

Tipperary County Council

**Fethard Burial Ground Extension,
Fethard, Co. Tipperary**

Ecology Scoping Report

August 2021

This report considers the particular instructions and requirements of our client.

It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

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The logo for INIS, featuring the word 'Inis' in a dark blue serif font. A small green leaf icon is positioned above the 'i'.




Quality Assurance

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Due cognisance has been given at all times to the provisions of the *Wildlife Act, 1976*, the *Wildlife (Amendment) Act, 2000*, the *European Union (Natural Habitats) Regulations. SI 378/2005*, the *European Communities (Birds and Natural Habitats) Regulations 2011*, EU Regulation on Invasive Alien Species under *EU Regulation 1143/2014*, the *EU Birds Directive 2009/147/EC* and *Habitats Directive 92/43/EEC*.

No method of assessment can completely remove the possibility of obtaining partially imprecise or incomplete information. Any limitation to the methods applied or constraints however are clearly identified within the main body of this document.

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Title		Ecology Scoping Report: Fethard Burial Ground Extension, Fethard, Co. Tipperary		

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This report was produced by INIS Environmental Consultants Ltd. (INIS) on behalf of Tipperary County Council, the client, for the specific purpose of the scoping any ecology constraints at Fethard Burial Ground, Co. Tipperary with all reasonable skill, care and due diligence within the terms of the contract with the client, incorporating our terms and conditions and taking account of the resources devoted to it by agreement with the client.

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1. INTRODUCTION

This report details findings of an ecology scoping visit to determine if there are any potential ecology constraints that require consideration in relation to the extension of an existing burial ground at Fethard, Co. Tipperary.

2. DESCRIPTION OF THE PROPOSED DEVELOPMENT

2.1. Location of the Proposed Development

The proposed development is located on the R689 road, approximately 1km north of Fethard town center, Co. Tipperary. The site is not located within a Natura 2000 site, however the Lower River Suir SAC lies *ca* 1.5km to the south. The surrounding landscape is primarily agricultural land with residential developments and industrial units to the south, west and north west.

The Killenaule Stream flows 350m to the east of the development, this then flows downstream into the Clashawley River and into the Lower River Suir SAC. The site itself is an agricultural field surrounded by hedgerows dominated with of elder, bramble and hawthorn. The site overview is presented in .

2.2. Description of the Proposed Works

Tipperary County Council proposes to extend the existing burial ground in Fethard to include 1055 Gravespaces, 320m of 215 Hollow block walls 1.7m high with in situ capping. 32 Car parking spaces to the front, including 3 special needs spaces. A service area at the front of site with an area for soil and an area for grass with easy access for removal by Municipal District Services. A Steeltech shed with rainwater harvesting system for caretaker. 2 seating areas each side of car park ends, separated by a concrete panel fence and row of conical shrubs (slow grow). One circular seating area at the middle of the site. The site will be autotracked for a Daimler hearse and large pick up. The proposed works will connect with the existing burial ground for vehicle access at 1 point and 2 pedestrian access points roughly midway and end. A 3m wide road with an 8m bend radius, for maintenance, caretaker and hearse. Removable bollards at the front to prevent public from entering in vehicles from car park. 1153m² of suitable footpaths adjacent to headstone plinths to IWS specification. The total area of the proposed works is 0.982 Hectares or 2.428 Acres.



Figure 2.2: Site overview map of Fethard Burial Ground Extension, Fethard, Co. Tipperary

3. METHODOLOGY

3.1. Ecological Data

3.1.1. Field study

A visit was conducted by a qualified ecologist from Inis Environmental Consultants on 4th August 2021. The area surrounding the property was also inspected and habitats recorded, as per Fossitt (2000), to determine if any semi natural habitats possibly sensitive to the proposed works occur. The site was also inspected for any signs of mammal activity. There were no limitations or constraints to the survey.

4. RECEIVING ENVIRONMENT

4.1. Habitats

The habitats on-site and in the surrounding landscape, based on Fossitt (2000), are outlined in **Figure 4.1** below:



Figure 4.1: Fethard Burial Ground Extension, outlined in red, and the surrounding habitats; Habitat Codes as per Fossitt (2000).

The following habitats were recorded at the proposed development area and surroundings:

1. BL3 – Buildings and artificial Surfaces
2. BL1 – Stone walls and other
3. GA1 – Improved Grassland (Agricultural)
4. WL1 – Hedgerows

The habitats within the site are evaluated as of Local Importance (lower value) (NRA, 2009). They are abundant in the surrounding landscape and have some local value for a range of common species.

No other ecological constraints, such as mammal signs (e.g. badger setts or faunal breeding locations) or high-impact invasive species were recorded. The impact on bats was considered negligible. As the site is in a primarily intensive agricultural setting, there will be no significant disruption over the baseline environment.

5. CONCLUSION

No habitats of ecological significance occur adjacent to or within the burial ground extension site. No other ecological constraints, such as the presence of mammals or evidence of their usage of the property and surrounding area were recorded, nor were any high-impact invasive species. Therefore, it can be concluded that there are no ecological constraints to conducting the proposed burial ground extension.

6. REFERENCES

- CIEEM. (2017a). *Guidelines For Ecological Report Writing*. Chartered Institute of Ecology and Environmental Management.
- CIEEM. (2017b). *Guidelines for Preliminary Ecological Appraisal* (2nd Ed). Chartered Institute of Ecology and Environmental Management.
- CIEEM. (2019). *Guidelines for Ecological Impact Assessment in the UK and Ireland - Terrestrial, Freshwater, Coastal and Marine*. version 1.1. Chartered Institute of Ecology and Environmental Management, Winchester.
- EPA. (2017). *Guidelines on the information to be Contained in Environmental Impact Assessment Reports August 2017 - Draft*. Environmental Protection Agency.
- European Commission. (2018). *Managing Natura 2000 Sites - The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC*. Office for Official Publications of the European Communities. <https://doi.org/10.2779/02245>
- Fossitt, J. A. (2000). *A guide to habitats in Ireland*. Heritage Council.

Appendix A SITE PHOTOGRAPHS



Plate 1: The eastern border of the site showing agricultural grassland and hedgerow habitat



Plate 2: The southern border of the site showing agricultural land and hedgerow habitat



Plate 3: Western border of site and agricultural grassland

Tipperary County Council

**Proposed Burial Ground Extension,
Fethard, Co. Tipperary**

Screening for Appropriate Assessment Report

August 2021

This report considers the particular instructions and requirements of our client.

It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

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The logo for Inis Environmental Consultants Ltd. features the word "Inis" in a dark blue, serif font. A small, stylized leaf icon is positioned above the letter 'i'.




