

# Ecological Impact Statement for residential development at Crokers Hill, Kennyswell Road, Kilkenny, Co. Kilkenny

Compiled by OPENFIELD Ecological Services

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For Kilkenny County Council



[www.openfield.ie](http://www.openfield.ie)

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## **1 INTRODUCTION**

This Ecological Impact Statement has been prepared by Pádraic Fogarty of OPENFIELD Ecological Services. Pádraic Fogarty 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. OPENFIELD is a full member of the Institute of Environmental Management and Assessment (IEMA).

## **2 STUDY METHODOLOGY**

The assessment was carried out in accordance with the following best practice methodology: 'Guidelines for Ecological Impact Assessment in the United Kingdom and Ireland' by the Institute of Ecology and Environmental Management (IEEM, 2016).

A site visit was carried out on the 13<sup>th</sup> of November 2018 in fair weather. The site was surveyed in accordance with the Heritage Council's Best Practice Guidance for Habitat Survey and Mapping (Smith et al., 2010). Habitats were identified in accordance with Fossitt's Guide to Habitats in Ireland (Fossitt, 2000).

The nomenclature for vascular plants is taken from *The New Flora of the British Isles* (Stace, 2010) and for mosses and liverworts *A Checklist and Census Catalogue of British and Irish Bryophytes* (Hill et al., 2009).

November lies outside the optimal survey period for general habitat surveys (Smith et al., 2010) but it was nevertheless possible to classify all habitats on the site to Fossitt level 3. November is also outside the season for surveying breeding birds and amphibians but is within the season for large mammals (especially Badgers).

## **3 EXISTING RECEIVING ENVIRONMENT**

### **3.1 Zone of Influence**

Best practice guidance suggests that an initial zone of influence be set at a radius of 2km for non-linear projects (IEA, 1995). However, some impacts are not limited to this distance and so sensitive receptors further from the project footprint may need to be considered as this assessment progresses. This is shown in figure 1.

There are a number of designations for nature conservation in Ireland including National Park, National Nature Reserve, RAMSAR site, UNESCO Biosphere reserves, Special Protection Areas (SPA – Birds Directive), Special Areas of Conservation (SAC – Habitats Directive); and Natural Heritage Areas. The mechanism for these designations is through national or international legislation. Proposed NHAs (pNHA) are areas that have yet to gain full legislative protection. They are generally protected through the relevant County Development Plan. There is no system in Ireland for the designation of sites at a local, or county level. There are no designated areas in the immediate proximity to the site. The Breaghagh River flows from west to east a

short distance to the north and west and this enters the River Nore at Kilkenny. The Nore at this point falls within the River Barrow and River Nore SAC and the River Nore SPA.

Approximately 1km to the north lies Lough Macask proposed Natural Heritage Area (site code: 1914). No published information is available for this site although aerial photography indicates that it is a small cluster of open water bodies fringes with wetland habitat.

The Newpark Marsh pNHA (site code: 0845) can be found 1.5km to the north-east – within the confines of Kilkenny City. Again, no published information is available for this site although it can be assumed to be of value for its wetland habitat.

These are considered to be the only designated areas to fall within the zone of influence of this project.

