

Appropriate Assessment Screening
Report and
Natura Impact Statement for
residential development at
Limekilnhill, Academey Street, Navan,
Co. Meath

Compiled by OPENFIELD Ecological Services

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www.openfield.ie

November 2019

Introduction

Biodiversity is a contraction of the words 'biological diversity' and describes the enormous variability in species, habitats and genes that exist on Earth. It provides food, building materials, fuel and clothing while maintaining clean air, water, soil fertility and the pollination of crops. A study by the Department of Environment, Heritage and Local Government placed the economic value of biodiversity to Ireland at €2.6 billion annually (Bullock et al., 2008) for these 'ecosystem services'.

All life depends on biodiversity and its current global decline is a major challenge facing humanity. In 1992, at the Rio Earth Summit, this challenge was recognised by the United Nations through the Convention on Biological Diversity which has since been ratified by 193 countries, including Ireland. Its goal to significantly slow down the rate of biodiversity loss on Earth has been echoed by the European Union, which set a target date of 2010 for *halting* the decline. This target was not met but in 2010 in Nagoya, Japan, governments from around the world set about redoubling their efforts and issued a strategy for 2020 called 'Living in Harmony with Nature'. In 2011 the Irish Government incorporated the goals set out in this strategy, along with its commitments to the conservation of biodiversity under national and EU law, in the second national biodiversity action plan (Dept. of Arts, Heritage and the Gaeltacht, 2011).

The main policy instruments for conserving biodiversity in Ireland have been the Birds Directive of 1979 and the Habitats Directive of 1992. Among other things, these require member states to designate areas of their territory that contain important bird populations in the case of the former; or a representative sample of important or endangered habitats and species in the case of the latter. These areas are known as Special Protection Areas (SPA) and Special Areas of Conservation (SAC) respectively. Collectively they form a network of sites across the European Union known as Natura 2000. A recent report into the economic benefits of the Natura 2000 network concluded that "there is a new evidence base that conserving and investing in our biodiversity makes sense for climate challenges, for saving money, for jobs, for food, water and physical security, for cultural identity, health, science and learning, and of course for biodiversity itself" (EC, 2013).

Unlike traditional nature reserves or national parks, Natura 2000 sites are not 'fenced-off' from human activity and are frequently in private ownership. It is the responsibility of the competent national authority to ensure that 'good conservation status' exists for their SPAs and SACs and specifically that Article 6(3) of the Directive is met. Article 6(3) requires that an 'appropriate assessment' (AA) be carried out for these sites where projects, plans or proposals are likely to have an effect. In some cases this is obvious from the start, for instance where a road is to pass through a designated site. However, where this is not the case, a preliminary (Stage 1) screening must first be carried out to determine whether or not a full AA is required.

Where the Stage 1 screening cannot rule the possibility of likely significant effects, then the process moves to Stage 2, and a full AA will be required. In order to inform the AA, a Natura Impact Statement is prepared which quantifies all likely effects, and details the mitigation which will be implemented, and which will ensure that no significant effects occur to the integrity of the SAC or SPA in question.

The Purpose of this document

This document will assess whether effects to the Natura 2000 network are likely to occur as a result of this project in accordance with Article 6(3) of the Habitats Directive and the Planning and Development Acts. It will conclude whether or not a 'full appropriate assessment' is required, in which case it may recommend mitigation to be undertaken. It should be noted that the screening for AA, or full AA if required, is undertaken by the competent authority, in this case An Bord Pleanála.

About OPENFIELD Ecological Services

OPENFIELD Ecological Services is headed by Pádraic Fogarty who has worked for over 20 years in the environmental field and in 2007 was awarded an MSc from Sligo Institute of Technology for research into Ecological Impact Assessment (EclA) in Ireland. Pádraic has a degree in Analytical Science from Dublin City University, a diploma in Environment & Geography from the Open University and a diploma in Field Ecology from University College Cork. Since its inception in 2007 OPENFIELD has carried out numerous EclAs for Environmental Impact Assessment (EIA), Appropriate Assessment in accordance with the EU Habitats Directive, as well as individual planning applications. Pádraic is a full member of the Institute of Environmental Management and Assessment (IEMA).

Stage 1 Screening Methodology

The methodology for this AA screening statement is clearly set out in a document prepared for the Environment DG of the European Commission entitled 'Assessment of plans and projects significantly affecting Natura 2000 sites 'Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC' (Oxford Brookes University, 2001). Chapter 3, part 1, of this document deals specifically with screening while Annex 2 provides the template for the screening/finding of no significant effects report matrices to be used.

Guidance from the Department of the Environment, Heritage and Local Government 'Appropriate Assessment of Plans and Projects in Ireland' (2009) is also referred to.

In accordance with this guidance, the following methodology has been used to produce this screening statement:

Step 1: Management of the Natura 2000 site

This determines whether the project is necessary for the conservation management of the site in question.

Step 2: Description of the Project

This step describes the aspects of the project that may have an impact on the Natura 2000 site.