Quality Assurance

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Due cognisance has been given at all times to the provisions of the *Wildlife Act, 1976*, the *Wildlife (Amendment) Act, 2000*, the *European Union (Natural Habitats) Regulations. SI 378/2005*, the *European Communities (Birds and Natural Habitats) Regulations 2011*, EU Regulation on Invasive Alien Species under *EU Regulation 1143/2014*, the *EU Birds Directive 2009/147/EC* and *Habitats Directive 92/43/EEC*.

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Title:		Proposed Burial Ground Extension, Fethard – Stage 1: Screening for Appropriate Assessment.		

Notice

This report was produced by INIS Environmental Consultants Ltd. (INIS) on behalf of Tipperary County Council, the client, for the specific purpose of a proposed burial ground extension at Fethard, with all reasonable skill, care and due diligence within the terms of the contract with the client, incorporating our terms and conditions and taking account of the resources devoted to it by agreement with the client.

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1. INTRODUCTION

This Screening for Appropriate Assessment Report has been prepared by Inis Environmental Consultants Ltd. (INIS) and contains information which will facilitate the Competent Authority in establishing whether the proposed extension of Fethard Burial Ground, Fethard, Co. Tipperary, will require Appropriate Assessment. This Screening for Appropriate Assessment Report has been prepared with regard to:

- EU Habitats Directive (92/43/EEC);
- EU Birds Directive (Council Directive (2009/147/EC);
- the Part XAB of the Planning and Development Act 2000;
- European Communities (Birds and Natural Habitats) Regulations 2011;
- 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 (European Commission, 2001);
- Appropriate Assessment of Plans and Projects in Ireland: Guidance for Planning Authorities. Department of the Environment, Heritage and Local Government (DoEHLG, 2010); and
- Managing Natura 2000 sites: The Provisions of Article 6 of the 'Habitats Directive' 92/43/EEC (European Commission, 2018).

1.1. Appropriate Assessment Process

Appropriate Assessment is the process through which the possible nature conservation implications of any plan or project on the Natura 2000 site network is considered by a Competent Authority, before a decision is made to allow that plan or project to proceed.

1.1.1. Stages of the Appropriate Assessment Process

Appropriate Assessment involves a number of steps and tests that are applied using a stage-by-stage approach. Each step or stage in the assessment process precedes and provides a basis for other steps. The four stages in an Appropriate Assessment (AA), are further described below.

Guidance on the Appropriate Assessment (AA) process was produced by the European Commission in 2002, which was subsequently developed into guidance specifically for Ireland by the Department of Environment, Heritage and Local Government (DoEHLG) (2010). These guidance documents identify a staged approach to conducting an AA, as shown in **Figure 1.1**.

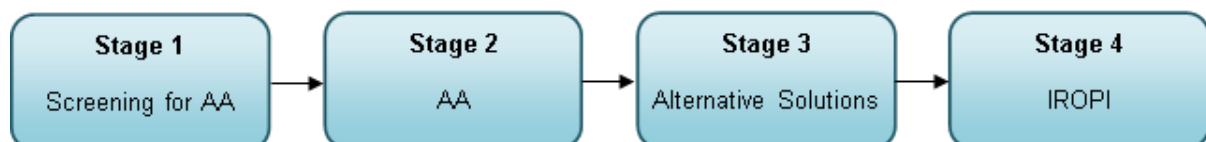


Figure 1.1: The Appropriate Assessment Process (DoEHLG, 2010).

1.1.1.1. Stage 1 – Screening for AA

This stage examines the likely effects of a project either alone or in combination with other projects upon a Natura 2000 site and considers whether it can be objectively concluded that these effects will not be significant.

1.1.1.2. Stage 2- Appropriate Assessment

In this stage, the impact of the project on the integrity of the Natura 2000 site is considered with respect to the conservation objectives of the site and to its structure and function. Mitigation measures should be applied to the point where no adverse impacts on the site(s) remain.

1.1.1.3. Stage 3 - Alternative Solutions

Should the Appropriate Assessment determine that adverse impacts are likely upon a Natura 2000 site, this stage examines alternative ways of implementing the project that, where possible, avoid these adverse impacts. For the avoidance of doubt, no reliance is placed on Stage 3.

1.1.1.4. Stage 4 - IROPI

Assessment where no alternative solutions exist and where adverse impacts remain: Where imperative reasons of overriding public interest (IROPI) exist, an assessment to consider whether compensatory measures will or will not effectively offset the damage to the Natura site will be necessary. European case law highlights that consideration must be given to alternatives outside the project area in carrying out the IROPI test. It is a rigorous test which projects are generally considered unlikely to pass. In any event, the developer does not purport to place any reliance on Stage 4.

2. DESCRIPTION OF THE PROPOSED WORKS

Tipperary County Council proposes to extend the existing burial ground in Fethard to include 1055 Gravespaces, 320m of 215 Hollow block walls 1.7m high with in situ capping. 32 Car parking spaces to the front, including 3 special needs spaces. A service area at the front of site with an area for soil and an area for grass with easy access for removal by Municipal District Services. A Steeltech shed with rainwater harvesting system for caretaker. 2 seating areas each side of car park ends, separated by a concrete panel fence and row of conical shrubs (slow grow). One circular seating area at the middle of the site. The site will be autotracked for a Daimler hearse and large pick up. The proposed works will connect with the existing burial ground for vehicle access at 1 point and 2 pedestrian access points roughly midway and end. A 3m wide road with an 8m bend radius, for maintenance, caretaker and hearse. Removable bollards at the front to prevent public from entering in vehicles from car park. 1153m² of suitable footpaths adjacent to headstone plinths to IWS specification. The total area of the proposed works is 0.982 Hectares or 2.428 Acres (**Figure 2.1**).



Figure 2.1: Location of Proposed Burial Ground Extension, Fethard.

3. METHODOLOGY

3.1. Appropriate Assessment Guidance

EU and national guidance exist in relation to Member States' fulfilling their requirements under the EU Habitats Directive, with particular reference to Article 6(3) and 6(4) of that Directive. The methodology followed in relation to this AA has had regard to the following guidance:

- Appropriate Assessment of Plans and Projects in Ireland: Guidance for Planning Authorities. Department of Environment, Heritage and Local Government (DoEHLG, 2010);
- Communication from the Commission on the Precautionary Principle (European Commission, 2000);
- Managing Natura 2000 Sites: the provisions of Article 6 of the 'Habitats' Directive 92/43/EEC (known as MN2000), Office for Official Publications of the European Communities, Luxembourg (European Commission, 2018);
- Assessment of plans and projects significantly affecting Natura 2000 sites: Methodological guidance on the provisions of Articles 6(3) and (4) of the Habitats Directive 92/43/EEC. Office for Official Publications of the European Communities, Brussels (European Commission, 2001);
- Guidance document on Article 6(4) of the 'Habitats Directive' 92/43/EEC – Clarification of the concepts of: alternative solutions, imperative reasons of overriding public interest, compensatory measures, overall coherence, opinion of the Commission (European Commission, 2007);
- Nature and biodiversity cases: Ruling of the European Court of Justice (European Commission, 2006);
- Interpretation Manual of European Union Habitats. Version EUR 28. European Commission (European Commission, 2013); and
- Article 6 of the Habitats Directive: Rulings of the European Court of Justice (Sundseth and Roth, 2014).