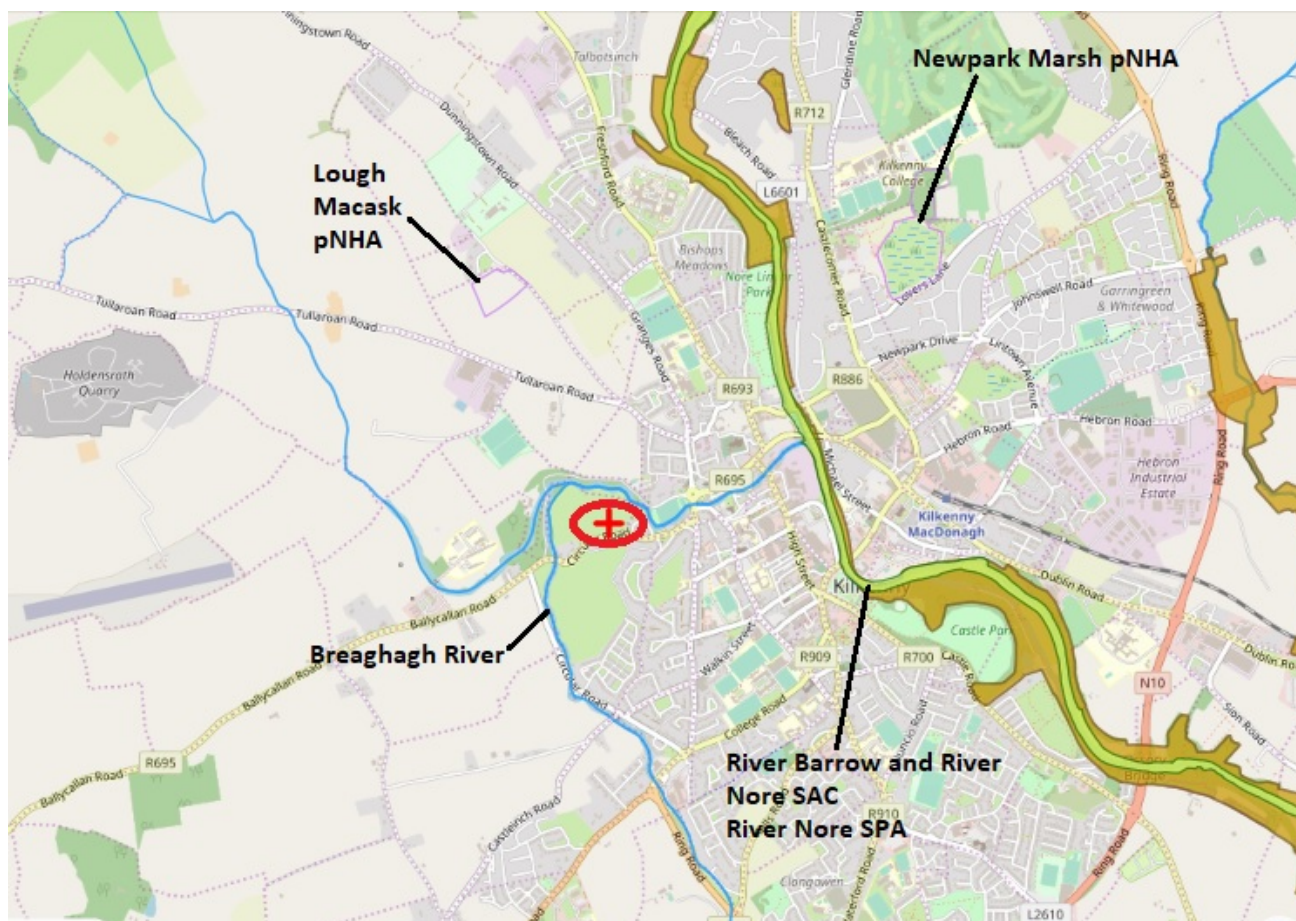


Figure 1 – Approximate 2km radius of proposed site (red circle). There are no areas designated for nature conservation within this radius (from [www.epa.ie](http://www.epa.ie)).

### **River Barrow & River Nore SAC (site code: 2162)**

The rivers Barrow and Nore are among the longest rivers in Ireland and this large SAC stretches from the Slieve Bloom mountains in the north to Creadun head in county Wexford in the south. Together they drain a large part of the low-lying areas of Leinster and are important rivers for a wide range of aquatic or semi-

aquatic habitats and species. The reasons why these rivers fall within an SAC are set out in the site's 'qualifying interests' and these are given in table 1. The status refers to a national assessment and does not necessarily reflect the condition of that feature within the SAC itself.

**Table 1 – Qualifying interests of the River Barrow and River Nore SAC**

<b>Aspect</b>	<b>Level of Protection</b>	<b>NPWS Assessment</b>	
Alluvial wet woodland (code: 91E0)	Habitats Directive	Bad	
Old oak woodlands (code: 91A0)	Annex I priority	Bad	
Atlantic salt meadows (code: 1330)	Habitats Directive Annex I	Intermediate	
Mediterranean salt meadows (code: 1410)		Intermediate	
Petrifying springs with tufa formation (code: 7220)		Intermediate	
Hydrophilous tall herbs (code: 6430)		Bad	
Floating river vegetation (code: 3260)		Intermediate	
Estuary (code: 1130)		Intermediate	
Salicornia mudflats (code: 1310)		Intermediate	
Dry heath (code: 4030)		Bad	
Tidal mudflats (code: 1140)		Intermediate	
Sea Lamprey <i>Petromyzon marinus</i> (Code: 1095)		Habitats Directive Annex II	Bad
Brook Lamprey <i>Lampetra planeri</i> (Code: 1099)			Good
Aquatic snail <i>Vertigo moulinsiana</i> (Code: 1016)	Bad		
River Lamprey <i>Lampetra fluviatilis</i> (Code: 1096)	Habitats Directive Annex II, V	Good	
Freshwater Pearl Mussel <i>Margaritifera margaritifera</i> (Code: 1029)		Bad	
Nore freshwater pearl mussel <i>Margaritifera margaritifera durrovensis</i> (Code: 1990)		Bad	
Freshwater Crayfish <i>Austropotamobius pallipes</i> (Code: 1092)		Intermediate	
Twaite Shad <i>Alosa fallax fallax</i> (Code: 1103)		Good	
Atlantic Salmon <i>Salmo salar</i> (Code: 1106)		Intermediate	

Otter <i>Lutra lutra</i> (Code: 1355)		Good
Killarney fern <i>Trichomanes speciosum</i> (Code: 1421)		Good
Allis shad <i>Alosa alosa</i> (Code: 1102)		Unknown