Step 3: Characteristics of the Natura 2000 Sites

This process identifies the conservation aspects of the Natura 2000 site and determines whether significant impacts can be expected as a result of the project, either individually or in combination with other plans or projects. This is done through a literature survey and consultation with relevant stakeholders – particularly the National Parks and Wildlife Service (NPWS). All potential effects are identified including those that may act alone or in combination with other projects or plans.

Using the precautionary principle, and through consultation and a review of published data, it is normally possible to conclude at this point whether significant effects are likely to occur. Deficiencies in available data are also highlighted at this stage.

Step 4: Assessment of Significance

Assessing whether an effect is significant or not must be measured against the conservation objectives of the Natura 2000 site in question.

Stage 2 Methodology

Likely significant effects identified in Stage 1 are then fully quantified with reference to the conservation objectives of the Natura 2000 site in question. Mitigation measures must be detailed so that the aforementioned likely effects can be minimised or avoided. Stage 2 must conclude whether, in light of the proposed mitigation measures, the integrity of the SAC or SPA will be adversely affected. The planning authority cannot approve the project where it has ascertained that the project would adversely affect the integrity of the Natura 2000 site

A full list of literature sources that have been consulted for this study is given in the References section to this report while individual references are cited within the text where relevant.

Screening Template as per Annex 2 of EU methodology:

This plan is not necessary for the management of any SAC or SPA and so Step 1 as outlined above is not relevant.

Brief description of the proposed project

The project is described thus, as per the planning application:

The proposal relates to a residential development of 544 no. dwellings on a site of c. 15.1 hectares comprising 260 no. houses (18 no. 2 bed, 207 no. 3 bed & 35 no. 4 bed) and 198 no. apartments (46 no. 1 bed, 152 no 2 bed), 30 no. duplex apartments (15 no. 2 bed & 15 no. 3 bed), and 56 no. dwellings in corner blocks (16 no. 1 bed, 24 no. 2 bed & 16 no. 3 bed) as well as the provision of two crèches (ground floor of apartment building [c. 195 sq. m] and a two storey creche in housing area [c. 443 sq. m]), Open Space of c. 2.63 hectares including playground areas; all ancillary landscape works with public lighting, planting and boundary treatments including regrading/re-profiling of site where required as well as provision of cycle paths; Provision of vehicular and pedestrian looped access through the site from 3 no. junctions located on Academy Street as well as pedestrian connection in south east of site to Dublin Road and upgrade works to junction onto the Dublin Road; along with 875 no. car parking spaces (including 4 no. car sharing spaces) and 581 cycle spaces; Surface water attenuation measures and underground attenuation systems as well as all ancillary site development works (reprofiling of site as required) as well as connection to existing public water supply and drainage services. All site development and landscape works.

The subject site is located to the south of the town centre of Navan which is located in the central portion of County Meath. These lands are currently occupied by agricultural lands and are surrounded by existing development. Historic mapping shows that these lands have been in agricultural use for at least the past century (www.osi.ie). The site is located to the west of Academy Street, and approximately 800m from the centre of the town. The River Boyne flows from north to south to the east of the site. The river bank is approximately 30m from the site boundary at their closest points, although the two areas are separated by the main Dublin road out of Navan. The Boyne at this location falls within the River Boyne and River Blackwater SAC and SPA. This can be seen in figures 1 and 2.



Figure 1 – Site location showing approximate 2km radius. The boundary of the SAC is shown in diagonal red lines while the SPA (itself within the SAC) is in magenta (from www.npws.ie)



Figure 2 – Indicative site boundary (in red line) in relation to the River Boyne and River Blackwater SAC/SPA (in tan/green, from www.epa.ie).

The lands were visited as part of this study on March 7th 2018 and April 24th 2019. Of key importance is that linkages between the site and Natura 2000 areas be identified and in this regard a full assessment was possible. The site was surveyed in accordance with best practice standards (Smith et al., 2010) and habitats were classified in accordance with standard methodology (Fossitt, 2000).

The site survey showed that seven broad habitat types are present in the study area. These are shown as a habitat map in figure 2. The lands can be described as a series of agricultural fields which, at the time of survey, were harvested **arable crops – BC1**. In two small areas, as well as the field facing Academy St., agricultural activities were not underway, and tussocky grassland has developed which can be described as **dry meadow – GS1**. This is dominated by Cock's-foot *Dactylis glomerata*, with Curled Dock *Rumex crispus*, Ribwort Plantain *Plantago lanceolata* and Mouse-ear *Cerastium fontanum*. These are negligible and low biodiversity value habitats respectively.

Agricultural lands are subdivided by traditional field boundaries, either **hedgerows – WL1** or **treelines – WL2**. These habitats can have a similar species composition however the latter is characterised by tall trees with an average height of 5m. These boundaries can be further classified into 'higher significance' or 'lower significance' in accordance with guidelines from the Heritage Council (Foulkes et al., 2013). This is based on a scoring system depending upon their age, structure and species diversity. Most of these boundaries are shown on 19th maps from the OSI and so are of significant age. Newer treelines are associated with boundaries with residential homes, and may be composed of non-native, horticultural species, e.g. Leyland Cypress *Curprocyparis leylandii*. Lower significance hedgerow is dominated by Brambles, with low diversity and a low number of emergent trees. Higher significance boundaries, in addition to their age, tend to have a high number of trees, especially Ash *Fraxinus excelsior*, Hawthorn *Crataegus monogyna*, Elder *Sambucus nigra*, and Blackthorn *Prunus spinosa*. Ground flora can include Soft-shield Fern *Polystichum setiferum*, Hart's-tongue *Asplenium scolopendrium* or Cow Parsley *Anthriscus sylvestris*. A number of these boundaries are accompanied by **drainage ditches – FW4** which add to their wildlife interest. Higher significance hedgerows and treelines can be considered to be of high local biodiversity value. Many of the hedgerows had been recently cut and this may have limited species identification.

