an unfinished Glebe, the 1907-09 map shows 'Kilbrew House' (BH 5) within a small demesne with several outbuildings, boundary planting and a drive and gate lodge. Whilst the main house survives today, it has been extended and a large complex of buildings constructed to the south. Much of the mature boundary planting has been retained but the character of the landscape has become slightly denuded.

A further five vernacular structures have been identified from the Ordnance Survey maps that may possess architectural merit. These may be of local significance but are not subject to statutory protection. These are listed in Table 9 of Appendix E.

A total of 18 sites of Cultural Heritage interest have been identified during the course of the study. These, for the most part, represent the remains of historic structures such as vernacular houses or cottages. These include a former Constabulary Barracks (CH 12), a parochial house (CH 14) and a former Smithy (CH 10). Some of these structures remain intact and inhabited (with modern modifications in some cases), whilst others are in ruins or derelict. The identified sites are not subject to statutory protection but should be considered as constraints during the development of options. CH 18 represents the current path of the N2 national road, which was established at the start of the 19th century as a tolled mail coach route. Cultural Heritage sites are listed in Table 9 of Appendix E.

3.5 Material Assets

A desktop study was carried out in order to identify all utility constraints and to identify any additional material assets located within the Constraints Study Area. This involved contacting a number of utility providers to obtain up-to-date information on the location and type of services that are situated within the defined Constraints Study Area and identifying clusters of residential and commercial properties within the Constraints Study Area.

The existing environment of the Constraints Study Area is predominately rural in nature. The land use is predominately a mixture of agricultural lands, one off residential properties which are typically in ribbon style development along the existing N2 and regional roads as well as small clusters of residential properties in areas such as Knavinstown, Meadesbrook, including Cushinstown and Moneyhill.

A number commercial premises are also located within the Constraints Study Area such as Kilmoon Cross Nurseries, Ashbourne Business Park and Industrial Estate, Cherry Picker Ltd., Kilmoon Cross, Top Oil Petrol Station, Arch Woodworking, and the Pillo Hotel.

The following companies have identified apparatus within the Constraints Study Area:

- Aurora Telecom National Network;
- Eir;
- EirGrid;
- ESB;
- Gas Networks Ireland; and
- Irish Water.

The following companies did not have recorded apparatus within the Constraints Study Area:

- BT Ireland;
- Virgin Media;
- Enet;
- Vodafone; and
- Magnet.

Aurora Telecom National Network

The Aurora Telecom National Network traverses the existing N2 within the way leave of a high-pressure transmission gas pipeline, as shown in Drawing CU-0001 in Appendix D.

Eir Telecom

Eir infrastructure is predominately located along the N2 and adjoining local and regional roads within the Constraints Study Area, as shown in Drawing CU-0002 in Appendix D.

EirGrid & ESB

The East-West Interconnector underground powerline crosses the south of the Constraints Study Area and extends along the R135 in proximity to the Ashbourne Retail Park, through Rath Roundabout and along the N2 before travelling west along the L50161, as shown in Drawing CU-0003 in Appendix D.

A high voltage 110kV overhead ESB line is located within the Constraints Study Area and crosses the N2 in proximity to the N2 / R155 junction, as shown in Drawing CU-0004 in Appendix D. Baltrasna 110kV substation is located to the west of the existing N2 at Knavinstown.

In terms of future projects to the EirGrid transmission network, at the time of writing the only proposal nearby is the North South 400 kV Interconnection Development. However, the proposed route for this is outside of the Constraints Study Area, running to the west of the existing M3 corridor.

Gas Networks Ireland

A high-pressure Transmission gas pipeline crosses the south of the Constraints Study Area and traverses the N2 in an east to west direction north of Rath Roundabout, as shown in Drawing CU-0005 in Appendix D. In addition, various medium pressure distribution pipes are located within the Constraints Study Area along existing local and national roads.

Irish Water

Ashbourne is part of the East Meath Water Supply Scheme. It is supplied by the Staleen Water Treatment Plant via Windmill Hill and Rath Reservoirs. This supply is augmented by groundwater boreholes and treatment plants at Curragha and Rath.

Phibblestown Wood Pumping Station is located in the north western part of the Constraints Study Area across the road from the Snailbox. Windmill Hill reservoir is also located in the north western part of the Constraints Study Area. The water treatment plant at Curragha is located within the Constraints Study Area adjacent to the Hurley River north of the R155 / L50161 junction at the Maples. Rath service reservoir is located adjacent to the Rath Roundabout at the southern end of the Constraints Study Area. This reservoir is the primary public water supply for the Ashbourne area and is fully operational. The facility contains the reservoir structure, water treatment facilities, water supply borehole, booster pumps, supply and distribution pipework and an electricity supply kiosk.

The existing N2 within the Constraints Study Area is underlain by watermains in certain locations. Between the Rath Roundabout and the junction with the L50161, the existing N2 is underlain with two parallel watermains with diameters of 300mm and 150mm respectively. The section of the N2 between the Primatestown junction and the Kilmoon junction is underlain with a 75mm diameter watermain. A number of other roads in the Constraints Study Area are also underlain with watermains including the R152 and R155.

The location of the Irish Water utilities can be seen in Drawing CU-0006 in Appendix D.

Based on data from the National Federation of Group Water Schemes, no Group Water Schemes have been identified in the Constraints Study Area at the time of writing.

Summary

The key utilities in the Constraints Study Area include a Gas Networks Ireland transmission pipeline and the Eirgrid East-West Interconnector which traverse the southern end of the Constraints Study Area. There is a high voltage 110kV overhead ESB line which crosses the existing N2, as well as the Baltrasna 110kV substation at Knavinstown. The Irish Water reservoir at Rath is also a substantial constraint. The location of all services should be considered during the option selection process to limit disruption to services and the requirement to relocate utilities.