- 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.
- Old Oak Woodlands: This native woodland type is typified by Sessile Oak *Quercus patrea*, Holly *Ilex aquifolium* and Hard Fern *Blechnum spicant*. Its range is much reduced from historic levels while the principle threats are alien invasive species and overgrazing by deer but also cattle, goats and sheep.
- Atlantic and Mediterranean salt meadows: these are intertidal habitats that differ somewhat in their vegetation composition. They are dynamic habitats that depend upon processes of erosion, sedimentation and colonisation by a typical suite of salt-tolerant organisms. The main pressures are invasion by the non-native *Spartina anglica* and overgrazing by cattle and sheep.
- Petrifying Springs: These are very localised habitats that arise from the precipitation of excess calcium carbonate in supersaturated running water. They are associated with characteristic bryophytes. They are vulnerable to changes in water quality, flow regime and intensification of land use practices.
- Hydophilous tall herbs: This is a wetland type associated with river floodplains in lowlands, although a different community applies to this classification in the uplands. It is the lowland community that is likely to be represented in the River Barrow and River Nore SAC. The main pressures listed for this habitat are grazing by cattle, invasion by the alien Himalayan Balsam *Impatiens glandulifera*, and nitrogen pollution (via both water and air deposition).
- Floating river vegetation: There is currently no satisfactory definition of this habitat type in Ireland and it is considered broad, encompassing all rivers. The NPWS says that “the main problems for river habitats in Ireland are damage through eutrophication and other processes linked to water pollution, rather than direct habitat loss and destruction.”
- Estuary: This is the portion of a river that is influenced by the tide but retaining a significant freshwater influence. Substrates can range from rocks and boulders, to expanses of fine mud and sand. They are an important resource for birds and other fauna and many estuaries have twin designations (i.e. both SAC and SPA). It considered that the majority of estuary habitat is in good condition however approximately a quarter is negatively affected by excess nutrient input and damaging fishing practices.
- Salicornia mudflats: This is a pioneer saltmarsh community and so is associated with intertidal areas. It is dependant upon a supply of fresh, bare mud and can be promoted by damage to other salt marsh habitats. It is chiefly threatened by the advance of the alien invasive Cordgrass *Spartina anglica*. Erosion can be destructive but in many cases this is a natural process.
- Dry heath: This is a community of heather shrubs that occurs on well-drained, acidic, nutrient-poor mineral or peaty soils. Pressures on this habitat arise from high levels of sheep grazing, as well as afforestation,

mining and quarrying. Unregulated burning is also identified as an important threat to the structure of this habitat.

- Tidal mudflats. This is an intertidal habitat characterised by fine silt and sediment. Most of the area in Ireland is of favourable status however water quality and fishing activity, including aquaculture, are negatively affecting some areas.
- Sea lamprey. This is an anadromous species of jawless fish. Their population densities are considered low in many catchments and are negatively affected by barriers to migration, such as weirs, dams etc. Pollution and drainage works are also identified as threats to its conservation status.
- Brook and river lamprey: These species are similar to the sea lamprey although they spend their entire life cycle in freshwater and are considerably smaller. As juveniles, they are indistinguishable at the species level and are only differentiated by their size at adults. Since surveys are carried out on the juvenile life stage the two species are jointly assessed. Although threatened by pollution, along with all aquatic life, they are assessed as being of 'good' status.
- Freshwater pearl mussel. This is one of the most threatened species in Ireland and one of a small number that is listed on the International Union for the Conservation of Nature's (IUCN) red list. Although it is long-lived, its populations have not reproduced in many years. This has been due to over-extractions for their pearls and more recently by dramatic deteriorations in water quality. Freshwater pearl mussels need exceptionally high quality water for breeding and depend upon another threatened species, the Atlantic salmon, for part of its life cycle.
- Nore freshwater pearl mussel: As above however this subspecies is confined to a sub-catchment of the upper river Nore.
- Freshwater crayfish: This crustacean is Ireland's largest species of non-marine invertebrate and is found throughout limestone river, canal and lake catchments. The greatest threats to its conservation status arise from the non-native invasive species and disease (especially associated with the American Signal crayfish which has yet to be recorded in Ireland).
- Twaité shad. This is a localised fish species in Ireland, breeding at the upper tidal reaches of rivers in the south-east. They are threatened by non-native invasive species such as Dace and the Asian clam, which are now established in the tidal reaches of the Nore/Barrow. They spend their adult life at sea and here they are susceptible to capture by industrial fisheries.
- 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 here 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.

- Killarney Fern: This plant was once collected by Victorian fern 'hunters' until it was nearly extirpated. It is now considered stable but remains very localised in its distribution. Its preferred habitat is dark, wet ravines and rocky cracks.
- Allis shad. Like the Twaite shad this is a fish that breeds in estuarine waters but spends much of its life as an adult at sea. It may not be an established breeding species in Irish waters as no juveniles have been recorded.

