SECTION D – EXISTING ENVIRONMENT & IMPACT OF THE DISCHARGE(S)

Attachment D1: Assessment of Impact on Receiving Surface or Ground Water

- **Table D.1 (a): Ecological Assessment**

UISCE ÉIREANN : IRISH WATER

Irish Water Report

Ecological Assessment of the Kilmeague Stream

Contents

Introduction

Kilmeague village is located in Co. Kildare ca. 13km from Naas town. Kilmeague Waste Water Treatment Plant (WwTP) is located to the south of the town and designed to cater for a population equivalent of 700p.e. The plant is licenced by the EPA (D0233-01). According to the 2017 AER, the 2017 population equivalent for the plant is quoted as being 1239 p.e. The final effluent was complaint with Emission Limit Values (ELV's) for BOD, pH and TSS, however downstream monitoring close to the discharge point is non-compliant with surface water regulations limits.

The WwTP discharges to an unnamed stream (IE_EA_09L011050 LIFFEY_090, 'the Kilmeague Stream') at ING 277460, 222298, which enters the River Liffey ca. 8km downstream of the WwTP just over 1km upstream of Victoria Bridge. Irish Water has recently been granted permission for the installation of inletworks and a stormwater tank (Planning Ref 17926).

The aim of the current survey was to establish the ecological value/potential of the stream along its length to where it enters the River Liffey ca. 8km downstream of the WwTP.

Methodology

Ecological Site Visit and Desk Study

A field walkover survey of accessible stretches of the stream was undertaken on the 7thof October 2016 to determine if any sensitive habitats or species were present. Biological water quality sampling was undertaken at a downstream location involving kick sampling and subsequent application of the EPA Q-rating scheme (Toner *et al*, 2005).

A desktop review of online information and published reports was also undertaken. This included information and mapping available from the National Parks and Wildlife Service (NPWS) and the EPA, Water Framework Directive (WFD) reports and plans, and data held by the National Biodiversity Data Centre (NBDC); and the documents and reports in the discharge license files (D0233-01).

Existing Environment

Desktop review

The plant discharges to an unnamed stream (IE_EA_09L011050) which enters the River Liffey at a point 8km downstream of the WWTP just over 1km upstream of Victoria Bridge (Figure 1). The stream has been assigned Good Water Framework Directive (WFD) status (2010-2015). The River Liffey upstream and downstream of where the stream enters in the townland of Morristown has also been assigned Good status (Q4 rating) by the EPA and Good WFD status[1].

A review of the NBDC website indicated there are no records of protected species within the stream. There are records of otter and crayfish in the River Liffey downstream and their distribution is indicated in the 10km squares (N72 and N81) where the stream is located (NPWS, 2013). The presence of brook and river lamprey is indicated in the 10km square N81 (NPWS, 2013). The Liffey is an important salmonid river supporting salmon, sea trout and brown trout (O'Reilly, 2004). A survey of the River Liffey at Lucan by IFI in 2009 (The Central and Regional Fisheries Board, 2009) found seven fish species including salmon, brown trout, european eel and lamprey.

Field survey results

The field survey involved a visual evaluation of accessible stretches of the stream. Representative photos are shown below with locations indicated on Figure 1.