A number of residential and commercial properties occur throughout the Constraints Study Area, including one off residential properties which are typically in ribbon style development along the existing N2 and regional roads and small clusters of residential properties in areas such as Knavinstown, Meadesbrook, including Cushinstown and Moneyhill. A number commercial premises are also located within the Constraints Study Area such as Kilmoon Cross Nurseries, Ashbourne Business Park and Industrial Estate, Cherry Picker Ltd., Kilmoon Cross, Top Oil Petrol Station, Arch Woodworking, and the Pillo Hotel. These should be considered during the option selection process.

3.6 Noise and Vibration

This section describes the noise and vibration constraints identified within the Constraints Study Area for the N2 road scheme between Rath Roundabout and Kilmoon Cross. The specific objective of the noise and vibration constraints study is to identify any receptors that may be deemed to be particularly sensitive to noise and/or vibration. Examples of sensitive receptors include schools, hospitals, places of worship, heritage buildings, special habitats, amenity areas in common use and designated quiet areas. Residential buildings including houses, hotels, hostels etc. are also noise sensitive¹². Some commercial or industrial uses can also be noise sensitive, for example noise recording studios and research or manufacturing facilities using noise or vibration-sensitive equipment.

The objectives for road projects relate to avoidance, where necessary, of new routes through built up areas with a large density of noise sensitive buildings, particularly those not already exposed to high volumes of traffic.

Methodology

The noise and vibration constraints study has been prepared in accordance with the following guidelines:

- TII Good Practice Guidance for the Treatment of Noise during the Planning of National Road Schemes – 2013; and
- TII Guidelines for the Treatment of Noise and Vibration in National Road Schemes – 2004.

The study consisted of a desk study and a preliminary site inspection of the Constraints Study Area. The following information was reviewed as part of this study:

- OS Maps;
- Satellite Mapping (Google Earth, Bing Maps);
- EPA Road Traffic Noise Maps Round 3 (2016);
- Meath County Development Plan 2021–2027 (*recently adopted*);
- Meath County Development Plan 2013-2019 (*now superseded*);
- Fingal County Development Plan 2017-2023;
- County Meath Noise Action Plan (NAP) 2019.

Results

Existing Environment

The Constraints Study Area is predominately rural in nature. The land use is predominately a mixture of agricultural lands, one off residential properties and a small degree of commercial (a garage and car show room) premises.

¹² TII Good Practice Guidance for the Treatment of Noise during the Planning of National Road Schemes and Guidelines for the Treatment of Noise and Vibration in National Road Schemes

The existing noise environment is expected to be dominated by road traffic from the N2, with background noise levels also including local traffic along minor roads, farmyard activities and general environmental sources including bird song and rustling foliage.

Sensitive Receptors

It is preferable to locate road alignments away from noise sensitive areas where feasible, but it is not always possible to do this particularly for roads located close to and through sub-urban settings.

There are a relatively low number of residential properties along the existing N2, most Noise Sensitive Locations in the Constraints Study Area are set back from the N2 along tributary regional and local roads.

Kilbrew Nursing Home, Cushenstown National School and St Declan's Cemetery are noted within the Constraints Study Area.

Review of Published Data

The Round 3 road traffic noise maps published by the EPA as part of the Environmental Noise Regulations have been reviewed to determine the range of predicted traffic noise in the vicinity of the constraint area (the section of the N2 between Rath Roundabout and Kilmoon Cross). As part of the noise mapping requirements, all roads with traffic flows greater than 3 million vehicle trips per annum (approximately 8,000 Annual Average Daily Traffic (AADT)) were required to be mapped.

Noise levels due to road traffic sources from this section of road have been modelled and relevant noise maps have been prepared. These are shown in Drawing LN-0001 and Drawing LN-0002 in Appendix C. These drawings present the noise contour bands in increments of 5 decibels starting at 55dB L_{den} and 45dB L_{night} . The L_{den} period (Annual 24-hour average) is the noise parameter used to assess road traffic noise in Ireland (TII 2004 & TII 2013 Documents). All noise maps for the Constraints Study Area, including noise maps for the L_{night} period are accessed via the EPA's Environmental Maps portal¹³. The figures illustrate the key trafficked roads across the Constraints Study Area and their contribution to the prevailing noise environment. Reference to the maps indicates that the road traffic noise from the existing N2 is consistent between Rath Roundabout and Kilmoon Cross.

Meath County Council has applied a threshold level above which areas may require noise mitigation or management within the Meath Noise Action Plan 2019 (NAP). The proposed onset levels for the consideration of noise mitigation measures are:

- 70dB L_{den} ; and
- 57dB L_{night} .

For assessment of noise level preservation where the existing levels are good:

- 55dB L_{den} ; and
- 45dB L_{night} .

¹³ <https://gis.epa.ie/EPAMaps/>
60602546-ACM-GEN-SW_Z_Z_Z-RP-Z-0011
17/12/2021

The estimated population in 2018 exposed to noise levels greater than 70dB L_{den} for major roads within the Action Plan Area equates to 489 people based on road traffic flows during the 2016 mapping exercise. This compares to a figure of 134 people in the Second Round NAP (based on traffic flows during the 2013 mapping exercise). Those properties which have been identified to be above these threshold levels are typically properties which are located immediately along the road edges. It should be noted that noise contour maps are based on road traffic only for those routes which have been mapped. Noise from road traffic along other regional and local roads with traffic volumes less than the mapping requirement (8,000 AADT) will also contribute to the ambient noise levels at properties in the vicinity of these routes.