### **River Nore SPA (site code: 4233)**

The boundary of the River Nore SPA lies within the boundary of the larger SAC but in this case it closely follows the main channel of the River Nore and its immediate riparian zones from near Mouthrath in Co. Laois to south of Thomastown in Co. Kilkenny. 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, 2018). Favourable conservation status is defined as for habitats and species for SACs. At a national level the Kingfisher is considered to be of medium (amber listed) conservation concern (Colhoun & Cummins, 2013). The Nore system was surveyed as part of a national survey of Kingfisher and it was found that it supported 16-22 territories (Cummins et al., 2010).

The web site of the National Parks and Wildlife Service ([www.npws.ie](http://www.npws.ie)) contains a mapping tool that indicates records of legally protected species within a selected Ordnance Survey (OS) 10km grid square. The Crokers Hill site is located within the square S45 and one species of protected flowering plant is highlighted: Betony *Stachy officinalis*. There are no current records for this plant ([www.bsbi.org](http://www.bsbi.org)). It must be noted that this list cannot be seen as exhaustive as suitable habitat may be available for other important and protected species. A number of protected mammals are recorded from this square and these are discussed later in this report.

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. It arrives at a 'Q-Value' where Q1 = grossly polluted and Q5 = pristine quality (Toner et al., 2005). The Crokers Hill site is within the catchment of the Breagagh River, which drains a small portion of western County Kilkenny before joining the Nore. There is an EPA monitoring point at the bridge north-west of Aughtanny. Water quality was most recently measured here in 2016 when a value of Q3 (moderate pollution) was recorded. Downstream meanwhile there is a monitoring point at the Brewery Bridge and here Q3 conditions were also recorded in 2016. Overall the Breagagh River is assessed as 'poor' under the 2010-2015 Water Framework Directive reporting (WFD) period. The River Nore in Kilkenny meanwhile is assessed as 'good'. These data are taken from the mapping tool on [www.epa.ie](http://www.epa.ie).

## **3.2 Stakeholder Consultation**

Because of the low ecological sensitivity of the subject lands, third party observations were not sought.

### 3.3 Site Survey

Aerial photography from the OSI and historic mapping shows that this area has been in agricultural use but is close to the urban fabric of Kilkenny. Since 2000 there has been some change of land use and new residential development has emerged from the east.

#### 3.4.1 Flora

The land can be described as an open area of **improved agricultural grassland – GA1** with Creeping Thistle *Cirsium arvense*, Annual Meadow-grass *Poa annua*, Perennial Rye-grass *Lolium perenne*, Dock's *Rumex sp.* and Nettle *Urtica dioica*.

Within the field there is a small number of isolated Hawthorn *Crataegus monogyna* while field boundaries are composed of **stone walls – BL1** with some patches of Brambles *Rubus fruticosus agg.* A small agricultural shed to the south-east is a **building – BL3**. A **hedgerow – WL2** to the east is composed of non-native Cypress *Cuprocyparis sp.*

There are no water courses on the site and no drainage ditches etc. There are no habitats which could be considered as wetlands. The lands slopes in a northerly and westerly direction and so drainage pathways lead to the Breagh River. This river flows from west to east and joins the River Nore in Kilkenny City. These features are shown in figure 2.

There are no plants growing on the site which are listed as alien invasive on Schedule 3 of SI No. 477 of 2011. There are no habitats which are examples of those listed on Annex I of the Habitat Directive.

#### 3.4.2 Fauna

The site survey included incidental sightings or proxy signs (prints, scats etc.) of faunal activity, while the presence of certain species can be concluded where there is suitable habitat within the known range of that species. Table 4 details those mammals that are protected under national or international legislation in Ireland. Cells are greyed out where suitable habitat is not present or species are outside the range of the study area.



Table 4 – Protected mammals in Ireland and their known status within the S45 10km grid square<sup>1</sup>. Those that are greyed out indicate either that there are no records of the species from the National Biodiversity Data Centre. Since the site is not coastal the two Seal species are greyed out.

Species	Level of Protection	Habitat <sup>2</sup>	
Otter <i>Lutra lutra</i>	Annex II & IV Habitats Directive; Wildlife (Amendment) Act, 2000	Rivers and wetlands	
Lesser horseshoe bat <i>Rhinolophus hipposideros</i>		Disused, undisturbed old buildings, caves and mines	
Grey seal <i>Halichoerus grypus</i>	Annex II & V Habitats Directive; Wildlife (Amendment) Act, 2000	Coastal habitats	
Common seal <i>Phocaena phocaena</i>			
Whiskered bat <i>Myotis mystacinus</i>	Annex IV Habitats Directive; Wildlife (Amendment) Act, 2000	Gardens, parks and riparian habitats	
Natterer's bat <i>Myotis nattereri</i>		Woodland	
Leisler's bat <i>Nyctalus leisleri</i>		Open areas roosting in attics	
Brown long-eared bat <i>Plecotus auritus</i>		Woodland	
Common pipistrelle <i>Pipistrellus pipistrellus</i>		Farmland, woodland and urban areas	
Soprano pipistrelle <i>Pipistrellus pygmaeus</i>		Rivers, lakes & riparian woodland	
Daubenton's bat <i>Myotis daubentoniid</i>		Woodlands and bridges associated with open water	
Nathusius' pipistrelle <i>Pipistrellus nathusii</i>		Parkland, mixed and pine forests, riparian habitats	
Irish hare <i>Lepus timidus hibernicus</i>		Annex V Habitats Directive; Wildlife (Amendment) Act, 2000	Wide range of habitats
Pine Marten <i>Martes martes</i>			Broad-leaved and coniferous forest
Hedgehog <i>Erinaceus europaeus</i>	Wildlife (Amendment) Act, 2000	Woodlands and hedgerows	
Pygmy shrew <i>Sorex minutus</i>		Woodlands, heathland, and wetlands	
Red squirrel <i>Sciurus vulgaris</i>		Woodlands	