Old farm buildings (**buildings – BL3**) can be found just outside the site boundary and are surrounded by **scrub – WS1**, principally Brambles *Rubus fruticosus agg.* and Ash saplings. Lands to the east are associated with the historic Belmont House and a **broadleaved woodland – WD1**. The woodland is made up of tall Beech *Fagus sylvatica*, Ash, Pine *Pinus sylvestris* and non-native varieties, as well as Cherry Laurel *Prunus laurocerasus*. The majority of this woodland is to be incorporated and retained in the open space for the subject site.

There are no alien invasive species on the site, as listed in Schedule 3 of SI 477 of 2011.

Project description

The subject proposal is for the construction and subsequent use of a residential estate, with access road, open space and all associated services and open space.

The land clearance phase will involve the removal of habitats, mostly grassland and agricultural crops but also some woodland and hedgerow. During the construction phase there will be extensive earth works with the potential for release of sediment to water courses, and especially to the River Boyne.

A detailed construction method statement has been prepared which incorporates pollution prevention measures in accordance with guidance from Inland Fisheries Ireland (2016). This will include the installation sediment traps and culverting of drainage ditches 'in the dry'.

Foul wastewater from the development is to be treated at the Navan municipal wastewater treatment plant which discharges treated effluent into the Boyne and which was constructed in 2007 to serve Navan (town of County Meath), which has an organic design treatment capacity of 50,000 PE (population equivalent) and that the current size of the agglomeration served is approx. 37,286 PE; the plant therefore currently has a spare capacity of 12,714 PE. The plant is licenced to discharge this effluent by the EPA (licence number D0059-01). The most recent annual report from the plant, for the 2017 calendar year, shows that the plant continues to operate well within its design capacity and was compliant with emission limit standards set out in its licence. The plant discharges treated wastewater to the River Boyne and monitoring of the receiving environment shows that the effluent "does not have an observable negative impact on the water quality".

Surface water will pass to the River Boyne via an existing sewer and outfall point. The surface water system will conform to GDSDS standards and so during operation there will be no chance to the quality or quantity of surface water run-off.

The proposed project layout is given in figure 3.



Figure 3 - proposed project layout

This site is not located within any Natura 2000 area (SAC or SPA). The boundary of the main construction zone lies approximately 30m to the west of the River Boyne and River Blackwater SAC/SPA and drainage ditches on the site provide direct pathways to this area (via culverts under the Dublin Rd). There are no other SACs or SPAs in the vicinity of the site. There is a clear connection between the subject site and the River Blackwater and River Boyne SAC/SPA via the flow of surface water and wastewater.

This development occurs in an area that is in agricultural use (arable tillage) but within a wider urban area. Aside from agriculture activities in the immediate locality are of a civic, transport and residential nature being on the edge of Navan town centre. These developments are associated with noise and artificial lighting. There are no habitats on the site that are examples of those listed in Annex I of the Habitats Directive. The Boyne system and is of significant fisheries value, supporting a run of Atlantic Salmon *Salmo salar* and Brown

Trout *S. trutta* according to Inland Fisheries Ireland. It is a designated salmonid water under SI No. 293 of 1988.

During the construction phase there will be use of concrete (which is highly toxic to aquatic life) as well as the release of sediment to surface waters. This has the potential to temporarily threaten fish habitat.

Pollution will be managed during the construction phase using best site management practices. These are detailed in a Construction Management Plan (CMP) which is submitted with the application. The CMP has been prepared in accordance with guidelines from Inland Fisheries Ireland (2016). Surface runoff is to be directed to a silt trap/s prior to discharge to the water course. In this way silt-laden water will not enter the river.

Brief description of Natura 2000 sites

In assessing the zone of influence of this project upon Natura 2000 sites the following factors must be considered:

- Potential impacts arising from the project
- The location and nature of Natura 2000 sites
- Pathways between the development and the Natura 2000 network