The Constraints Study Area comprises a mix of the noise sensitive receptors, which are already exposed to varying levels of road traffic noise. Review of the EPA noise maps referred to above confirms that there are several noise sensitive properties located along the immediate edge of the existing N2 are exposed sound levels above the threshold (70dB L_{den}) which may require noise mitigation or management included in the Meath NAP. There are no specific noise mitigation measures noted within the NAP for this specific section of road, however a range of measures set out in the NAP, include provision of traffic management, road improvements and maintenance including low noise road surfaces, reduction in speed limits, noise screening and façade insulation measures.

Summary

Based on the review of the existing noise environment along the N2, between Rath Roundabout and Kilmoon Cross, no significant constraints have been identified in relation to noise and vibration.

While a range of noise sensitive receptor types have been identified within the Constraint Study Area, their presence doesn't preclude a route corridor being developed in proximity to them during this stage of the assessment.

During route selection appraisal, a detailed review of noise sensitive locations offline and along the existing N2 will be undertaken. This process will identify the route corridors that are least and most preferred from a noise and vibration perspective considering horizontal and vertical alignments, distance of noise sensitive locations from the road, traffic volumes and speeds etc.

Consideration will be given to assessing the benefits of reducing traffic volumes along the existing N2 and noise sensitive locations along this corridor.

3.7 Air Quality and Climate

This section describes the air quality and climate constraints identified within the Constraints Study Area for the N2 between Rath Roundabout and Kilmoon Cross Road Scheme. The specific objectives of the air quality and climate constraints study is to determine the prevailing ambient air quality, the main existing sources of air pollution and greenhouse gases, and the most sensitive receptor locations within the Constraints Study Area.

The TII guidelines (2011)¹⁴ specifically define what types of receptors can be deemed sensitive with respect to air quality impacts “*Sensitive receptor locations include: residential housing, schools, hospitals, places of worship, sports centres and shopping areas, i.e. locations where members of the public are likely to be regularly present.*” In addition, the impact of air quality on ecologically sensitive receptors must also be considered. As stated within the TII guidelines “*Designated habitats are also potentially sensitive receptors. Such sites include, Natural Heritage Areas (NHA), Special Areas of Conservation (SAC), Special Protection Areas (SPA), National Parks, Nature Reserves, Refuges for Fauna, Refuges for Flora, Wildfowl Sanctuaries, Ramsar Sites, Biogenetic Reserves and UNESCO Biosphere Reserves.*”

The air quality objectives for proposed road projects relate to avoidance, where necessary, of new routes through built up areas with a large density of air sensitive receptors or through areas that are ecologically sensitive to air quality impacts.

Methodology

The air quality and climate constraints study has been prepared in accordance with the following guidelines:

- TII Guidelines for the Treatment of Air Quality During the Planning and Construction of National Road Schemes (2011).

The constraints assessment was carried out by means of a desktop review of available information on the proposed Constraints Study Area and a review of existing air quality and climate data from the EPA.

The following information was reviewed as part of this study:

- OS Mapping;
- Satellite Mapping (Google Earth, Bing Maps);
- EPA Air Quality Monitoring Data^{15 16};
- EPA Maps of Licenced Facilities¹⁷;
- Recent reports on Greenhouse Gas Emissions and Projections in Ireland^{18 19}.

¹⁴ Transport Infrastructure Ireland / National Roads Authority (2011) Guidelines for the Treatment of Air Quality During the Planning and Construction of National Road Schemes

¹⁵ <http://www.epa.ie/whatwedo/monitoring/air>

¹⁶ Air Quality in Ireland 2018 - (& previous annual reports)

¹⁷ <https://gis.epa.ie/EPAMaps/> (Accessed 20/01/2020)

¹⁸ Ireland's Final Greenhouse Gas Emissions 1990 – 2017

¹⁹ EPA (2019c) GHG Emissions Projections Report – Ireland's Greenhouse Gas Emissions Projections 2018 – 2040

Results

Sensitive Receptors

The existing environment of the Constraints Study Area is predominately rural in nature. The land use is predominately a mixture of agricultural lands, one off residential properties and a small degree of commercial (a garage and car show room) premises. There are a low number of residential properties which are typically in ribbon style development along the existing N2.

Many of the residential properties along the existing N2 may experience elevated pollution levels from traffic volumes. The proposed N2 scheme will provide a higher quality road connection between Rath Roundabout to Kilmoon Cross which will lead to reduced journey times, less congestion and improved safety.

The N2 Rath Roundabout to Kilmoon Cross scheme is one of the road improvement schemes listed in the National Development Plan 2021-2030 and has been identified in a number of local and regional plans as a section of road that needs improvement. It should be noted that during existing peak travel times there are long tailbacks from Primetestown which extend north of Kilmoon Cross and along the R152 in the morning peak, and on to the M2 motorway in the evening peak period. Traffic congestion results in increased emissions of air and climate pollutants when compared to free-flowing traffic. Should the project be successful, there will be less congestion on the existing N2 once the proposed scheme is in place, sensitive receptors along the existing N2 will experience an improvement in air quality. Receptor locations in the remainder of the Constraints Study Area currently experience rural background levels of pollutants. A small number of these receptors may be impacted by the proposed N2 route improvements, once selected, but the magnitude of impact is not expected to be significant. In addition, the number of sensitive receptors impacted by proposed alternative routes for the N2 will be significantly lower than the number of receptors impacted by the existing congested N2.

There are no sensitive ecological receptors in proximity to the Constraints Study Area with respect to air quality impacts on ecology. Hence, sensitive ecological receptors are unlikely to be impacted by changes in air quality associated with the proposed road scheme.

Review of EPA Air Monitoring Data

As part of the implementation of the Framework Directive on Air Quality (1996/62/EC), four air quality zones have been defined in Ireland for air quality management and assessment purposes. In terms of air monitoring, the Constraints Study Area is categorised as Zone D (rural areas and towns with a population of less than 15,000).