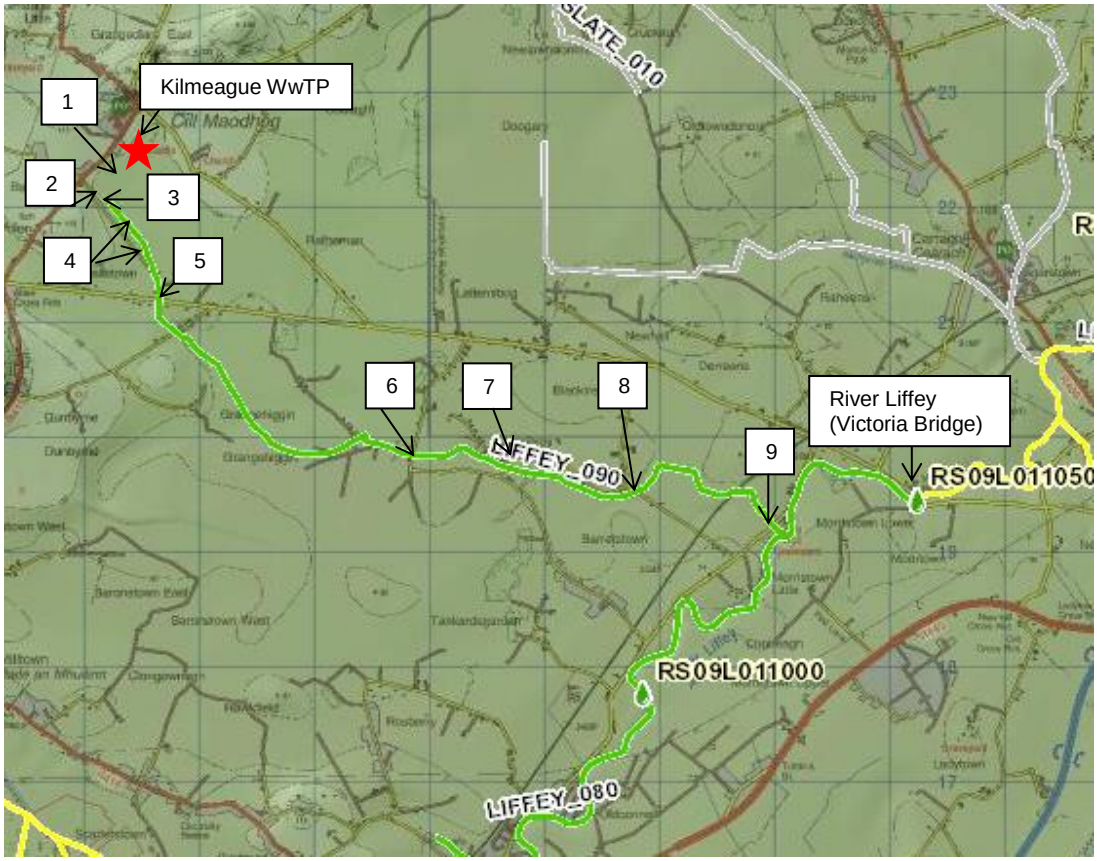


Figure 1: Location Map *(Extracted from EPA Envision website Oct 2016)*

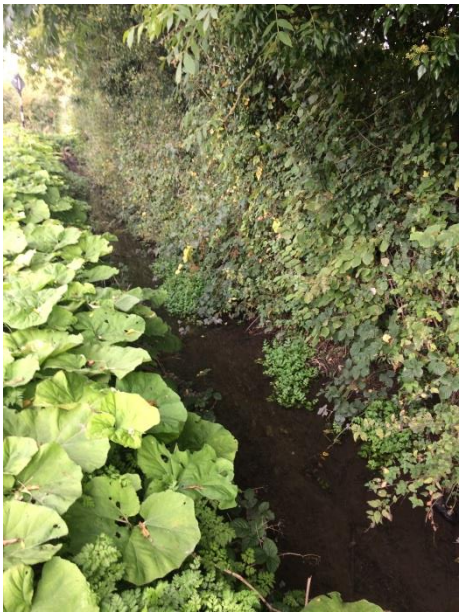
[1] http://gis.epa.ie/Envision

Location 1: Drainage ditch exiting WwTP ca. 0.4m wide and 10-20cm deep. Sewage fungus, rags and foul odours evident. Some watercress growing instream. This initial stretch of drainage ditch runs along the access road to the WwTP before diverting south into agricultural lands where it is completely shaded by hedgerows. There is no suitable habitat for fish or protected species.

Location 2: Small unpolluted stream upstream of drainage ditch exiting WwTP ca. 20cm wide and 5cm deep. This stream, coming from the northwest along a field boundary, joins the WwTP drainage ditch within agricultural lands. The stream banks were heavily poached. Watercress was abundant. There is no suitable habitat for fish or protected species.