<sup>1</sup> From the National Biodiversity Data Centre, excludes marine cetaceans

<sup>2</sup> Harris & Yalden, 2008

Irish stoat <i>Mustela erminea hibernica</i>		Wide range of habitats
Badger <i>Meles meles</i>		Farmland, woodland and urban areas
Red deer <i>Cervus elaphus</i>		Woodland and open moorland
Fallow deer <i>Dama dama</i>		Mixed woodland but feeding in open habitat
Sika deer <i>Cervus nippon</i>		Coniferous woodland and adjacent heaths

The survey found evidence of Badger activity beneath a Hawthorn tree close to the northern site boundary. The National Biodiversity Data Centre provides records of Badger from the vicinity, as shown in figure 2. In this case the sett had two entrances while Badger hair was noted to be snagged on a nearby wire fence. The sett is therefore active. There are no well-worn trails and conspicuous spoil heaps and is not considered that it is a main (breeding) sett. Rather, it is likely to be an Subsidiary or Outlier sett and so used by one or two individual (Byrne et al., 2012).

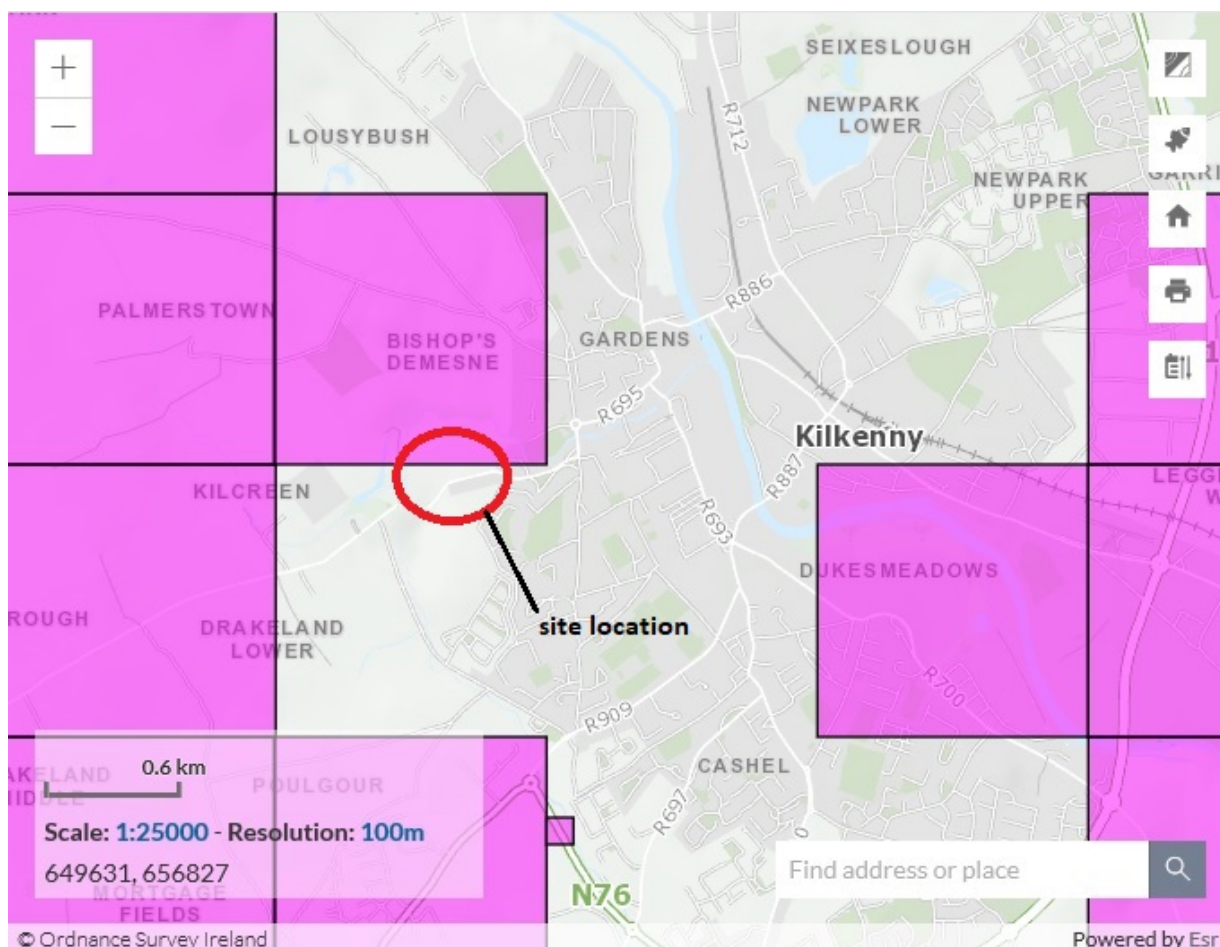


Figure 2 – Records of Badger activity from [www.biodiversity.ie](http://www.biodiversity.ie)