Air quality monitoring programs have been undertaken throughout Ireland in recent years by the EPA and Local Authorities. The most recent EPA annual report on air quality monitoring undertaken throughout Ireland is entitled "*Air Quality in Ireland 2018*"²⁰. The TII Guidelines (2011)¹⁰ state that the local air quality assessment should focus on NO₂ and PM₁₀, as these are the pollutants of greatest concern with respect to road traffic conditions. A review of data from representative Zone D locations in

²⁰ Air Quality in Ireland 2018 - (& previous annual reports)
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Ireland can be used to provide an indication of the prevailing air quality conditions within the Constraints Study Area.

NO₂ monitoring was carried out at two rural Zone D locations in Emo and Kilkitt in recent years¹⁰. The NO₂ annual average in 2018 was 3 µg/m³ at both rural sites. Hence long-term average concentrations measured at all locations were significantly lower than the annual average limit value of 40 µg/m³. The maximum 1-hour limit value of 200 µg/m³ (measured as a 99.8th percentile i.e. 18 exceedances are allowed per year) was not exceeded in any year for any of the Zone D locations. The average results at rural Zone D locations over the last five years suggests an average of 3 µg/m³ as a background concentration. Based on the above information, a conservative estimate of the current background NO₂ concentration for the region of the development is 5 µg/m³.

Long-term PM₁₀ measurements carried out at the rural Zone D location in Kilkitt in 2018 gave an average level of 9 µg/m³¹⁰. Results are also available for Kilkitt to observe the trend in concentrations over the last five years. The average result at Kilkitt over the last five years is 9 µg/m³. Based on the above information a conservative estimate of the current background PM₁₀ concentration for the region of the development is 10 µg/m³.

The results of PM_{2.5} monitoring at Claremorris in 2018 indicated an average PM_{2.5}/PM₁₀ ratio of 0.50. Results are also available for Claremorris to observe the trend in PM_{2.5}/PM₁₀ ratios over the last five years. The average result at Claremorris over the last five years is 0.54 µg/m³. Based on this information, a conservative ratio of 0.6 was used to generate a background PM_{2.5} concentration for the region of the development of 6 µg/m³.

Meteorological Data

A key factor in assessing temporal and spatial variations in air quality is the prevailing meteorological conditions. Depending on wind speed and direction, individual receptors may experience very significant variations in pollutant levels under the same source strength (i.e. traffic levels). Wind is of key importance in dispersing air pollutants and for ground level sources, such as traffic emissions, pollutant concentrations are generally inversely related to wind speed. Thus, concentrations of pollutants derived from traffic sources will generally be greatest under very calm conditions and low wind speeds when the movement of air is restricted. In relation to PM₁₀ (particulate matter less than 10 microns), the situation is more complex due to the range of sources of this pollutant, and thus measured levels of PM₁₀ can be a non-linear function of wind speed.

The nearest representative weather station collating detailed weather records is Dublin Airport meteorological station. This station is located approximately 17 km south east of the existing N2. Windroses for the most recent 5 years of data collected (2015 – 2019) show that the prevailing wind is westerly to south-westerly in direction.

Air Pollution Sources

The major source of air pollution within the Constraints Study Area is road traffic, predominantly that from congestion on the existing N2. Air quality is variable and subject to significant spatial variation, with concentrations generally falling significantly with distance from major road sources. The higher

levels of air pollution are experienced within 50 m of the existing national roads in the Constraints Study Area with the remainder of the Constraints Study Area generally experiencing rural background concentrations of pollutants.

A review of IPPC / IED licences issued by the EPA²¹ for the region show that there are two licenced facilities within a 1 km radius of the proposed road scheme. The first licenced facility, P0554, has no licenced emissions to the atmosphere and therefore has no potential for impact on the scheme. The second, P0281, has licenced emissions due to TA Luft Class I, II and III organics, which are not associated with road emissions.

Summary

Based on the review of the proposed Constraints Study Area and the existing ambient air quality environment, no significant localised constraints have been identified in relation to air quality and climate. However, there are overarching constraints associated with air quality such as the statutory requirement to continue to comply with the air quality standards for the protection of human health and vegetation, as well as the targets set out in the Climate Action Plan 2021.

²¹ EPA (2020b) <https://gis.epa.ie/EPAMaps/> (Accessed 20/01/2020)
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3.8 Population, Economy Business and Tourism

In order to identify all potential constraints, it is appropriate to consider the social-economic background within the Constraints Study Area. A desktop review was undertaken in order to identify the social-economic background of the Constraints Study Area.

Methodology

Census results have been consulted for the years 2011 and 2016 for the Electoral Districts within this Constraints Study Area. The census population statistics of each of the Electoral Districts (EDs) within the Constraints Study Area are detailed below.

The following is a list of sources of information consulted for use in the desk-based study;

- Central Statistics Office (CSO) (2011 & 2016) Small Area Population Statistics²²
- Failte Ireland's, 2018 Tourism Performance Facts

Census information is divided into State, Provincial, County, Major Town and District Electoral Division (DED or ED) level but may not be available for all levels. For the purposes of this constraints study ED level data was used wherever possible.

Results

The Constraints Study Area lies within four EDs, three are situated within the boundary of Meath County Council (MCC) whilst Garristown is located within the boundary of Fingal County Council (FCC).

- Kilbrew (MCC)
- Garristown (FCC)
- Rathfeigh (MCC)
- Skreen (MCC)

Population

According to CSO figures the total population of Meath over a five-year period between 2011 to 2016²³ seen a growth change of 5.9%, whilst Fingal seen a growth change of 8%. The population growth change experienced by Electoral Division's (ED) Kilbrew and Garristown indicate they are above the overall growth achieved by each county, whilst Skreen and Rathfeigh are below the total growth change per county.