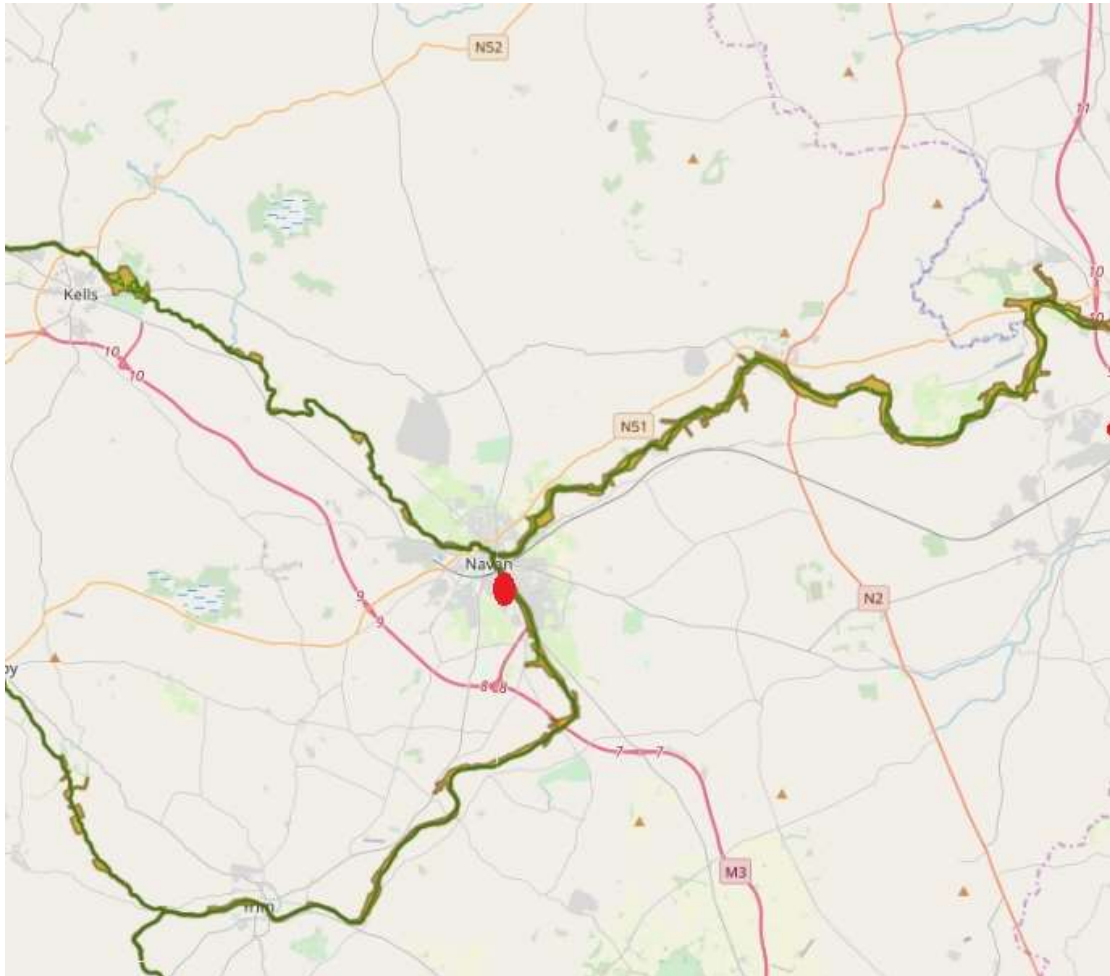


Figure 4 – Approximate 15km radius from the subject site (red dot) showing Natura 2000 sites (from www.epa.ie).

It has already been stated that the site is located directly adjacent to two Natura 2000 areas. It is considered that these are the only Natura 2000 areas that lie within the zone of influence of this project.

The river Boyne and river Blackwater drain most of county Meath. They are important salmonid rivers as well as providing habitat for a wide range of aquatic and riparian wildlife.

The reasons why these rivers are an SAC are set out in the site's 'qualifying interests' and these are given in table 1. Whether the SAC is likely to be significantly affected must be measured against its conservation objectives.

However, to-date no management plan has been produced for the River Boyne and River Blackwater and so specific conservation objectives have not been set out. Generic conservation objectives have been published by the NPWS and this is stated as “to maintain or restore the favourable conservation condition of the Annex I habitat(s) and/or the Annex II species for which the SAC has been selected” (NPWS, 2016a)

According to this generic document favourable conservation status of a habitat is achieved when:

- its natural range, and area it covers within that range, are stable or increasing, and
- the specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and
- the conservation status of its typical species is favourable;

While the favourable conservation status of a species is achieved when:

- population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and
- the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and
- there is, and will probably continue to be, a sufficiently large habitat to maintain its population on a long-term basis

The boundary of the River Boyne and River Blackwater SPA lies within the boundary of the SAC but in this case it closely follows the main channel of the Boyne and its immediate riparian zones. It has a single ‘feature of interest’, the Kingfisher *Alcedo atthis* which is listed on Annex I of the Birds Directive. The conservation objective for this SPA is stated as “to maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA” (NPWS, 2016b). Favourable conservation status is defined as for habitats and species for SACs.