The survey found no other evidence of mammal activity. The Breaghagh River is suitable for Otter and records from this locality are current. There was no evidence that Irish Hare is present while habitat does not provide woodland areas to support Deer, Pine Marten or Red Squirrel. Small mammals such as the Irish Stoat, Hedgehog and Pygmy Shrew are considered more or less ubiquitous in the Irish countryside, including on grassland land near urban areas (Lysaght & Marnell, 2016). No direct evidence of any mammal was recorded although Fox *Vulpes Vulpes* and Rabbits *Oryctolagus cuniculus* are common along with Brown Rat *Rattus norvegicus*, House Mouse *Mus domesticus* and Field Mouse *Apodemus sylvaticus*. These species are not protected.

Features on the site were assessed for their suitability for roosting bats. The old farm shed is considered to provide a suitable roosting structure for bats (Hundt, 2012). Bats are also likely to forage in this area however there these are likely to be confined to the river and the riparian zone as there are no hedgerows or other high-value features on the site.

November lies outside the season for surveying breeding birds. No birds were recorded. Limited suitable nesting habitat is available for common countryside birds in patches of Bramble.

There is no suitable habitat for breeding Common Frog *Rana temporaria* or Smooth Newt *Lissotriton vulgaris*. Common Lizard *Zootoca vivipara* is considered widespread.

There are no streams or wetland habitats on the main body of the site which could support fish or aquatic invertebrates. The Nore River system is of high fisheries value however, with populations of Atlantic Salmon *Salmo salar*, Brown Trout *S. trutta*, and Lamprey *Lampetra sp.* as well as the critically endangered European Eel *Anguilla anguilla*. Fisheries survey data are not available from the Breaghagh River.

Most habitats, even highly altered ones, are likely to harbour a wide diversity of invertebrates. In Ireland only one insect is protected by law, the Marsh Fritillary butterfly *Euphydryas aurinia*, and this is not to be found on in this area. Other protected invertebrates are confined to freshwater and wetland habitats and so are not present on this site. There are no Freshwater Pearl Mussels downstream of this project.

### 3.5 Overall Evaluation of the Context, Character, Significance and Sensitivity of the Proposed Development Site

In summary, it has been seen that the application site is agricultural land close to a built-up area. There are no examples of habitats listed on Annex I of the Habitats Directive or records of rare or protected plants. There are no species listed as alien invasive as per SI 477 of 2011. Habitats are of low local value although it is within the catchment of the River Nore, which is of international value (designated as an SAC and SPA).

Significance criteria are available from guidance published by the National Roads Authority (NRA, 2009). These are reproduced in table 5. From this an evaluation of the various habitats and ecological features on the site has been made and this is shown in table 6.



Figure 3 – Habitat map of the subject lands superimposed on an aerial photograph (photo from [www.bing.com](http://www.bing.com))

Table 5 Site evaluation scheme taken from NRA guidance 2009

<b>Site Rating</b>	<b>Qualifying criteria</b>
A - International importance	<p>SAC, SPA or site qualifying as such.                      Sites containing 'best examples' of Annex I priority habitats (Habitats Directive).</p> <p>Resident or regularly occurring populations of species listed under Annex II (Habitats Directive); Annex I (Birds Directive); the Bonn or Berne Conventions.</p> <p>RAMSAR site; UNESCO biosphere reserve;</p> <p>Designated Salmonid water</p>
B - National importance	<p>NHA. Statutory Nature Reserves. Refuge for Flora and Fauna. National Park.</p> <p>Resident or regularly occurring populations of species listed in the Wildlife Act or Red Data List</p> <p>'Viable' examples of habitats listed in Annex I of the Habitats Directive</p>
C - County importance	<p>Area of Special Amenity, Tree Protection Orders, high amenity (designated under a County Development Plan)</p> <p>Resident or regularly occurring populations (important at a county level, defined as &gt;1% of the county population) of European, Wildlife Act or Red Data Book species</p> <p>Sites containing semi-natural habitat types with high biodiversity in a county context, and a high degree of naturalness, or populations of species that are uncommon in the county</p>
D - Local importance, higher value	<p>Sites containing semi-natural habitat types with high biodiversity in a county context, and a high degree of naturalness, or populations of species that are uncommon in the locality</p> <p>Sites or features containing common or lower value habitats, including naturalised species that are nevertheless essential in maintaining links and ecological corridors between features of higher ecological value.</p>
E - Local importance, lower value	<p>Sites containing small areas of semi-natural habitat that are of some local importance for wildlife;</p> <p>Sites or features containing non-native species that are of some importance in maintaining habitat links.</p>