Location 3: Confluence of small stream and wwtp stream. Abundant watercress instream was notable. Foul odours and sewage fungus are still apparent. The stream is well fenced from livestock at this location. There is no suitable habitat for fish or protected species.

Location 4: The stream continues south along a field boundary. Flow is very slow. Foul odours and sewage fungus were still notable along the length of the field. The stream continues to be well fenced from livestock in this section and is heavily shaded in parts. There is no suitable habitat for fish or protected species.



Location 5: At ca. 1.4km downstream, the stream is culverted under some dwellings and emerges running along the roadside in Russellstown. It is not fenced off at this location. Foul odour was still notable, though sewage fungus was no longer present. The substrate appeared to comprise of organic matter/mud/silts. The stream continues to flow southeasterly though agricultural lands and adjoining peatlands. Two subsequent road crossings between location 5 and 6 provided no views of the stream due to dense vegetation cover. There is no suitable habitat for fish or protected species.

Location 6: By this location ca. 4km downstream, at a bridge crossing in Clongorey adjacent to an area of cutaway bog, the water and substrate contained significant amounts of peat. The volume of water had increased though flow was slow. No foul odours or sewage fungus were noted. There is possible suitable coarse fish and otter foraging habitat along this stretch. The stream is unlikely to support salmonid species due to the dominance of peat in the water column and substrate.

Location 7: As for Location 6, the volume of water has increased and the influence of peat was notable. There are no obvious signs of pollution. There is possible suitable coarse fish and otter foraging habitat along this stretch. It would not support salmonid species due to the peat-dominated substrate.

Location 8: At this location in Barretstown the stream is shallow and moderately fast flowing. The substrate comprised of peat-stained gravels and silts. The presence of a riffle habitat in the stream allowed for a kick sample to be taken at this location. No foul odours or sewage fungus were noted.

The adjacent photo provides a view of riffle habitat where kick sample was taken. The stream at this location was ca. 1.5m wide and 20cm deep with the substrate comprising a mix of fine sediments, detritus and some gravels. The sample warranted a Q2-3 rating indicating Poor water quality, though aligns with the shaded nature of the stream and the composition of the substrate. There is possible suitable coarse fish and otter foraging habitat along this stretch. It would not support salmonid species due to the peat-dominated substrate.

Location 9: This section of the stream at Morristown road crossing is just upstream of the confluence with the River Liffey. The stream is wider and deeper at this location, possibly due to influx from the Liffey, and supports marginal vegetation. The water still has a peaty appearance and is slow-flowing. There is possible suitable coarse fish and otter foraging habitat along this stretch.

Discussion

It is considered that the stream currently has little or no ecological value between the WwTP and location 5 ca 1.4km downstream of the discharge, with the flow up to this point mostly comprised of the discharge within a drainage ditch. Sewage fungus was notable to ca. 750m downstream of the discharge point. This section physically has no fisheries potential due to the shallow narrow and heavily vegetated nature of the ditch channel, which is completely shaded for large sections. If the discharge quality were to improve or be eliminated, the stream is still unlikely to support any aquatic flora or fauna of significance due to these physical characteristics.

Between location 5 and 6 (1.4km – 4km downstream) the stream continues along ditches/field boundaries and any road crossings provided no access to the stream which was completely overgrown at these locations.

At location 6, ca 4km from the discharge, the stream has acquired further flows from land drainage. There were no foul odours or signs of eutrophication. The influence of peat on the substrate and water column was notable from location 6 onwards. The physical characteristics of the stream with respect to depth, substrate and vegetation cover are not suitable for any life stage of salmonid fish (DANI, 1995). The stream downstream of location 6 may have some limited potential for course fish, and potentially foraging otter, crayfish and brook lamprey.

In summary:

- It is considered that the effects of the discharge dissipate significantly between 1-4km downstream as the stream acquires drainage from adjacent lands. The upper section of the stream has no or low ecological significance, and in the absence of the discharge would be an agriculture drainage ditch with some low, intermittent flow.
- The lower section of the stream (from 4km downstream of the discharge onwards) has limited ecological potential due to the influence of peat. Ecological potential improves close to the River Liffey as volume and depth of waters increase.