Table 1 – Qualifying interests of the River Blackwater and River Boyne SAC

Aspect	Level of Protection
Alluvial forest (code: 91E0)	Habitats Directive Annex I priority
Alkaline fens (code: 7230)	Habitats Directive Annex I
Atlantic salmon <i>Salmo salar</i> (code: 1106)	Habitats Directive Annex II
River lamprey <i>Lampetra fluviatilis</i> (code: 1099)	
Otter <i>Lutra lutra</i> (code: 1355)	

The conservation status of these features of interest have not been assessed at the level of the SAC/SPA. At a national level the Kingfisher is considered to be of medium (amber listed) conservation concern (Colhoun & Cummins, 2013). The Boyne system was surveyed as part of a national survey of Kingfisher and it was found that it supported 15-29 territories (Cummins et al.,

2010). Habitats and species designated under the Habitats Directive have been assessed as part of Ireland's commitments under Article 17 of that Directive. These assessments are at a national scale only. Table 2 gives the assessment of those features of relevance to the River Boyne and River Blackwater SAC (NPWS, 2013). The conservation status of the Otter, River Lamprey and Atlantic Salmon have been assessed as near threatened, least concern and vulnerable respectively (Marnell et al., 2009; King et al., 2011). The status of Atlantic Salmon in the River Boyne is evaluated annually by Inland Fisheries Ireland. In their most recent report, it was calculated that the numbers of Salmon in that river are only 22% of the 'conservation limit' (i.e. the lower limit which would allow for sustainable fishing). It can be elucidated from this that the status of Salmon in the Boyne is not satisfactory (IFI, 2016).

Table 2 – Assessment of features of interest of the River Boyne and River Blackwater SAC

Alluvial forest (code: 91E0)	Bad
Alkaline fens (code: 7230)	Bad
Atlantic salmon <i>Salmo salar</i> (code: 1106)	Intermediate
River lamprey <i>Lampetra fluviatilis</i> (code: 1099)	Good
Otter <i>Lutra lutra</i> (code: 1355)	Good

Alkaline Fens: Threats of 'high importance' are groundwater abstractions, land reclamation, diffuse groundwater pollution, land abandonment/under-grazing. These fen systems are often a complex mosaic of habitats, with tall sedge beds, reedbeds, wet grasslands, springs and open-water often co-occurring at a given fen site. Their integrity is reliant upon a stable, high water table; calcareous/low-nutrient water supply; and controlled mowing and/or grazing.

Alluvial Wet Woodland: This is a native woodland type that occurs on heavy soils, periodically inundated by river water but which are otherwise well drained and aerated. The main pressures are identified as alien invasive species, undergrazing and overgrazing. Pollution from agricultural land may also be significant.

River lamprey: This species spends its entire life cycle in freshwater and is considerably smaller than the larger, and more threatened Sea lamprey. As juveniles they are indistinguishable from Brook lamprey at the species level and are only differentiated by their size at adults. Since surveys are carried out on the juvenile life stage these two species are jointly assessed. Although threatened by pollution, along with all aquatic life, they are assessed as being of 'good' status.

Atlantic salmon: This once abundant fish has suffered a dramatic decline in recent decades. On land they are threatened by pollution and barriers to migration while at sea mortality may occur through industrial fisheries, parasites from aquaculture operations and climate change. The Habitats Directive only protects the salmon in its freshwater habitat and for some SACs specific conservation objectives have been set for water quality. Salmon will only spawn in clean, sediment-free beds of gravel.

Otter: This aquatic mammal lives its entire life in and close to wet places, including rivers, lakes and coastal areas. They will feed on a wide variety of prey items. Despite local threats from severe pollution incidents and illegal fishing, its population is considered stable and healthy, and so is assessed as being of 'good' status.

Are there other projects or plans that together with the project or plan being assessed could affect the site?

Individual impacts from one-off developments or plans may not in themselves be significant. However, these may become significant when combined with similar, multiple impacts elsewhere. These are sometimes known as cumulative impacts but in AA terminology are referred to as 'in combination' effects.

Eventual implementation of the EU's Water Framework Directive will attain good status throughout the Boyne catchment although it may be some years before this is achieved. Environmental water quality can be impacted by the effects of surface water run-off from areas of hard standing. These impacts are particularly pronounced in urban areas and can include pollution from particulate matter and hydrocarbon residues, and downstream erosion from accelerated flows during flood events (Mason, 1996). In this case the proposed development is not likely to negatively affect the standard of runoff due to the attenuation measures which have been incorporated.

This application can be seen in conjunction with the development of land in the Navan vicinity including the proposed primary school to the north of the subject lands which will utilise the northern access point. In addition, Irish Water, to facilitate the foul water disposal and water supply in the area may upgrade existing infrastructure within the public road network. All separate works would be subject to appropriate measures to ensure no impact on the River Boyne SAC or SPA.

These lands are zoned for 'new residential communities' under the Meath County Development Plan 2013-2019. This plan has undergone AA and it has been concluded that its implementation will not result in significant effects to Natura 2000 areas.

Poor water quality in the Boyne and Blackwater systems can be attributed to multiple sources acting 'in combination' with each other. These include permitted and regulated discharges as well as multiple or diffuse sources.