Table 6 Evaluation of the importance of habitats and species on the Crokers Hill site

Non-native hedgerow – WL1 Shed (building) – BL3	Negligible ecological value
Improved agricultural grassland – GA1 Stone wall – BL1	Low local ecological value



## 5 POTENTIAL IMPACT OF THE PROPOSED DEVELOPMENT

This section provides a description of the potential impacts that the proposed development may have on flora & fauna in the absence of mitigation. Methodology for determining the significance of an impact has been published by the NRA. This is based on the valuation of the ecological feature in question (table 6) and the scale of the predicted impact. In this way, it is possible to assign an impact significance in a transparent and objective way. Table 7 summaries the nature of the predicted impacts.

### 5.1 Construction Phase

The following potential impacts are likely to occur during the construction phase in the absence of mitigation:

1. The removal of habitats including agricultural grassland, low value hedgerow and stone wall. These are habitats of low local value. The species to be found in these habitats are common and widespread and for this reason the impact to flora and fauna from the loss of this habitat is considered to be **minor negative**. New landscaping is planned for areas of open space and this will include a range of native and non-native trees. It is likely that, in time, these features will mature and provide habitat for a similar range of species which are present today, including breeding birds and foraging bats. It is considered that this will result in a net neutral impact on flora and fauna.
2. The direct mortality of species during site clearance. This impact is most acute during the bird breeding season which can be assumed to last from March to August inclusive. This may affect a number of locally common countryside birds as well as small mammals. Although there is very little available nesting habitat for birds on this site, all birds, their nests and eggs are protected under the Wildlife Act.

Because of the timing of this study a bat survey was not carried out. The old farm shed provides some suitable habitat for roosting bats. All bat species and their resting places are protected under the Wildlife Act and the Habitats Directive.

3. Impacts to Badgers. Badgers and their setts are protected under the Wildlife Act and can only be disturbed under licence from the NPWS. In this case the location of the Badger sett is along the northern site boundary and within a proposed area of open space. Therefore it is not likely to be directly affected. Nevertheless, construction activities are likely to cause some disturbance. This impact is therefore **moderate negative**.
4. Pollution of water courses through the ingress of silt, oils and other toxic substances. There is a potential for construction pollution to enter River Breaghagh and on to the River Nore. Sediment and pollution from dangerous substances have the potential to negatively impact upon the habitat of fish and other aquatic life. This considered to be a major negative impact given that the River Nore is designated as a Special Area of Conservation. **Note: a separate Screening Report for Appropriate**

**Assessment and a Nature Impact Statement have been prepared to accompany this planning application.**

**Operation Phase**

The following potential impacts are likely to occur during the operation phase in the absence of mitigation:

5. Pollution of water from foul wastewater arising from the development. Wastewater will be sent to the municipal treatment plant at Kilkenny which is operated by Irish Water under licence from the EPA (reference: D0018-01). This has a capacity to treat effluent from a population equivalent (P.E.) of 77,000. Mean hydraulic loading is well within this limit. The Annual Environmental Report for 2017 indicates that there were no non-compliance issues in that year and effluent met the emission limit standards set in the Urban Wastewater Treatment Directive. Meanwhile ambient monitoring of the receiving water shows that “The discharge from the wastewater treatment plant does not have an observable negative impact on the water quality” and “has no observable negative impact on the Water Framework Directive status”. The AER states that the treatment capacity of the plant is not likely to be exceeded within the next three years.
6. Pollution of water from surface water run-off. Surface water will connect to a new surface water drainage system for the site. This will be entirely separate to the foul systems and conforms to SUDS principles as well as the Greater Dublin Strategic Drainage Study. This will include on-site attenuation storage with controlled release via an oil/grit interceptor. A new surface water outfall pipe and headwall is to be constructed to the River Breagagh. No negative effect arising to the quantity or quality of surface run-off will occur.
7. Artificial lighting. This must be seen in the context of the existing site, which is directly adjacent to a housing development and other urban features. The effects of artificial lighting on flora and fauna is poorly understood, however Bat Conservation Ireland has identified it as a significant issue affecting bats. Many bat species are poorly tolerant of lighting and will avoid such areas. The species present on this site are already likely to be tolerant to a certain degree of lighting impacts. Nevertheless, simple mitigation measures are available to ensure this impact is minimised.
8. Impacts to Natura 2000 areas (specifically the River Barrow and River Nore SAC) cannot be ruled out, principally due to the potential for pollution to arise during the construction phase. A full assessment of potential effects to these areas is contained within a separate Screening Report for Appropriate Assessment and Natura Impact Statement. Mitigation measures to avoid this effect are included in this report. No other effects to designated areas for nature conservation are expected to occur.