The total population growth for four ED's in proximity to the Constraints Study Area was 12% change between the years of 2011 and 2016 as detailed in Table 3-17. There was a significantly higher growth rate for Kilbrew (MCC) and Garristown (FCC). The total population of Electoral Divisions (ED) within the Constraints Study Area is documented within Figure 3-8 as well as Drawing GI-0001 in Appendix C. The annotation depicts the total population of each ED, this is reflected in the shading given to each ED, with darker shading reflecting higher population and lighter shading reflecting lower population.

²² Census 2016 SAP Map

²³ <http://census.cso.ie/sapmap/>

Table 3-17 - CSO Electoral Division Population

Electoral Division	2011 Census [Persons]	2016 Census [Persons]	Actual Change in Population 2011-2016	% Change in Population 2011-2016
Kilbrew	3025	3636	611	20%
Garristown (Fingal)	1438	1628	190	13%
Rathfeigh	990	988	2	-0.2%
Skreen	1448	1481	33	2.3%
Total	6901	7723	836	12%

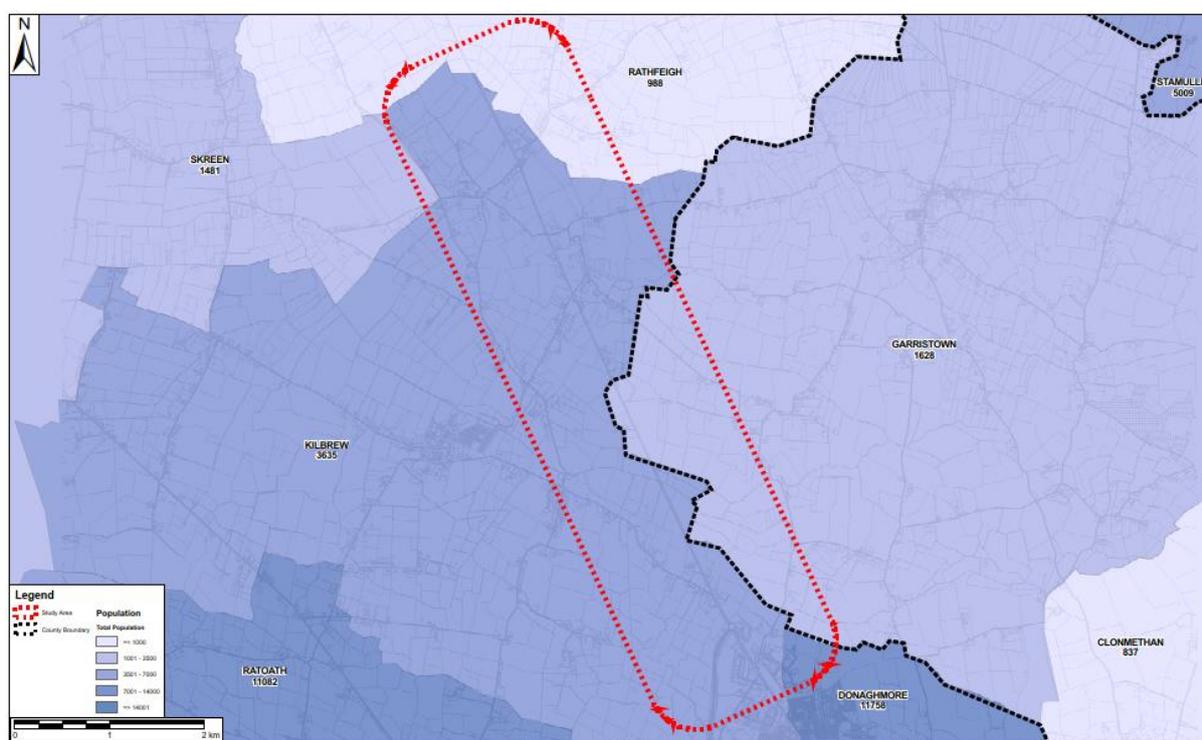


Figure 3-8 - Total Population of Electoral Divisions within and surrounding the Constraints Study Area

Human Health

According to the 2016 CSO census results the majority of people across the EDs within the Constraints Study Area consider themselves to be of ‘Very Good’ or ‘Good’ health. This is in line with the trends observed for Meath County Council and Fingal County Councils as can be seen in Table 3-18. The main risks to the health and wellbeing of the people of County Meath include obesity, smoking, mental health, alcohol and drugs²⁴.

²⁴ <https://www.meath.ie/system/files/media/file-uploads/2020-01/Healthy%20Meath%20Plan%202019-2021.pdf>
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Table 3-18 - CSO Electoral Division Population by General Health

General Health	Kilbrew	Garristown (Fingal)	Rathfeigh	Skreen	Fingal County	County Meath
Very Good	2,232	1,099	630	978	184,048	123,170
Good	963	378	263	376	77,917	51,649
Fair	202	82	66	65	18,376	13,037
Bad	31	13	9	13	3,109	2,019
Very Bad	5	2	3	3	695	395
Not Stated	202	54	17	46	11,875	4,774

Source: <CSO 2016 census>

The five health priorities as outlined within the Healthy Meath Plan 2019-2021²³ are

- Healthy Planning and Development;
- Community Connectivity;
- Healthy Lifestyle;
- Education, Information and Awareness; and,
- Working in Partnership.

Population and Human Health will be considered further during the route selection process as more detailed information becomes available. The sensitive receptors identified by other disciplines such as air quality, noise and biodiversity will also be considered as part of the Population and Human Health assessment.