Permitted on-going activities:

Sufficient capacity exists at the wastewater treatment plant in Navan and no pollution issues are being experienced. The discharge from the Navan plant could combine with other similar discharges which enter the Boyne river system. This includes point and diffuse pollution from across the catchment and, in particular, other municipal wastewater treatment plants. Licenced

municipal wastewater treatment plants discharge to the Rivers Boyne and Blackwater at the following locations:

	Licence:	Compliant in 2016
Athboy	D0124-01	Yes
Kildalkey	D0486-01	No
Kells IDA	D0127-01	No
Enfield	D0131-01	No
Newtown	A0126-01	Unknown
Dunderry	A0019-01	Unknown
Slane	D0257-01	No
Kinnegad	D0104-01	No
Rochefortbridge	D0101-01	No
Delvin	D0267-01	No
Clonmellon	D0271-01	No
Bailieborough	D0085-01	No
Moynalty	D0491-01	Unknown
Johnstown Bridge	D0401-01	No
Ballivor	D0254-01	Yes
Summerhill	D0259-01	No
Clonuff	A0141-01	Unknown
Milltownpass	A0527-01	Unknown
Kilucan	D0100-01	Yes
Crossakeel	D0484-01	Yes
Carlanstown	D0488-01	No
Mullagh	D0252-01	No
Longwood	D0250-01	No
Donore	D0251-01	Yes
Navan	D0059-01	No
Trim	D0137-01	No
Edenderry	D0110-01	No
Rhode	D0227-01	No
Raharney	A0069-01	Unknown

An additional 37 licences are issued by the EPA under the Industrial Pollution Prevention and Control system and which were found to permit discharges to surface water.

Multiple or diffuse sources:

1. One-off houses

An inspection regime of wastewater treatment systems for one-off houses (septic tanks) commenced in 2014. The first results of these inspections are given on a per county basis and are not broken down to river catchments. The compliance rate for Meath was 38% and 86% in Westmeath. (EPA, 2014).

2. Agriculture

Nutrient run-off from agricultural land occurs as a result of landspreading of manure. Sediment runoff is particularly associated with tillage farms but can also occur where cattle have access to river banks.

List of agencies consulted

The Development Applications Unit (DAU) of the Department of the Culture, Heritage and the Gaeltacht was contacted for nature conservation observations (reference no.: GPre00050/2018). A response to this was not received at the time of writing.

Details were also sent to Mr Noel McGloin of Inland Fisheries Ireland. His written response, from March 2018 is reproduced here in full:

Inland Fisheries Ireland (IFI) is a Statutory Body established on the 1st July 2010 .Under section 7(1) of the Inland Fisheries Act 2010 (No. 10 of 2010) the principal function of IFI is the protection, management and conservation of the inland fisheries resource.

Under section 7(3) of the IFI Act it is stated that without prejudice to subsection (1), IFI shall in the performance of its functions have regard to(g) the requirements of the European Communities (Natural Habitats) Regulations 1997 (S.I. No. 94 of 1997) and the need for the sustainable development of the inland fisheries resource (including the conservation of fish and other species of fauna and flora habitats and the biodiversity of inland water ecosystems),(h) as far as possible, ensure that its activities are carried out so as to protect the national heritage (within the meaning of the Heritage Act 1995).

The EU Water Framework Directive (2000/60/EC) entered into force in December 2000 requires the protection of the ecological status of river catchments – this encompasses water quality and requires the conservation of habitats for ecological communities. One of the primary objectives of the Directive is to establish a framework which prevents further deterioration and protects and enhances the status of aquatic ecosystems. Protection of aquatic ecosystems requires that river systems be protected on a catchment basis.

Article 5 of the 2009 Surface Water Regulations requires that a public authority, in performance of its functions, shall not undertake those functions in a manner that knowingly causes or allows deterioration in the chemical or ecological status of a body of surface water. Also article 28(2) of the said Regulations states that a surface water body whose status is determined to be less than good shall be restored to at least good status not later than the end of 2015.

This site is in close proximity to the River Boyne. The River Boyne is a pSAC and has extremely valuable stocks of Atlantic Salmon, Brown Trout, Sea Trout and lamprey.

This project is generally acceptable to us provided:

- *There is sufficient capacity in Navan WWTP and ancillary pumping Stations.*
- *Measures will be put in place to prevent hydrocarbons and other deleterious matter entering the River Boyne during the construction stage.*
- *With regard to any new surface water connection to the River Boyne we would require some form of oil interception.*
- *Any proposed headwalls protruding into the River Boyne would have to be located in a suitable location as we want it to have the least possible impact on the fisheries habitat. If relevant, the draft design and location of these headwalls should be furnished to IFI at pre-design stage for our written approval.*

Data collected to carry out the assessment

A site visit found that the habitats on the site are not associated with either habitats or species listed in table 1.

Water quality in rivers is monitored on an on-going basis by the Environmental Protection Agency (EPA). It assesses the pollution status of a stretch of water by analysing the invertebrates living in the substrate as different species show varying sensitivities to pollution. They arrive at a 'Q-Value' where Q1 grossly polluted = and Q5 = pristine quality (Toner et al., 2005). OSI and EPA mapping show that both the River Blackwater and the River Boyne flow into Navan, joining in the centre of the town. Water quality along the River Blackwater, just upstream of this confluence, was most recently (2012) assessed as Q3-4 (slight pollution). Also above the confluence, a similar score of Q3-4 was recorded along the Boyne in 2003. At this time Q3-4 was also recorded downstream of the town. The Boyne continues to flow eastward and drains into the Irish Sea at Drogheda.