3.2. Ecological Data

3.2.1. Desk Study

A desk study was completed to assess the potential for all Qualifying Interests (QI) and Special Conservation Interests (SCI) of European sites to occur, given their ecological requirements identified by Balmer *et al.* (2013) for SCIs, and the National Parks and Wildlife Service (NPWS) for QIs (NPWS, 2019a, 2019b, 2019c). SCI Birds and mobile QI species can travel many kilometers from their core areas, and desktop surveys assessed the potential presence of such species beyond the European sites for which they are QIs/SCIs. Desktop studies had particular regard to the following information sources:

- Information on ranges of mobile QI populations in Volume 1 of NPWS' Status of EU Protected Habitats and Species in Ireland (NPWS, 2019a);

- Information on ranges of mobile SCIs bird populations from Bird Atlas 2007–11 (Balmer *et al.*, 2013); excluding birds of prey whose ranges were determined with reference to Hardey *et al.* (Hardey *et al.*, 2013);
- Mapping of European site boundaries and Conservation Objectives for relevant sites and beyond, as relevant, available online from the NPWS;
- Distribution records for QI and SCI species of European sites held online by the National Biodiversity Data Centre (NBDC)¹;
- Details of QIs/SCIs of European sites within the National Biodiversity Action Plan 2017-2021 (DoCHG, 2017);
- Data including surface and ground water quality status, and river catchment boundaries available from the online database of the Environmental Protection Agency (EPA)²;
- Information on groundwater aquifers, recharge, and vulnerability available from the online database of Geological Survey Ireland (GSI)³;
- National and regional surveys of semi-natural habitats, including grasslands (O'Neill *et al.*, 2013), saltmarsh (McCorry and Ryle, 2009; Devaney and Perrin, 2015), and woodland (Perrin *et al.*, 2008); and
- Boundaries for catchments with confirmed or potential freshwater pearl mussel (FWPM) *Margaritifera margaritifera* populations in GIS format available online from the NPWS⁴.

3.2.2. Field study

An ecological walkover survey was conducted by a qualified ecologist from Inis Environmental Consultants on 4th August 2021. The proposed development area and its vicinity (study area) were inspected and habitats recorded, as per Fossitt (2000), to determine if any habitats potentially sensitive to the proposed works occur. The study area was also inspected for any signs of mammal activity. There were no limitations or constraints to the survey.

3.3. Relevant European Sites

The identification of relevant European sites to be included in this report was based on the identification of the Zone of Influence (Zoi) of the proposed works, a source-pathway-receptor model of effects, and the likely significance of any identified effects.

3.3.1. Zone of Influence

The proximity of the proposed area of works to European sites, and more importantly QIs/SCIs of European sites, is of importance when identifying potentially likely significant effects. During the initial scoping of this report, a 15 km Zoi was applied for impact assessment. A conservative approach has been used, which minimises the risk of overlooking distant or obscure effect pathways, while also

¹Available at <https://maps.biodiversityireland.ie/Map>. Accessed in July 2021.

²Available at <https://gis.epa.ie/EPAMaps/>. Accessed in July 2021.

³Available at <https://www.gsi.ie/en-ie/programmes-and-projects/groundwater/activities/understanding-ireland-groundwater/Pages/Groundwater-bodies.aspx>. Accessed in July 2021.

⁴Available at <https://www.npws.ie/maps-and-data/habitat-and-species-data>. Accessed in July 2021.

avoiding reliance on buffer zones within which all European sites should be considered. This approach assesses the complete list of all QIs/SCIs of European sites in Ireland (i.e. potential receptors), instead of listing European sites within buffer zones. This follows Irish departmental guidance on AA:

“For projects, the distance could be much less than 15 km, and in some cases less than 100m, but this must be evaluated on a case-by-case basis with reference to the nature, size and location of the project, and the sensitivities of the ecological receptors, and the potential for in combination effects” (DoEHLG, 2010, p. 32).

Following the guidance set out by the NRA (2009), the proposed project has been evaluated based on an identified Zol with regard to the potential impact pathways to ecological features (e.g. mobile and static). The Zol of the proposed development on mobile species (e.g. birds, mammals and fish) and static species and habitats (e.g. saltmarshes, woodlands, and flora) is considered differently. Mobile species have ‘range’ outside of the European site in which they are QI/SCI. The range of mobile QI/SCI species varies considerably, from several meters (e.g. in the case of whorl snails *Vertigo* spp.), to hundreds of kilometers (in the case of migratory wetland birds). Whilst static species and habitats are generally considered to have Zols within close proximity of the proposed development, they can be significantly affected at considerable distances from an effect source; for example, where an aquatic QI habitat or plant is located many kilometers downstream from a pollution source.

Hydrological linkages between the proposed project areas and European site (and their QIs/SCIs) can occur over significant distances; however, any effect will be site specific depending on the receiving water environment and nature of the potential impact. A reasonable worst-case Zol for water pollution from the proposed site is considered to be the surface water WFD Catchment, wherein the proposed works are to be located.

3.3.2. Source-Pathway-Receptor Model

The likely effects of the proposed works on European sites has been appraised using a source-pathway-receptor model, where:

- A ‘source’ is defined as the individual element of the proposed works that has the potential to impact on an European site, its qualifying features and its conservation objectives;
- A ‘pathway’ is defined as the means or route by which a source can affect the ecological receptor; and
- A ‘receptor’ is defined as the Special Conservation Interests of Special Protection Areas (SPA) or Qualifying Interests (QI) of Special Areas of Conservation (SAC) for which Conservation Objectives have been set for the European sites being screened.

A source-pathway-receptor model is a standard tool used in environmental assessment. In order for an effect to be likely, all three elements of this mechanism must be in place. The absence or removal of one of the elements of the mechanism results in no likelihood for the effect to occur. The source-pathway-receptor model was used to identify a list of European sites, and their QIs/SCIs, with potentially links to European site. These are termed as ‘relevant’ European sites/QIs/SCIs throughout this report.