Tourism

The Constraints Study Area is located within two counties, namely; Co. Meath and Co. Dublin. Ireland is divided into seven tourism regions namely Border, West, Mid West, South West, South East, Mid East/Midlands and Dublin. The Constraints Study Area is located within the Mid-East/Midlands (consisting of; Kildare, Louth, Laois, Longford, Meath Offaly, Westmeath and Wicklow) and the Dublin Region all of which are located within the 'Ancient East'. Highlights of the 'Ancient East' within County Meath include the Bru na Boinne and Newgrange in the Boyne Valley, the battle of the Boyne visitor centre, Kells High Crosses, the Hill of Tara, the historical town of Kells and an array of castles such as Trim and Slane castle and monasteries dotted across the county.

According to a report done by Failte Ireland²⁵ in 2018, Tayto Park, which is located immediately to the west of the Constraints Study Area, is listed in the top ten fee charging attractions in Ireland and generated 600,000 visits in 2018. It should be noted that the lands of the park also contain the Tayto factory which holds tours daily.

²⁵ https://www.failteireland.ie/FailteIreland/media/WebsiteStructure/Documents/3_Research_Insights/Key-Tourism-Facts-2018.pdf?ext=.pdf

In Chapter 3 (Economy and Employment Strategy) of the Meath County Development Plan 2021-2027 (MCDP 2021-2027), the Plan acknowledges that 'The addition of Tayto Park in particular, has provided a new national tourist attraction deviating from the traditional attractions based on heritage and culture.'

This links to the following policy from the MCDP 2021-2027:

ED POL 55 'To promote Tayto Park in Curragha as a flagship family visitor attraction in the County, subject to the normal development management standards. The Council will support and encourage further appropriate sustainable development of the integrated tourism product at Tayto Park subject to the provision or upgrade of the requisite physical infrastructure.'

Balrath Woods is a nature attraction that has many visitors throughout the year, it is located north of the Constraints Study Area and offers various walkways for all ages and fitness. It also contains a kid's playground, picnic areas and a car park.

Other large tourist attractions in proximity to the Constraints Study Area are the Hill of Tara, located 10 km east of the Constraints Study Area. Failte Ireland calculated that it received approx. 166,468 visitors in 2018. Whilst the Bru na Boinne and Newgrange site, which is located within approx. 8km north west of the Constraints Study Area had approx. 300,000 visitors in 2018 exclusively.

Summary

Further, more detailed considerations will be given to Population and Human Health during the Stage 2 route selection process; this will take into consideration sensitive receptors identified by other disciplines such as air quality, noise and biodiversity. Routes should be considerate of the local community, local community facilities and outdoor public facilities such as tourist attractions.

4. External Parameters

4.1 Funding & Scope

Meath County Council, in conjunction with Fingal County Council, will be seeking funding for the development of this scheme through the various design stages and ultimately for the construction of the scheme subject to the scheme receiving all necessary approvals.

The current project scope includes the four relevant planning and design phases which are to be delivered as per the TII Project Management Guidelines (2020) are outlined below within Figure 4-1.

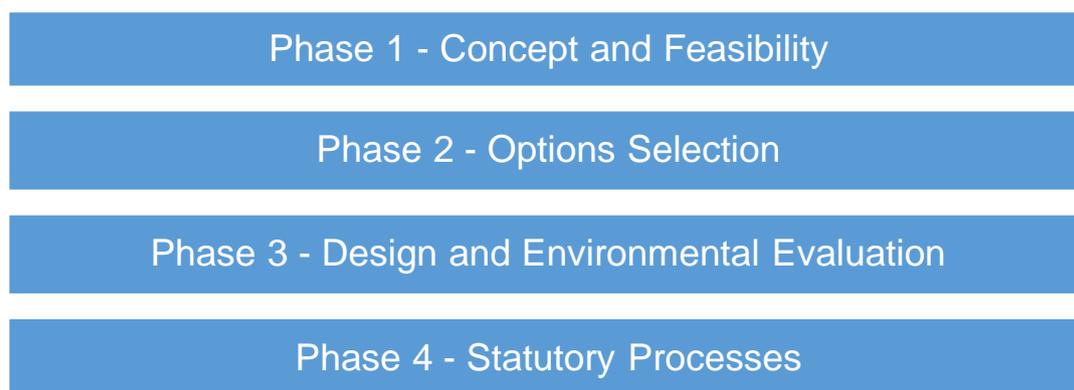


Figure 4-1 – Phases as per TII Project Management Guidelines (2019)

The funding for the above Phases will take the project through to Planning Submission and decision from An Bord Pleanála. No funding has been approved for Phases beyond this point and so progression of the project beyond Phase 4 Statutory Processes will be subject to funding approval. It has been assumed at this initial stage that the N2 Rath Roundabout to Kilmoon Cross Scheme will be 100% Irish Exchequer funded. EU grants or developer contributions have not been identified at this stage.

The proposed scheme is not dependent on the delivery of any other scheme. It is intended that the delivery of the scheme will be such that its implementation can be carried out without dependency on any other scheme.

The current project scope identifies improvement to the section of the existing N2 between Rath Roundabout, where the existing M2 Motorway terminates to the north of Ashbourne town, and Kilmoon Cross, where the existing R152 terminates at Cushinstown. The exact start and end points of the scheme are still to be confirmed and this will form part of the Preliminary Design Work in Phase 3 Design and Environmental Evaluation.

4.2 Construction Phasing

There is no plan at this stage of the project development to phase any section of the construction. However, any construction will look to minimise effects to road users where possible. Maintaining access and movement for road users during the construction phase will help to minimise impacts both locally and regionally for users of the current section of road.

Further options for construction methodology will be assessed as part of Phase 3 as construction methods can be assessed, evaluated and impacts mitigated against. The exact processes will be finalised by the Contractor and will be based on the Statutory requirements.

It is expected that any construction works will interface with the existing road network and so Temporary Traffic Management will be required along with the potential road closures to allow for the works to be complete.