The Blackwater and Boyne are a part of the Blackwater North and Boyne Lower Water Management Units respectively, and much of this river length (>50%) was assessed as unsatisfactory (moderate or poor) in 2010 according to the Programme of Measures in the ERBD Management Plan. This report suggests that main pressures on water quality are from agriculture, abstractions, physical modifications and wastewater discharges. These rivers, as they flow through Navan, have been classified as 'moderate' under the Water Framework Directive (WFD) reporting period 2010-15, although a stretch of the River Boyne through the town has not been classified (from www.epa.ie). These assessments are 'unsatisfactory' and so remedial measures will be required to restore 'good ecological status', something that was due by 2015.

Three of the five qualifying interests for which the River Boyne and River Blackwater SAC has been designated have been assessed nationally as 'intermediate' or 'bad' (alluvial forests, alkaline fens, Atlantic Salmon, NPWS, 2013). This is an unsatisfactory status under the Habitats Directive, which

requires 'favourable conservation status'. The Otter and River Lamprey are both assessed as 'good'. However, the status of these features within the SAC is unknown as no data have been published. Specific conservation objectives for this SAC have not been published.

The Assessment of Significance of Effects

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

In order for an effect to occur there must be a pathway between the source (the development site) and the receptor (the SAC or SPA). Where a pathway does not exist an impact cannot occur.

The proposed development is not located within, or directly adjacent to, any SAC or SPA.

Habitat loss

The site is adjacent to the SAC boundary but the main construction zone is approximately 30m from the nearest SAC/SPA boundary (River Boyne and River Blackwater). Because of the distance separating the site and the SAC/SPA there is no pathway for direct loss or disturbance of habitats or species listed as qualifying interests.

Pollution during construction

During construction there will be a loss of sediment to the River Boyne from earth works. There is a pathway therefore from the site to the SAC/SPA. Sediment is a significant pollutant in rivers, where it can smother fish spawning beds, particularly those of Atlantic Salmon. This effect could act in combination with works on nearby sites for the school and Irish Water upgrading works. Given the negative effect that construction pollution can have on fish habitat significant effects cannot be ruled out.

This pollution is unlikely to affect Kingfisher, and so effects to the SPA can be ruled out.

Pollution arising from surface water during operation

There is a pathway from the site via surface water flows to the River Boyne during the project's operation phase. However, because attenuation and SUDS measures have been incorporated into the project design, it is predicted that no negative effects to run-off quality or quantity will occur.

Pollution arising from wastewater generation during operation

Wastewater from the housing development will pass to the municipal wastewater treatment plant at Navan which discharges to the River Boyne. This plant was found to be operating within its licence parameters and is not believed to be resulting in pollution to receiving waters. Significant effects to the SAC/SPA from this source can therefore be ruled out.

Changes to hydrology

No changes to hydrology can occur downstream as a result of this project. There is no evidence that abstraction of water from the Boyne is resulting in negative ecological effects.

Light and noise

During the operation phase of the road there will be additional noise and artificial lighting. However the distance to the SAC is such that effects from this source cannot occur.

Conclusions of Stage 1 Screening

In light of their conservation objectives, it can be seen that the likelihood of significant effects to the River Boyne and River Blackwater SPA can be ruled out.

Hydrological pathways exist to the River Boyne, in the absence of further analysis, significant effects cannot be ruled out to the following areas:

- River Blackwater and River Boyne SAC

The conservation objective set for this SAC is “To maintain or restore the favourable conservation condition of the Annexed habitats/species for which the SAC has been selected”. Given the potential effects to water quality (particularly sediment pollution), significant effects to qualifying interests cannot be ruled out.

Appraisal of Potential Impacts on European Sites

The screening analysis identified one potential effect which may arise to Natura 2000 areas:

- Construction impacts, and in particular the loss of sediment, which could affect the River Boyne and River Blackwater SAC.

Construction impacts: River Boyne and River Blackwater SAC

Specific conservation objectives for this SAC are not available. However, other SACs have developed such objectives and it is appropriate to reference these.

River Lamprey

Maintain river accessibility (no artificial barriers); healthy population structure; healthy density of juveniles; no decline in extent or distribution of spawning beds; >50% of sampling sites positive.

Atlantic Salmon

Maintain river accessibility (no artificial barriers); size of stock measures as 'conservation limit' consistently exceeded; maintain abundance of salmon fry; no significant decline in out-migrating smolt abundance; no decline in the number of spawning beds (redds); water quality at least Q4 at all sites.

Otter

No significant decline in distribution; no significant decline in terrestrial/estuarine/freshwater/lake habitat; no significant decline in couching sites or holts; no decline in available fish biomass;

Alluvial forests (91E0)

Habitat area stable or increasing; no decline in habitat distribution, woodland structure maintained in terms of structure and height, vegetation community diversity and extent, level of natural regeneration, number of veteran trees and dead wood; maintain the hydrological regime; no decline in tree cover, absence of negative indicator species.