3.3.3. Likely Significant Effect

The threshold for a Likely Significant Effect (LSE) is treated in the screening exercise as being above a *de minimis* level⁵. The opinion of the Advocate General in CJEU case C-258/11 outlines:

“the requirement that the effect in question be ‘significant’ exists in order to lay down a de minimis threshold. Plans or projects that have no appreciable effect on a European site are thereby excluded. If all plans or projects capable of having any effect whatsoever on the site were to be caught by Article 6(3), activities on or near the site would risk being impossible by reason of legislative overkill.”

In this report, therefore, ‘relevant’ European sites are those within the potential Zol of activities associated with the proposed development, where LSE pathways to European sites were identified through the source-pathway-receptor model.

3.4. Screening Process

The Screening for Appropriate Assessment will incorporate the following steps:

- Determining whether a project or plan is directly connected with or necessary to the conservation management of any European sites;
- Describing the project or plan;
- Identifying the European sites potentially affected by the project or plan;
- Identifying and describing any potential effects of the project or plan on European sites, alone, in-combination and cumulatively with other plans/projects; and
- Assessing the likelihood of significant effects on European sites.

4. RECEIVING ENVIRONMENT

4.1. Overview

The proposed works will involve extending Fethard Burial Ground into the agricultural field adjacent, with the creation of 1,055 Gravespaces, along with 320m of block walls 1.7m high. There will be 32 car parking spaces to the front and a service area with an area for soil and an area for grass with easy access for removal by Municipal District Services. The proposed works will connect with the existing burial ground for vehicle access at 1 point and 2 pedestrian access points roughly midway and end. A 3m wide road with an 8m bend radius, for maintenance, caretaker and hearse. The total area of the proposed works is 0.982 Hectares or 2.428 Acres. The site is located on the northern side of Fethard village, Co. Tipperary.

⁵ *Sweetman v. An Bord Pleanála (Court of Justice of the EU, case C-285/11). A de minimis effect is a level of risk that is too small to be concerned with when considering ecological requirements of an Annex I habitat or a population of Annex II species present on a European site necessary to ensure their favourable conservation condition. If low level effects on habitats or individuals of species are judged to be in this order of magnitude and that judgment has been made in the absence of reasonable scientific doubt, then those effects are not considered to be likely significant effects.*

4.2. Desk study

4.2.1. Protected and Invasive Species

A search was undertaken on the National Biodiversity Data Centre for Protected and Invasive Species presence in the vicinity of the proposed burial ground. The area subject to the proposed works is located within the S2135, S2035, S2036 & S2136 1x1km Irish Grid Square and the protected and invasive species records available for this location are shown in **Table 4.1**.

Table 4.1: NBDC records of protected and invasive species in S2135, S2035, S2036 & S2136 grid square.

Grid Square	Common name	Scientific name	Date of record	Designation
Mammals				
S2135	Daubenton's Bat	<i>Myotis daubentonii</i>	30/05/2009	EU Habitats Directive – Annex IV
	Common Pipistrelle	<i>Pipistrellus pipistrellus sensu lato</i>	30/05/2009	EU Habitats Directive – Annex IV
	Soprano Pipistrelle	<i>Pipistrellus pygmaeus</i>	30/05/2009	EU Habitats Directive – Annex IV
	Lesser Noctule	<i>Nyctalus leisleri</i>	30/05/2009	EU Habitats Directive – Annex IV
S2135, S2136	Eurasian Badger	<i>Meles meles</i>	31/12/2005	Wildlife Acts
Birds				
S2035	Barn Swallow	<i>Hirundo rustica</i>	28/05/2016	Wildlife Acts
	Wood Pigeon	<i>Columba palumbus</i>	28/05/2016	Wildlife Acts
Invasive species				
S2035	Brown Rat	<i>Rattus norvegicus</i>	12/04/2011	Third Schedule IAPS - S.I. 477
S2135	Grey Squirrel	<i>Sciurus carolinensis</i>	19/11/2012	Third Schedule IAPS - S.I. 477

4.2.2. Aquatic Environment

A search of the EPA Unified GIS Application² and the EPA Catchments⁶ database was conducted for water bodies draining the proposed development area and their water quality for 2013-2018. The proposed development is located within the located within the Suir WFD catchment (16).

4.2.2.1. Surface water

The nearest WFD river water bodies to the proposed development run approximately 350m away – the Clashawley_030 WFD river water body (IE_SE_16C010500), which classified its water quality as *Good* for the period 2013-2018. However, the mentioned database also shows a *Moderate* status classification for its Nitrogen conditions within the same period, potentially indicating the effects of organic matter influxes into the river system.

4.2.2.2. Groundwater

The proposed development lies within the Clonmel WFD groundwater body (IE_SE_G_040). The Geological Survey Ireland (GSI) website^{Error! Bookmark not defined.} was consulted to conclude about the characteristics and sensitivities of this groundwater body. The Clonmel WFD groundwater body is mostly dominated by a karstified aquifer within dinantian pure bedded limestone geology, which

⁶ Available at <https://www.catchments.ie/>. Accessed in June 2021.

relates to a groundwater vulnerability classification at the proposed development location as High. The groundwater flow in the limestone bedrock occurs in faults and fissures in the rock, predominantly of diffuse nature, moving rapidly along short flow paths, discharging into streams that cross the groundwater body.

In terms of WFD groundwater quality status, the Clonmel WFD groundwater body is classified as *Good* water quality status for the period 2013-2018.

A hydrogeological assessment of the proposed development location was carried out between March 2017 and June 2018. The report found dissolved contaminants in the groundwater migrate laterally in the direction of groundwater flow, i.e. south, towards the Clashawley_030 WFD river water body (IE_SE_16C010500).

4.3. Field study

The habitats within the proposed development vicinity are mostly artificial or managed habitats. They have been, following Fossitt (2000), as (**Figure 4.1**):

- BL3 – Buildings and artificial Surfaces;
- BL1 – Stone walls and other;
- GA1 – Improved Grassland (Agricultural); and
- WL1 – Hedgerows.

The habitats within the study area are evaluated as of Local Importance (lower value) (NRA, 2009). They are abundant in the surrounding landscape and have some local value for a range of common species.

No other ecological constraints were noted within the study area (e.g. badger setts or faunal breeding locations or Third Schedule IAPS under the S.I. 477/11).



Figure 4.1: Habitat map of the study area for the proposed development.

4.3.1. European sites

A precautionary distance of 15 km was chosen for the Zol of the proposed works to evaluate the potential for significant effects on European sites, alone and/or in-combination with other plans or projects. There are two Special Area of Conservation (SAC) within 15 km of the proposed works. The distances from these European sites to the proposed works is shown in **Table 4.2** , with the locations of these European sites projected in **Figure 4.2**.