4.3 Required Levels of Service

To meet TII's requirements and standards for a new or upgraded national primary road, any new alignment should, as a minimum:

- Provide an average inter-urban speed of at least 80km/h, which relates to a Level of Service (LoS) D during peak traffic flows in the Design Year of the project (15 years after the opening of the road);
- Result in a reduction in the frequency and severity of collisions;
- Provide continuous or generous opportunities for overtaking;
- Limit or remove all direct accesses other than at junctions with other significant roads.

Based on the existing section of the N2 between Rath Roundabout and Kilmoon Cross, it is unlikely that this section will be able to provide this level of service based on the existing road cross section, layout and forecast traffic numbers.

4.4 Technical Standards

The design will be developed in compliance with the TII Design Standards as well as the TII Manual of Contract Documents for Road Works, these include but are not limited to the list of TII Publications in Table 4-1. The scheme will also follow the processes set out in the Guidance Documents Project Management Guidelines 2017 (PE-PMG-02041) and Project Manager's Manual for Major National Road Projects 2019 (PE-PMG-02042).

Table 4-1 - List of TII Publications

TII Number	TII Publication Title
DN-DNG-03022	Drainage Systems for National Roads (including Amendment No. 1 dated June 2015)
DN-DNG-03061	Design of Outlets for Surface Water Channels (including Amendment No. 1 dated June 2015)
DN-DNG-03062	Edge of Pavement Details (including Amendment No. 1 dated June 2015)
DN-DNG-03063	Vegetated Drainage Systems for Road Runoff (including Amendment No. 1 dated June 2015)
DN-DNG-03064	Drainage of Runoff from Natural Catchments (including Amendment No. 1 dated June 2015)
DN-DNG-03065	Road Drainage and the Water Environment (including Amendment No. 1 dated June 2015)
DN-DNG-03066	Design of Earthworks Drainage, Network Drainage, Attenuation & Pollution Control
DN-DNG-03067	Spacing of Road Gullies (including Amendment No. 1 dated June 2015)
DN-DNG-03068	Hydraulic Design of Road-Edge Surface Water Channels (including Amendment No. 1 dated June 2015)
DN-DNG-03070	Determination of Pipe and Bedding Combinations for Drainage Works (including Amendment No. 1 dated June 2015)
DN-DNG-03071	Design of Outfall and Culvert Details (including Amendment No. 1 dated June 2015)
DN-DNG-03072	Design of Soakaways (including Amendment No. 1 dated June 2015)
DN-DNG-03073	Grassed Surface Water Channels for Road Runoff (including Amendment No. 1 dated June 2015)
DN-ERW-03083	Managing Geotechnical Risk
DN-GEO-03031	Rural Road Link Design
DN-GEO-03036	Cross Sections and Headroom
DN-GEO-03040	Subways for Pedestrians and Pedal Cyclists Layout and Dimensions
DN-GEO-03041	The Design of Major Interchanges

TII Number	TII Publication Title
DN-GEO-03060	Geometric Design of Junctions (priority junctions, direct accesses, roundabouts, grade separated, and compact grade separated junctions)
DN-PAV-03021	Pavement & Foundation Design
DN-PAV-03026	Footway Design

The above list will be added to from the list of TII publication available from www.tiipublications.ie or removed as deemed necessary as the scheme is progressed through Phase 3. Where alterations are deemed necessary to various statutory undertakers' assets, these will be carried out in accordance with the relevant design standard and guidance advised by each effected statutory undertaker.

4.5 Access Control

In order to improve the Level of Service (LoS) as well as reduce the likelihood of collisions, private accesses to the proposed road should be minimised where possible. This will reduce the number of stationary vehicles on the road which will improve the traffic flow and improve safety. As the project develops, access control and junction strategies will be developed in accordance with TII Standards and Guidance.

4.6 Policy Documents

The scheme is proposed in the context of a planning structure that underpins the proposal in terms of planning objectives and policies. The scheme will be considered with respect to all relevant planning policies including Capital Investment Plans, National Policy and County Development Plans.

4.7 Procedural and Legal Requirements

As part of the constraints study, consideration of procedural and legal issues, which may arise during the design and construction process, must be taken into account at as early a stage as possible so as not to delay the timely completion of the project. On this basis the following should be noted at the appropriate stages.

- European and Irish environmental legislation;
- Amendments to Local Authority Development Plans;
- Guidelines on Process and Codes of Practice relating to environmental and legal aspects of Road design and construction;
- EIA and CPO format and procedures;
- Rights of statutory undertakers;
- Wayleaves, public and private Rights of Way;
- Safety, Health and Welfare legislation;

The Guidance and Design documents noted in Section 4.4 above will help to ensure that all the procedural and legal requirements are met as the scheme is designed and developed. Engagement with Stakeholders will also help to ensure that requirements are met.

4.8 Health & Safety Risk Assessment of Study Area

In accordance with the TII Project Manager's Manual (2019), the principal constraints identified within the study were assessed from a health and safety perspective. This is included in Appendix F.

5. Next Steps

Following the appraisal of the study area, a number of natural and artificial constraints have been identified. The next phase of the project will be to identify suitable options for the N2 Rath Roundabout to Kilmoon Cross scheme. The subsequent study and the scheme options will be determined and assessed against the framework of constraints outlined in this report alongside any further constraints which come to light as part of the scheme development or public consultation processes.