Table 7: Significance level of likely impacts in the absence of mitigation

Impact		Significance
Construction phase		
1	Loss of habitat	Minor negative
2	Mortality to animals during construction, including nesting birds and bats	Moderate negative – permanent impacts to species of high local value/or species with legal protection
3	Impacts to Badgers	Moderate negative
4	Pollution of water during construction phase	Major negative – affecting aquatic life downstream including in an SAC
Operation phase		
5	Wastewater pollution	Neutral
6	Surface water pollution	Neutral
7	Artificial lighting	Moderate negative
8	Natura 2000 areas	Major negative – affecting an area of international importance

Overall it can be seen that two potential moderate negative impacts are predicted to occur as a result of this project in the absence of mitigation.

## 5.2 Cumulative impacts

A number of the identified impacts can also act cumulatively with other impacts from similar developments in this area of Kilkenny. These primarily arise through the additional loading to the Kilkenny Wastewater Treatment Plant as well as other municipal and industrial discharges through the catchment of the River Nore. It is considered that this effect is not significant due the available capacity at the wastewater treatment plant.

In this instance, the incorporation of SUDS attenuation measures will result in not negative effect to surface water quality.

Increasing urbanisation, and in particular land use change from agricultural to urban uses, can result in the loss of habitat for common species of plants and animals. In this case, higher value habitats are largely to be retained while post-construction landscaping will provide additional resources for wildlife.

## **6 AVOIDANCE, REMEDIAL AND MITIGATION MEASURES**

This report has identified four impacts that were assessed as 'moderate negative' or worse and therefore mitigation is needed to reduce the severity of these potential effects.

### **6.2 Mitigation Measures Proposed**

The following mitigation measures are proposed for the development

#### **Construction Phase**

##### **1: Disturbance of birds' nests**

Deliberate disturbance of a bird's nest is prohibited unless under licence from the National Parks and Wildlife Service. If possible, site clearance works should proceed outside the nesting season, i.e. from September to February inclusive. If this is not possible, vegetation must first be inspected by a suitably qualified ecologist. If a nest is encountered then works must stop, until such time as nesting has ceased. Otherwise, a derogation licence must be sought from the NPWS to allow the destruction of the nest.

##### **2: Disturbance to potential bat roost**

A dedicated bat survey should be carried out during the appropriate season by a suitably qualified ecologist. This should ascertain whether the shed is used as a roost and if so by what species and in what numbers. It should determine whether or not a derogation licence is needed and it should recommend any necessary mitigation measures to ensure that negative impacts to bats do not arise from this project.

##### **3: Badgers**

The Badger sett should be protected during the duration of construction works. An exclusion zone of 20m (if possible) should be established and where movement of heavy machinery or storage of materials is excluded. The area should be clearly labelled 'sensitive ecological zone' and site personnel trained in the importance of preserving this feature. This project will require a derogation licence from the NPWS. An application for this licence is being made concurrently with the planning application.

##### **4: Pollution during construction/effects to Natura 2000 areas**

Best practice site management should be employed during works at all times. These should conform to guidance from Inland Fisheries Ireland (2016) and should be presented in a Pollution Prevention Plan. It will be the responsibility of the site manager to ensure that pollution does not occur. Fuels, oils and other dangerous substances should be stored in a bunded area. Sediment-laden water should not be discharged to water courses or surface drains. Given the context of the site rainwater is likely to percolate to ground.

However, there may be times when heavy rainfall exceeds the soil's absorption capacity. In this event, run-off should be directed to suitably-sized silt traps or attenuation ponds. Only clean, silt-free water should be discharged to ditches etc. Pollution prevention measures should be inspected at appropriate intervals and a record of these inspections should be maintained by the site manager.

#### 5. Artificial lighting

Lighting proposals should minimise the impact on bats. This should include the reduction in scale of lighting both in space and time, i.e. lighting should only be directed to areas and times needed. Light spill to areas where illumination is not required can be achieved through the use of cowels and louvres while low-level bollard lighting will result in a lower impact than high-level stands. Lighting should not be directed at the Badger sett or towards the river. If these measures are implemented, the effect to wildlife can be reduced to **minor negative**.

### 8 PREDICTED IMPACTS OF THE PROPOSED DEVELOPMENT

This section allows for a qualitative description of the resultant specific direct, indirect, secondary, cumulative, short, medium and long-term permanent, temporary, positive and negative effects as well as impact interactions which the proposed development may have, assuming all mitigation measures are fully and successfully applied.

After mitigation, with the exception of Badgers, no significant residual effects are likely to arise to biodiversity arising from this project.

It is not known whether the Badger sett can continue to be viable post-construction given its proximity to areas of public open space which are to be used by people and their pets. It is considered possible that the sett will be vacated permanently. Given that this is not likely to be a major or breeding sett, then the impact of this will be moderate negative.

### 9 MONITORING

Monitoring is required where the success of mitigation measures is uncertain or where residual impacts may in themselves be significant. In this case no significant negative effects are likely to arise, and so additional monitoring is not required.

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