Table 4.2: Distance from the proposed development and European sites within Zol.

European site	Distance (km) from the proposed developmen
River Barrow and River Nore SAC (002162)	13.1km
Lower River Suir SAC (002137)	1.5km

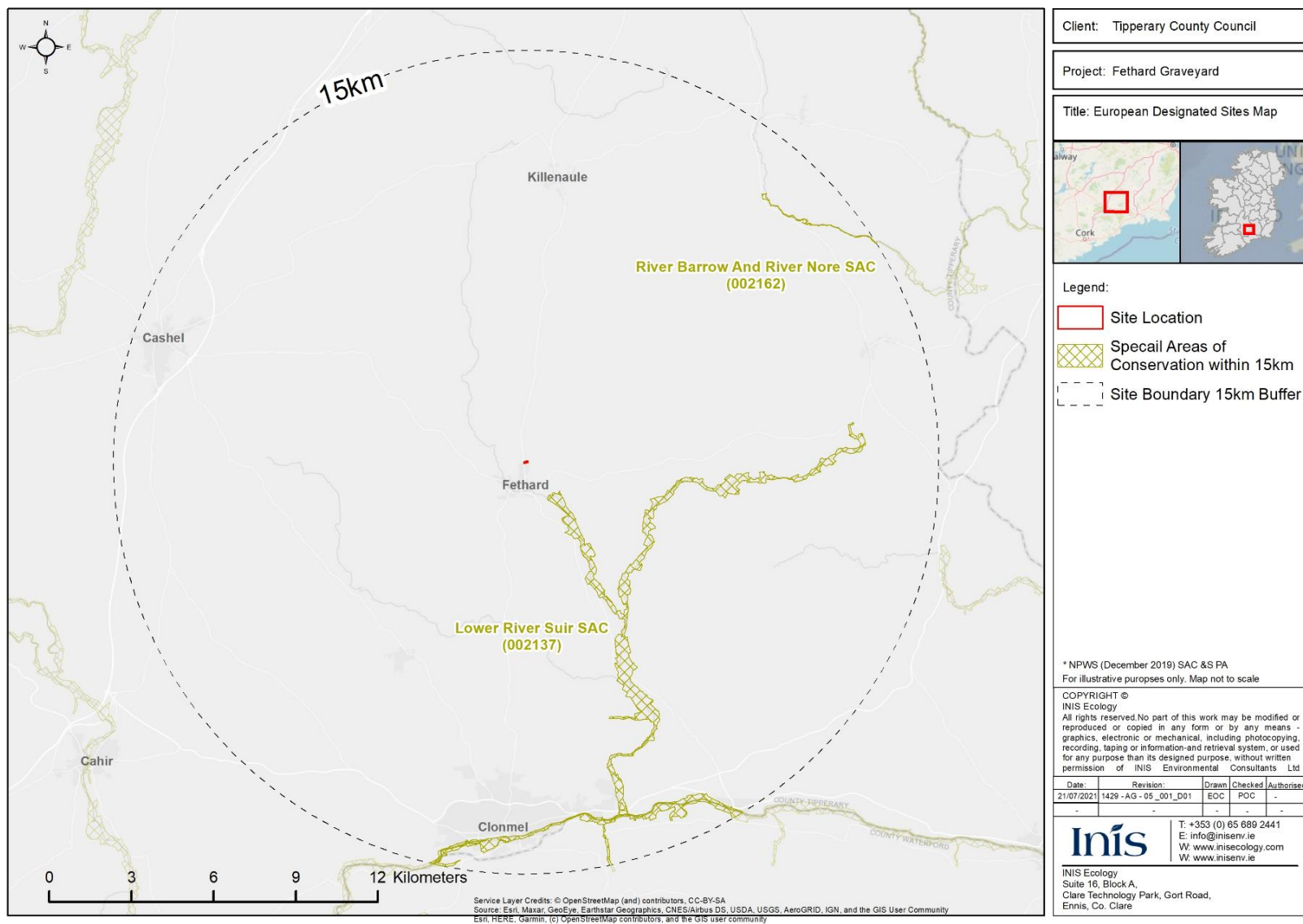


Figure 4.2: Designated sites within 15 km of the proposed development.

Potential pathways for impacts between the proposed works area and the relevant European sites are appraised in **Table 4.3**. The Conservation objectives of the relevant European sites are also presented.

Table 4.3: Relevant European sites, Conservation Objectives and connectivity to the proposed development.

Designated site [code]	Conservation Objectives version	Qualifying Interests [code]/Special Conservation Interests [code]	Connectivity with the development
River Barrow and River Nore SAC [002162]	Version 1.0, 19th July 2011 (NPWS 2011)	<p>Estuaries [1130]</p> <p>Mudflats and sandflats not covered by seawater at low tide [1140]</p> <p><i>Salicornia</i> and other annuals colonising mud and sand [1310]</p> <p>Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>) [1330]</p> <p>Mediterranean salt meadows (<i>Juncetalia maritimi</i>) [1410]</p> <p>Water courses of plain to montane levels with the <i>Ranunculus fluitantis</i> and <i>Callitriche-Batrachion</i> vegetation [3260]</p> <p>European dry heaths [4030]</p> <p>Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels [6430]</p> <p>Petrifying springs with tufa formation (<i>Cratoneurion</i>)* [7220]</p> <p>Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles [91A0]</p> <p>Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (Alno-Padion, Alnion incanae, Salicion albae)* [91E0]</p> <p>Desmoulin's Whorl Snail (<i>Vertigo moulinsiana</i>) [1016]</p> <p>Freshwater Pearl Mussel (<i>Margaritifera margaritifera</i>) [1029]</p> <p>White-clawed Crayfish (<i>Austropotamobius pallipes</i>) [1092]</p> <p>Sea Lamprey (<i>Petromyzon marinus</i>) [1095]</p> <p>Brook Lamprey (<i>Lampetra planeri</i>) [1096]</p>	<p>No.</p> <p>The River Barrow and River Nore SAC is located within the Nore WFD Catchment (15), thus not hydrologically connected with the proposed development.</p> <p>With regards to the only mobile terrestrial QI species (i.e. Desmoulin's Whorl Snail), beyond the separation distance between the European site and the proposed development (13.1 Km), Desmoulin's Whorl Snail are reported to live within wetland areas (Moorkens and Killeen, 2011), which is not the case within the proposed development location.</p>