References

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NPWS (2013) The Status of EU Protected Habitats and Species in Ireland. Species Assessments Volume 3, Version 1.0. Unpublished Report, National Parks & Wildlife Services. Department of Arts, Heritage and the Gaeltacht, Dublin, Ireland.

O'Reilly (2004) Rivers of Ireland: A flyfishers guide.

The Central and Regional Fisheries Boards (2009) Eastern River Basin District Rivers. Sampling Fish for the Water Framework Directive – Rivers 2009.

Toner, P., Bowman, K., Clabby, K., Lucey, J., McGarrigle, M, Concannon, C., Clenaghan, C., Cunningham, P., Delaney, J., O'Boyle, S., MaCarthaigh, M., Craig, M., and Quinn, R. 2005. Water Quality in Ireland 2001-2003. Environmental Protection Agency, Wexford.

SECTION D – EXISTING ENVIRONMENT & IMPACT OF THE DISCHARGE(S)

Attachment D2: Appropriate Assessment

- **Table D.2 (a): Appropriate Assessment for Planning Application**
- **Table D.2 (b): Appropriate Assessment for WWDL Review Application**

Kilmeague WwTP Upgrade Works

Irish Water

Appropriate Assessment Screening Statement

321060AW

06 January 2017

Document history and status

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Kilmeague WwTP Upgrade Works

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Contents

1. Introduction

Irish Water (IW) and Kildare County Council (KCC) propose to complete upgrade works on the Kilmeague Waste Water Treatment Plant (WwTP) in Co. Kildare. Kilmeague is located in northwest County Kildare, approximately 13 km from Naas town and approximately 1.5 km north of Allen on the R415. The village is served by a partially combined and partially separate sewerage and the wastewater treatment works is located south of the town in the townland of Kilmeague. The Kilmeague WwTP Upgrade Works will hereafter be referred to as the 'Proposed Works'. The existing WwTP will be referred to as the 'Plant'.

Figure 1 shows the European Designated Sites in relation to the Proposed Works and Figure 2 shows the Proposed Works Site Plan.

In accordance with the EC Habitats Directive 92/43/EEC (hereafter "The Habitats Directive") this Appropriate Assessment Screening Statement (AASS) assesses whether there are likely significant effects from the Proposed Works on European sites ("Natura 2000 sites"[1]); comprising candidate Special Areas of Conservation (SACs[2]) and Special Protection Areas (SPAs). All other known proposed plans or projects, including the overall Proposed Works were also assessed with regard for in-combination effects.

[1] "European site" replaced the term "Natura 2000 site" under the EU (Environmental Impact Assessment and Habitats) Regulations 2011 S.I. No. 473 of 2011.

[2] There are currently no SACs in Ireland. All remain 'candidate' (cSAC) until the European Commission approves and ratifies the final list of cSACs. cSACs are afforded the same protection as SACs.The process of making cSACs SACs by means of Statutory Instrument has begun. While this process is ongoing the term SAC will be used, in conformance with nomenclature used in NPWS databases.

2. The Appropriate Assessment Process

2.1 Introduction to Appropriate Assessment

The requirement to carry out an Appropriate Assessment comes from Article 6(3) of the Habitats Directive. The first step of the Appropriate Assessment process is to carry out a Screening to establish whether, in relation to a particular plan or project, an Appropriate Assessment is required. Article 6(3) states:

"*Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to Appropriate Assessment of its implications for the site in view of the site's conservation objectives. In the light of the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public*."