Alkaline Fen (7230)

Habitat area stable or increasing; no decline in habitat distribution; maintain ecosystem function in terms of soil nutrient status, hydrology, water quality (nutrient status); maintain plant community diversity, maintain vegetation composition in terms of vascular plants, brown mosses, positive indicator species, and negative indicator species. Maintain physical structure in terms of area of bare ground, drainage and indicators of local distinctiveness.

There is no likely effect to conservation objectives for River Lamprey, Otter, or Alluvial forests. Water quality is listed as a conservation objective for Atlantic Salmon and Alkaline Fens. For the latter, the objective is in relation to nutrient status and this is not a factor for construction impacts. For Atlantic Salmon the release of large quantities of sediment could affect the number of spawning beds (through fouling) and the overall pollution status (the target of which is Q4).

Mitigation

It has been found that the loss of construction pollutants, and especially sediment, could affect the integrity of the River Boyne and River Blackwater SAC. Standard mitigation is available to avoid this effect but depend upon good site management and effective implementation of these measures.

Detailed, site-specific mitigation measures are proposed in a planning stage Construction Management Plan which is submitted as part of this planning application. This include detailed measures for the prevention of pollution. In particular this will include measures to prevent silt from entering the River Boyne. Under no circumstances should silt-laden water enter the River Boyne. Water leaving the site must first pass through suitably designed silt traps or settlement ponds. These shall be inspected on at least a daily basis, and more frequently during periods of heavy rainfall. The site manager shall be responsible for ensuring that pollution does not occur.

The following site-specific measures are included in the Environmental Impact Assessment Report and the Construction and Environmental Management Plan.

- Works will be in accordance with the requirements of the Office of Public Works (OPW) and Inland Fisheries Ireland (IFI).
- Pollution prevention measures in accordance with guidance from Inland Fisheries Ireland (2016) or as otherwise agreed with the IFI. This will include the installation sediment traps and culverting of drainage ditches 'in the dry', where required.
- No direct discharges made to waters where there is potential for cement or residues in discharge;
- Designated impermeable cement washout areas must be provided;
- Any in-situ concrete work to be lined and areas bunded (where possible) to stop any accidental spillage
- Any spoil or waste material generated from the construction process is to be temporarily stored at an approved location on site, before being removed to an accepting licensed waste disposal facility;
- All new infrastructure is to be installed and constructed to the relevant codes of practice and guidelines;
- All surface water infrastructure are to be pressure tested by an approved method during the construction phase and prior to connection to the public networks, all in accordance with Local Authority Requirements;
- Connections to the public network are be carried out to the approval and / or under the supervision of the Local Authority prior to commissioning;
- All new sewers are to be inspected by CCTV survey post construction; to identify any possible physical defects for rectification prior to operational phase;
- Care will be required for the environmental management of the site to ensure that no potential contamination issues are experienced which may impact on the overall surface water quality.

- Potential issues can be mitigated against by ensuring that the development's environmental management plan is adhered to prevent accidental onsite oil spillages and the regular maintenance of onsite plant to eliminate potential risks. As outlined in the Construction Management Plan submitted with the planning application.
- Implement best practice construction methods and practices complying with relevant legislation to avoid or reduce the risk of contamination of watercourses or groundwater.
- A Site Specific Construction and Environment Management Plan will be developed and implemented during the construction phase. Site inductions will include reference to the procedures and best practice as outlined in the Construction and Environment Management Plan.
- Surface water runoff from areas stripped of topsoil and surface water collected in excavations will be directed to on-site settlement ponds where measures will be implemented to capture and treat sediment laden runoff prior to discharge of surface water at a controlled rate.
- Weather conditions and seasonal weather variations will also be taken account of when planning stripping of topsoil and excavations, with an objective of minimizing soil erosion.
- The extent of sub-soil and topsoil stripping to be minimised to reduce the rate and volume of the run-off during construction until the topsoil and vegetation are replaced.
- Concrete batching will take place off site or in a designed area with an impermeable surface.
- Concrete wash down and wash out of concrete trucks will take place off site or in an appropriate facility.
- Discharge from any vehicle wheel wash areas is to be directed to on-site settlement ponds.
- Oil and fuel stored on site for construction should be stored in designated areas. These areas shall be bunded and should be located away from surface water drainage and features.
- Refuelling of construction machinery shall be undertaken in designated areas away from surface water drainage in order to minimise potential contamination of the water environment. Spill kits shall be kept in these areas in the event of spillages.
- Hazardous construction materials shall be stored appropriately to prevent contamination of watercourses or groundwater.
- Spill kits should be kept in designated areas for re-fuelling of construction machinery.
- Dewatering measures should only be employed where necessary.

The Assessment of Significance of Effects – Conclusion of Stage 2

This report contains an analysis of the proposed project and its relationship with areas designated under the Habitats and Birds Directives. Pathways exist between the development site and a number of such areas and these have been described in detail. Following this analysis, it is concluded that the integrity of the River Boyne and River Blackwater SAC may be affected. Specifically, this may arise from the impact to the habitat of Atlantic Salmon from construction pollution. Arising from this assessment, mitigation has been proposed. With the implementation of these measures no adverse effects to the integrity of the SAC will occur. This conclusion is based on best scientific knowledge.

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