Designated site [code]	Conservation Objectives version	Qualifying Interests [code]/Special Conservation Interests [code]	Connectivity with the development
		<p>River Lamprey (<i>Lampetra fluviatilis</i>) [1099]</p> <p>Twaite Shad (<i>Alosa fallax fallax</i>) [1103]</p> <p>Atlantic Salmon (<i>Salmo salar</i>) [1106]</p> <p>Otter (<i>Lutra lutra</i>) [1355]</p> <p>Killarney Fern (<i>Trichomanes speciosum</i>) [1421]</p> <p>Nore Freshwater Pearl Mussel (<i>Margaritifera durrovensis</i>) [1990]</p>	
Lower River Suir SAC [002137]	Version 1, 28 th March 2017 (NPWS 2017)	<p>Atlantic salt meadows (<i>Glaucopuccinellietalia maritimae</i>) [1330]</p> <p>Mediterranean salt meadows (<i>Juncetalia maritimi</i>) [1410]</p> <p>Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitricho-Batrachion</i> vegetation [3260]</p> <p>Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels [6430]</p> <p>Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles [91A0]</p> <p>Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i>, <i>Alnion incanae</i>, <i>Salicion albae</i>)* [91E0]</p> <p><i>Taxus baccata</i> woods of the British Isles* [91J0]</p> <p>Freshwater Pearl Mussel (<i>Margaritifera margaritifera</i>) [1029]</p> <p>White-clawed Crayfish (<i>Austropotamobius pallipes</i>) [1092]</p> <p>Sea Lamprey (<i>Petromyzon marinus</i>) [1095]</p> <p>Brook Lamprey (<i>Lampetra planeri</i>) [1096]</p> <p>River Lamprey (<i>Lampetra fluviatilis</i>) [1099]</p>	<p>Yes</p> <p>The proposed development is hydrologically connected with the Clashawley_030 WFD river water body (IE_SE_16C010500) (Section 4.2.2.1), which flows directly into the Lower River Suir SAC. Furthermore, the proposed development location is also hydrogeologically connected with this European site through the Clonmel WFD groundwater body (IE_SE_G_040).</p>

Designated site [code]	Conservation Objectives version	Qualifying Interests [code]/Special Conservation Interests [code]	Connectivity with the development
		Twaite Shad (<i>Alosa fallax fallax</i>) [1103] Salmon (<i>Salmo salar</i>) [1106] Otter (<i>Lutra lutra</i>) [1355]	

* indicates a priority habitat under the Habitats Directive

5. SCREENING FOR APPROPRIATE ASSESSMENT

5.1. Screening Evaluation Process

The Screening process examines the likely effects of the proposed works, as described, either alone or in combination, with other projects or plans, upon a Natura 2000 site and considers whether it can be objectively concluded that these effects will not be significant.

5.2. Screening: Is the Project Directly Connected to or Necessary for Management of a European site?

For a project or plan to be 'directly connected with or necessary to the management of the site', the 'management' component must refer to management measures that are for conservation purposes, and the 'directly' element refers to measures that are solely conceived for the conservation management of a site and not direct or indirect consequences of other activities.

Finding: **No**, the proposed development is not directly connected to, or necessary for the management of, a European site.

5.3. Assessment of Source-Pathway-Receptor Model

As described in the methodology (Section 3), the AA Screening Appraisal Report adopts a comprehensive and precautionary approach for which the starting point is a complete list of all QIs/SCIs of European sites in Ireland. In this context, **Table 5.1** assesses a specific source-pathway-receptor model for these proposed extension works at Fethard Burial Ground, Co. Tipperary.

Table 5.1: Source-Pathway-Receptor model for the Proposed Development.

Source of Potential Effect	Description of Pathway	Potential Zone of Influence of the Effect
<ul style="list-style-type: none"> Contaminants from decomposing bodies in burial ground (e.g. Phosphorus, Nitrate, Chloride, Ammonia, Formaldehyde) 	<ul style="list-style-type: none"> Hydrogeological/hydrological -contaminants may infiltrate the soil before diluting with the water table and entering groundwater flow, eventually discharging into the Clashawley_030 WFD river water body (IE_SE_16C010500) and the Lower River Suir SAC. 	The potential Zol for effects associated with the contamination of ground and surface water bodies from decomposing bodies is considered the local WFD Catchment (i.e. Suir WFD Catchment, 16).

5.4. Scoping of Effects

5.4.1. Surface and groundwater contamination

Burial sites and the consequences of decomposition processes on water quality have been the object of extensive research throughout the world. It has been estimated that the decomposition of a body generates approximately 30-40 litres of necroleachate, an aqueous solution of ammoniacal nitrogen, organic matter, formaldehyde and other elements (Neckel *et al.*, 2017), which have been shown to potentially contaminate groundwater with elevated concentrations of chloride, sulphate and pathogenic bacteria (Trick and Klinck, 2001) and heavy metals (Rodrigues and Pacheco, 2003). Nevertheless, it has been shown that the decompositional product which may be of greatest environmental concern is Nitrogen and, even considering the formaldehyde carcinogenic nature, it has also been shown that cemeteries are not a significant source of groundwater contamination from this compound (Chan; Scafe and Emami, 1992).

The proposed development would accommodate 1055 bodies (**Section 2**), which would generate, in the worst-case scenario, 40 litres of necroleachate per grave, or 42.2 m³ in total (**Table 5.2**).

Table 5.2: Volume of necroleachate produced by the proposed development (Neckel *et al.*, 2017).

Number of new graves	Average necroleachate per grave (L)	Total volume of necroleachate (m ³)
1,055	40.0	42.2

Currently, the proposed development area and the majority of its surrounding landscape is of agricultural nature, in particular, the intensive grassland management. Following Teagasc (Agriculture and Food Development Authority) recommendations⁷, farmers are advised to apply 33 m³/ha of cattle slurry as a source of Nitrogen, Phosphorous and Potassium to be applied to silage fields. It is then reasonable to consider that, currently, a total of 57.8 m³ in total (**Table 5.3**).

Table 5.3: Estimate of the volume of slurry currently applied at the proposed development site.

Proposed development area (ha)	Teagasc recommendation (m ³ /ha)	Volume of slurry applied (m ³)
1.75	33.00	57.8

It is relevant to note that, beyond the fact that the volume of slurry currently applied at the proposed development site (57.8m³) is smaller than the volume of necroleachate produced by the proposed development (42.2 m³), the total number of graves is not likely to become occupied within the first year. Also, the application of slurry to fertilise grassland fields is usually undertaken once per year, sometimes twice, whereas the production of necroleachate occurs gradually, over a large period of time. **Note: avg 16 burials/an = 16x40=640L/an= 0.64m³/an which <<< 33m³/an!**

Despite Zychowski and Bryndal (2015) recommendation that cemeteries should not be located on karst substrates, it is reasonable to conclude that the proposed Fethard Graveyard extension would contribute with a significantly lower volume of nutrients to receiving waters (surface and groundwater), in comparison with the current scenario, and that no likely significant effects to European sites can be anticipated.