The above requirement has been implemented in the Republic of Ireland by the European Communities (Birds and Natural Habitats) Regulations 2011 and the Planning and Development Acts 2000 (as amended). Under Section 177U (1) of the Planning Acts, a Screening for Appropriate Assessment (AA) of the project "*shall be carried out by the competent authority* (in this case, Kildare County Council (KCC)) "*to assess in view of best scientific knowledge, if that project, individually or in combination with another plans or projects, will have a significant effect(s) on any European sites."*

The methodology in this report draws on, and has evolved from European Commission (EC) guidance (E C, 2001) and Irish guidance from the former Department of Environment, Heritage and Local Government (DoEHLG, 2010) and recommendations from international AA practitioners (Levett-Therivel, 2009; Chvojková et al., 2013). The entire process can be broken down into four stages (EC, 2001), as outlined below:

- **Stage 1- Screening for AA -** Screening determines whether stage 2 Appropriate Assessment is required by determining if the project would be likely to have significant effect(s) on any European site(s). The test is a 'likelihood' of effects rather than a 'certainty' of effects. In accordance with the Waddenzee Judgement[3] a likely effect is one that cannot be ruled out on the basis of objective information. This is underpinned by the precautionary principle which is enshrined in law in the Habitats Directive, and the test of beyond reasonable scientific doubt as presented in the Habitats Directive. Paragraph 49 of the same judgement adds 'where a plan or project is likely to undermine the site's conservation objectives, it must be considered likely to have a significant effect on that site. The assessment of that risk must be made in the light inter alia of the characteristics and specific environmental conditions of the site concerned by such a plan or project.'
- **Stage 2 - AA** – If the Screening has determined that an AA is required, the competent authority then considers the effect of the project or plan on the integrity of the European site(s). The AA considers the structure and function of European sites, and their conservation objectives, and effects from the project/plan both alone and in combination with other projects or plans. Where there are adverse effects on site integrity identified, mitigation measures are proposed as appropriate to avoid adverse effects. For projects, the AA process is documented within a Natura Impact Statement (NIS). This is provided to the competent authority by the applicant, to facilitate an informed assessment of the project.
- **Stage 3- Assessment of alternative solutions** – If following AA including proposal of mitigation, adverse effects on integrity remain, or uncertainty remains, an Assessment of Alternatives is required. The process of examining alternative ways to complete the project and avoid adverse effects to the integrity of any European sites is likely to have been incorporated into Screening and AA. However, if adverse effects remain after mitigation, alternatives are revisited at this stage.
- **Stage 4 - Imperative Reasons of Over-Riding Public Interest (IROPI)** - In the unlikely event where an Assessment of Alternatives was required, and only if this failed to identify any alternatives which would not adversely affect European sites, Imperative Reasons of Over-Riding Public Interest (IROPI) could

[3] [ECJ case C-127/02]

potentially be enacted, whereby compensatory measures are implemented to maintain the coherence of the European site network in the face of adverse effects to site integrity. If a Proposed Scheme is to be authorised on the basis of IROPI, an application a 'statement of case' is required to serve as the basis for an IROPI decision. Referral to the relevant Minister is also required, in advance of informing or obtaining the opinion of the European Commission.

2.2 This report

This Appropriate Assessment Screening Statement (AASS) assesses the likely significant effects (LSE) of the Proposed Works on European sites.

The aims of this process are to:

- identify the potential impacts that could come about as a result of the Proposed Works;
- identify the zone of influence (ZoI) of these impacts;
- determine the European sites within the ZoI; and
- determine any likely significant effects on the European sites.

2.3 Role of the Competent Authority

The information in this AASS will be provided to KCC, as competent authority under the Regulations. KCC will then conduct an AA Screening before consent being sought is granted.

Should KCC conclude that the Proposed Works, either individually or in combination with other plans or projects, is likely to cause significant effects to any European site, they will undertake an AA. Information for KCC to be able to undertake an Appropriate Assessment would be presented in a NIS.

Alternatively, should KCC conclude that there is no likelihood of significant effects to European sites from the Proposed Works; KCC will provide the evidence of their Screening determination for comment to the Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs (DAHRRG) before commencing works.

KCC will provide the reasons for their determination in both instances and make the Screening (and if required AA determination) available in electronic format on their website.