Appendix A – Stakeholder Letters

Report Reference	Document Number	Document Name
LT-0001	60602546-ACM-GEN-SW_Z_Z_Z-LT-CH-0001	Stakeholder Letter
LT-0002	60602546-ACM-GEN-SW_Z_Z_Z-LT-CH-0002	Key Stakeholder Letter

Appendix B – General Drawings

Report Reference	Document Number	Document Name
CH-0001	60602546-ACM-GEN-SW_Z_Z_Z-DR-CH-0001	Study Area
CH-0010	60602546-ACM-LLO-SW_Z_Z_Z-DR-CH-0010	Land Ownership Plan

Appendix C – Environmental Constraints Drawings

Report Reference	Document Number	Document Name
CH-0001	60602546-ACM-VTO-SW_Z_Z_Z-DR-CH-0001	Topography
EG-0001	60602546-ACM-EGN-SW_Z_Z_Z-DR-EG-0001	Ecology Constraints
EG-0002	60602546-ACM-EGN-SW_Z_Z_Z-DR-EG-0002	Ecology Constraints – Zone of Influence
GS-0001	60602546-ACM-EGN-SW_Z_Z_Z-DR-GS-0001	Geology - Minerals
GS-0002	60602546-ACM-EGN-SW_Z_Z_Z-DR-GS-0002	Geology - Solid Geology
GS-0003	60602546-ACM-EGN-SW_Z_Z_Z-DR-GS-0003	Geology - Subsoil Deposit
GS-0004	60602546-ACM-EGN-SW_Z_Z_Z-DR-GS-0004	Geology - Soil Deposits
GS-0005	60602546-ACM-EGN-SW_Z_Z_Z-DR-GS-0005	Geology - Boreholes
GS-0006	60602546-ACM-EGN-SW_Z_Z_Z-DR-GS-0006	Geology - Contamination
GS-0007	60602546-ACM-EGN-SW_Z_Z_Z-DR-GS-0007	Geology - Walkover
GS-0008	60602546-ACM-EGN-SW_Z_Z_Z-DR-GS-0008	Geology - Hydrogeology
GS-0009	60602546-ACM-EGN-SW_Z_Z_Z-DR-GS-0009	Geology - Groundwater Vulnerability
GS-0010	60602546-ACM-EGN-SW_Z_Z_Z-DR-GS-0010	Geology - Geological Features
GS-0011	60602546-ACM-EGN-SW_Z_Z_Z-DR-GS-0011	Geology - Corine Landcover
GI-0001	60602546-ACM-EGN-SW_Z_Z_Z-DR-GI-0001	Geospatial - Population Density
HF-0001	60602546-ACM-EGN-SW_Z_Z_Z-DR-HF-0001	Hydrology & Flood Risk - Water Bodies
HF-0002	60602546-ACM-EGN-SW_Z_Z_Z-DR-HF-0002	Hydrology & Flood Risk - Flood Zones
HF-0003	60602546-ACM-EGN-SW_Z_Z_Z-DR-HF-0003	Hydrology & Flood Risk - Present Day
LE-0001	60602546-ACM-EGN-SW_Z_Z_Z-DR-LE-0001	Land Use Zoning
LE-0002	60602546-ACM-EGN-SW_Z_Z_Z-DR-LE-0002	Agronomy - Soils
LE-0003	60602546-ACM-EGN-SW_Z_Z_Z-DR-LE-0003	Agronomy - Enterprise
LE-0004	60602546-ACM-EGN-SW_Z_Z_Z-DR-LE-0004	Agronomy - Sensitivity
LN-0001	60602546-ACM-EGN-SW_Z_Z_Z-DR-LN-0001	Noise - Day

Report Reference	Document Number	Document Name
LN-0002	60602546-ACM-EGN-SW_Z_Z_Z-DR-LN-0002	Noise - Night
LV-0001	60602546-ACM-EGN-SW_Z_Z_Z-DR-LV-0001	Landscape and Visual - Study Area
LV-0002	60602546-ACM-EGN-SW_Z_Z_Z-DR-LV-0002	Landscape and Visual - Surrounding Area

Appendix D – Engineering Constraints Drawings

Report Reference	Document Number	Document Name
CU-0001	60602546-ACM-VUT-SW_Z_Z_Z-DR-CU-0001	Utilities - Aurora Telecom
CU-0002	60602546-ACM-VUT-SW_Z_Z_Z-DR-CU-0002	Utilities - Eir
CU-0003	60602546-ACM-VUT-SW_Z_Z_Z-DR-CU-0003	Utilities - Eirgrid
CU-0004	60602546-ACM-VUT-SW_Z_Z_Z-DR-CU-0004	Utilities - ESB
CU-0005	60602546-ACM-VUT-SW_Z_Z_Z-DR-CU-0005	Utilities - Gas Networks Ireland
CU-0006	60602546-ACM-VUT-SW_Z_Z_Z-DR-CU-0006	Utilities - Irish Water

Appendix E – Cultural Heritage Constraints Study

Report Reference	Document Number	Document Name
-	60602546-ACM-EGN-SW_Z_Z_Z-RP-AG-0001	Archaeological, Architectural & Cultural Heritage Constraints Study
Figure 1	60602546-ACM-EGN-SW_Z_Z_Z-DR-AG-0001	Location of Constraints Area
Figure 2	60602546-ACM-EGN-SW_Z_Z_Z-DR-AG-0002	Location of AH and BH sites in the northern part of the study area
Figure 3	60602546-ACM-EGN-SW_Z_Z_Z-DR-AG-0003	Location of AH and BH sites in the southern part of the study area
Figure 4	60602546-ACM-EGN-SW_Z_Z_Z-DR-AG-0004	Location of AAPs, DL, EX and CH sites in the northern part of the study area
Figure 5	60602546-ACM-EGN-SW_Z_Z_Z-DR-AG-0005	Location of AAPs, DL, EX and CH sites in the southern part of the study area

Appendix F – Health & Safety Risk Assessment of Study Area

Report Reference	Document Number	Document Name
-	60602546-ACM-GEN-SW_Z_Z_Z-RA-Z-0001	Health & Safety Risk Assessment of Study Area