⁷ Available at <https://www.teagasc.ie/crops/soil--soil-fertility/grassland/>. Accessed in August 2021.

5.4.2. In-Combination Effects

Legislation, guidance and case law (see **Section 1.1** and **Section 3.1**) requires that in-combination effects with other plans or projects are considered.

On this basis, a range of other plans and projects are considered in terms of their potential to have in-combination effects with the proposed development.

5.4.2.1. Plans

5.4.2.1.1. South Tipperary County Development Plan

The South Tipperary Development Plan 2009 (as varied) (Tipperary County Council, 2017) sets out several relevant biodiversity objectives, including:

Policy LH6

It is the policy of the Council to ensure the protection, integrity and conservation of existing and candidate Natura 2000 sites and Annex I and II species listed in EU Directives. Where it is determined that a development may independently, or cumulatively, impact on the conservation values of existing or proposed Natura 2000 sites, the Council will require planning applications to be accompanied by a Natura Impact Statement in accordance with 'Appropriate Assessment of Plans and Projects, Guidelines for Planning Authorities', (DEHLG 2009) or any amendment thereof.

It is, therefore, expected that every plan or project developed within the Tipperary County Council authority will take in consideration potential likely significant effects on European sites and will not give rise to such effects either alone or in-combination with other plans or projects.

5.4.2.2. Projects

A search was conducted of planning applications (projects) within the vicinity of the proposed works, using the Tipperary County Council planning portal map viewer and the National Planning Application Database. The search was limited to the five-year period preceding the date of issue of this report and excluded retention applications (i.e. typically local-scale residential or commercial developments where an impact has already occurred), incomplete, withdrawn, and refused applications.

The approved developments in the proximity and with potential for in-combination effects with the proposed development (**Table 5.4**) are not supported by environmental reports (e.g. AA screening, NIS, or EIAR). However, even without details environmental constraints associated with these consented developments or mitigation measures incorporated into the projects, considering the nature of the projects (i.e. do not relate with a potential release of nutrients to surface water bodies), the potential for in-combination effects with the proposed development is considered insignificant.

Therefore, it can reasonably be considered that no likely in-combination effects can be anticipated from the proposed works with other plans or projects.

Table 5.4: Relevant projects with potential for in-combination adverse effects to European sites.

Planning Application Reference Number	Project/Applicant Name and Proposed Location	Brief Development Description	Approximate Distance from Proposed Works	Date Planning Application Granted
19600500	Fethard Regional Community Sports & Recreation Campus Co Ltd	Community Sport and Recreational Campus with two-storey Pavillion, tracks and walkways, public lighting, playing pitches, satellite changing rooms, tiered seating/viewing areas, car park, bus parking bays, site drainage works, etc.	0.38Km	21/06/2019
19600260	Coolmore Stud, Clems Hill, Kilknockan, Fethard, Co. Tipperary	Construction of new single-storey dwelling, alterations to existing farm entrance to form shared entrance, septic tank and filter system constructed on-site and soil polishing filter and associated site boundary and site development works	0.6Km	27/11/2019

6. SCREENING CONCLUSIONS

Inis Environmental Consultants Ltd. has prepared this report to inform an Appropriate Assessment screening to assess whether the proposed works at Fethard Burial Ground, individually or in combination with other plans or projects, and in view of best scientific knowledge, are likely to have a significant effects on any European site(s).

The screening exercise was completed in compliance with the relevant European Commission guidance, national guidance, and case law. The potential impacts of the proposed works have been considered in the context of the European sites potentially affected, their Qualifying Interests or Special Conservation Interests, and their Conservation Objectives.

Through an assessment of the source-pathway-receptor model, which considered the ZoI of effects from the proposed renovation works and the potential in-combination effects with other plans or projects, the following findings were reported:

- The proposed development is not directly connected with, or necessary to, the management of any European site;
- The proposed development will not give rise to likely significant effects on the Qualifying Interests of any SAC, in view of best scientific knowledge and in view of the conservation objectives of the European sites concerned; and
- The proposed development will not give rise to likely significant effects on the Special Conservation Interests of any SPA, in view of best scientific knowledge and in view of the conservation objectives of the European sites concerned.

On the basis of objective scientific information, it is the considered opinion of Inis Environmental Consultants Ltd. that, in completing its report to inform the Screening for Appropriate Assessment in respect of the proposed works at Fethard, either individually or in combination with other projects and plans, is not likely to have a significant effect on any European site. Therefore, a Stage 2 Appropriate Assessment under Article 6(3) of the Habitats Directive is not required for this development.

7. REFERENCES

Balmer, Dawn, Gillings, Simon, Caffrey, Brian, Swann, Bob, Downie, Iain and Fuller, Rob (2013) *Bird Atlas 2007-11: the breeding and wintering birds of Britain and Ireland*. Thetford: BTO Books.

Chan, G. S., Scafe, M. and Emami, S. (1992) *Cemeteries and groundwater: An examination of the potential contamination of groundwater by preservatives containing formaldehyde*. Queen's Printer for Ontario.

CIEEM (2017a) *Guidelines For Ecological Report Writing*. Chartered Institute of Ecology and Environmental Management.

CIEEM (2017b) *Guidelines for Preliminary Ecological Appraisal*. Chartered Institute of Ecology and Environmental Management.

CIEEM (2019) *Guidelines for Ecological Impact Assessment in the UK and Ireland - Terrestrial, Freshwater, Coastal and Marine*. version 1.1. Chartered Institute of Ecology and Environmental Management, Winchester.

Devaney, Fiona M. and Perrin, Philip M. (2015) *Saltmarsh angiosperm assessment tool for Ireland (SMAATIE)*. Environmental Protection Agency, Ireland.

DoCHG (2017) *National Biodiversity Action Plan 2017-2021*. Department of Culture, Heritage and the Gaeltacht.

DoEHLG (2010) *Appropriate Assessment of Plans and Projects in Ireland - Guidance for Planning Authorities*. Department of the Environment, Heritage and Local Government.

EPA (2017) *Guidelines on the information to be Contained in Environmental Impact Assessment Reports August 2017 - Draft*. Environmental Protection Agency.

European Commission (2007) *Guidance document on Article 6(4) of the 'Habitats Directive' 92/43/EEC - Clarification of the Concepts of: Alternative Solutions, Imperative Reasons of Overriding Public Interest, Compensatory Measures, Overall Coherence, Opinion of the Commission*. European Commission.

European Commission (2000) *Communication from the Commission on the Precautionary Principle, Commission of the European Communities*.

European Commission (2001) *Assessment of Plans and Projects significantly affecting Natura 2000 sites: Methodological guidance on the provisions of Article 6(3) and 6(4) of the Habitats Directive 92/43/EEC*. Office for Official Publications of the European Communities.

European Commission (2006) *Nature and biodiversity cases - Ruling of the European Court of Justice*. Luxembourg: Office for Official Publications of the European Communities.

European Commission (2013) *Interpretation Manual of European Union Habitats - EUR 28*. European Commission DG Environment.

European Commission (2018) *Managing Natura 2000 Sites - The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC*. Luxembourg: Office for Official Publications of the European Communities. doi: 10.2779/02245.

Fossitt, Julie A. (2000) *A guide to habitats in Ireland*. Heritage Council.

Hardey, Jon, Crick, Humphrey, Wernham, Chris, Riley, Helen, Etheridge, Brian and Thompson, Des (2013) *Raptors: A Field Guide for Surveys and Monitoring*. 3rd edn. Edinburgh: Scottish Natural Heritage.

McCorry, Mark and Ryle, Tim (2009) *Saltmarsh Monitoring Project 2007-2008 - Final Report*. Research Branch, National Parks and Wildlife Service.

Moorkens, E. .. and Killeen, I. .. (2011) *Monitoring and Condition Assessment of Populations of Vertigo geyeri, Vertigo angustior and Vertigo moulinsiana in Ireland.*, *Irish Wildlife Manuals*. National Parks and Wildlife Service, Department of Arts, Heritage and Gaeltacht, Dublin, Ireland.

Neckel, Alcindo, Costa, Carlos, Mario, Débora Nunes, Sabadin, Clarice Elvira Saggin and Bodah, Eliane Thaines (2017) *Environmental damage and public health threat caused by cemeteries: A proposal of ideal cemeteries for the growing urban sprawl, Urbe*, 9(2), pp. 216–230. doi: 10.1590/2175-3369.009.002.AO05.

NPWS (2019a) *The Status of EU Protected Habitats and Species in Ireland. Volume 1: Summary*. Unpublished NPWS Report.

NPWS (2019b) *The Status of EU Protected Habitats and Species in Ireland. Volume 2: Habitat Assessments*. Unpublished NPWS Report.

NPWS (2019c) *The Status of EU Protected Habitats and Species in Ireland. Volume 3: Species Assessments*. Unpublished NPWS Report.

NRA (2009) *Guidelines for Assessment of Ecological Impacts of National Road Schemes*. National Roads Authority.

O'Neill, F. H., Martin, J. R., Devaney, F. M. and Perrin, P. M. (2013) *The Irish semi-natural grasslands survey 2007-2012, Irish Wildlife Manuals*, (78).

Perrin, P., Martin, J., Barron, S., O'Neil, F., McNutt, K. and Delaney, A. (2008) *National survey of native woodland in Ireland*. National Parks & Wildlife Service.

Rodrigues, L. and Pacheco, A. (2003) *Groundwater contamination from cemeteries cases of study*.

Sundseth, Kerstion and Roth, Petr (2014) *Article 6 of the Habitats Directive - Rulings of the European Court of Justice*. European Commission.

Tipperary County Council (2017) *South Tipperary County Development Plan 2009 - 2015 (as varied)*. Tipperary County Council.

Trick, J. and Klinck, B. (2001) *Grave concerns—Health risks from human burials, Earthwise, Geology & Health*, 17, British Geological Survey, *Earthwise, Geology & Health*. British Geological Survey.

Zychowski, Józef and Bryndal, Tomasz (2015) *Impact of cemeteries on groundwater contamination by bacteria and viruses - A review, Journal of Water and Health*, 13(2), pp. 285–301. doi: 10.2166/wh.2014.119.

APPENDIX A: FINDING OF NO SIGNIFICANT EFFECTS REPORT

In accordance with the European Commission (2001) guidance document, 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*, a Finding of No Significant Effects Report has been completed for the proposed development. The standard matrix for this report provided in Annex 2 of the guidance document was followed. Line items in italics are taken directly from the guidance document.

Finding of No Significance Effects Report	
<i>Name and location of the Natura 2000 sites</i>	<p>The Stage 1 Screening Evaluation provided herein has examined potential effects via source pathway linkages on the designated SACs and SPAs within 15 km of the proposed development. There is a total of 2 European or Natura 2000 sites located within the 15km zone of consideration:</p> <ul style="list-style-type: none"> • River Barrow & River Nore SAC (002162); and • Lower River Suir SAC (002137).
<i>Description of the project or plan</i>	<p>The proposed works will involve extending Fethard Burial Ground into the agricultural field adjacent, with the creation of 1055 Gravespaces, along with 320m of block walls 1.7m high. There will be 32 car parking spaces to the front and a service area with an area for soil and an area for grass with easy access for removal by Municipal District Services. The proposed works will connect with the existing burial ground for vehicle access at 1 point and 2 pedestrian access points roughly midway and end. A 3m wide road with an 8m bend radius, for maintenance, caretaker and hearse. The total area of the proposed works is 0.982 Hectares or 2.428 Acres. The site is located on the northern side of Fethard village, Co. Tipperary.</p>
<i>Is the Project directly connected with or necessary to the management of the site (provide details)?</i>	No
<i>Are there other projects or plans that together with the project of plan being assessed could affect the site (provide details)?</i>	No. There are no approved developments with potential to act in-combination with the proposed development and give rise to likely significant effects on European sites.
The Assessment of Significant Effects	
<i>Describe how the project or plan (alone or in combination) is likely to affect the Natura 2000 site</i>	<p>The assessment identified the following potential effects:</p> <ul style="list-style-type: none"> • Surface and groundwater contamination.

Finding of No Significance Effects Report			
Explain why these effects are not considered significant	The potential release of nutrients by the proposed development to groundwater and, subsequently, surface water bodies and European sites hydrologically connected was appraised as being significantly lower than the current application of slurry that is undertaken at the proposed development location.		
Data Collected to Carry out the Assessment			
Who carried out the assessment	Sources of Data	Level of assessment completed	Where can the full results of the assessment be accessed and viewed
Inis Environmental Consultants Ltd. Suite 16, Shannon Commercial Properties, Information Age Park, Gort Road, Ennis, Co. Clare	Desktop studies.	Following Screening it can reasonably be concluded that there is no likelihood of significant effects on any of the European sites under consideration.	The report is available in the public office and website for Tipperary County Council.