3. Detailed Screening Methodology

This AA Screening was informed by a desk study of all relevant environmental information and involved the following steps (broadly based on EC (2000)):

- determined if the Proposed Works was directly connected with or necessary to the management of the site;
- described the Proposed Works;
- described the baseline environment;
- listed European sites which are those sites potentially connected to the Proposed Works by source-pathway-receptor linkages; and
- concluded if linkages to sites could give rise to LSE.

3.1 Method for Identifying Relevant European Sites

3.1.1 The Source-Pathway-Receptor Model and Zones of Influence

The standard 'source-pathway-receptor' conceptual model is a standard tool in environmental assessment. In order for an effect to occur, all three elements of this mechanism must be in place. The absence or removal of one of the elements of the mechanism means there is no likelihood for the effect to occur. An example of this model is provided below:

- source(s) e.g. piling;
- pathway(s) e.g. vibration; and
- receptor(s) e.g. underground otter resting site at risk of collapse.

The model is focused solely on the Qualifying Interests (QIs) for which sites are designated as per the latest conservation objectives from the National Parks and Wildlife Service (NPWS) website, or substitute detailed objectives from other sites where only generic objectives are available.

LSE to European sites are identified by applying the source-pathway-receptor model to receptor-specific ZoI (i.e. the area over which effects may occur) and 'spatial extents of sensitivity' (i.e. the area within which a QI may be present and therefore could be affected by an impact). The ZoI is illustrated in Appendix B: Zone of Influence Schematic.

3.1.2 Zones of Influence

The zone of influence of an effect is independent of the 'sensitivity' of QIs of European sites. There is a potential pathway to an effect and therefore LSE, only if:

- The spatial extent of sensitivity of a QI (i.e. the area within which the QI may be present and therefore could be affected by an impact) overlaps with the zone of influence; and
- The QI is sensitive to that effect.

The spatial extents of sensitivity of QIs are identified in Appendix A. Where possible, QIs were grouped for the purpose of stream-lining this process, for example those QIs which shared ecological dependencies and sensitivities such as Vertigo snail species which share a similar ecological niche (i.e. ground water dependent habitats such as fens).

As per Table 3.1, the analysis of effects, using scientific knowledge and professional judgement, leads to the identification of a ZoI for each effect i.e. the distance at which the effect of the proposed development could have potential effects. However, the proposed upgrade works on Kilmeague WwTP has no potential effects which could affect the European sites or their QIs. The reasons and rational behind this conclusion is demonstrated in Section 7.2: Source-pathway-receptor links.

3.1.3 Role of precautionary principle

The precautionary principle is fundamental to the Screening Stage (and AA). The precautionary principle is referenced in Article 191 of the Treaty on the Functioning of the European Union (TFEU). The precautionary principle prevails where reasonable scientific doubt cannot be ruled out. Known threats to QIs of relevant European sites are analysed to avoid overlooking subtle or far-field effect pathways. The duration of potential effects is a key consideration, in particular because the European Court of Justice has recently ruled—albeit in specific reference to priority habitats (identified by * symbol)—that effects to site integrity must be "lasting[4]".

Table 3.1 : Zones of Influence from a Proposed Scheme

Potential Impact	Potential Effect	Zone of Influence – Likely area over which effect could occur
Land-take resulting in habitat loss or degradation.	The permanent loss of the habitat present in the footprint of the proposed development. Degradation of habitats present within the footprint of works including temporary access routes and site compound areas.	Land within the proposed development works footprint and access routes.
Changes in water quality and quantity/distribution resulting in habitat loss or degradation.	Reduction in the quality of retained habitat or loss of habitat from surrounding areas as a result of surface water pollution (e.g. sedimentation from drilling) and/or changes to flow or volume of groundwater.	Changes in surface water quality, as a result of the proposed development works, are assessed downstream of the proposed development, but the potential spatial extent of effects is difficult to quantify due to the significant variables including the varying concentrations/types of contaminants which could be released, the resilience to pollution of different receiving waterbodies (i.e. assimilative capacity), and the resilience of different aquatic species. Changes to groundwater features as a result of construction and operation are assessed within a radius of 250 m from intrusive works[5].
Direct mortality during proposed development.	Death or mortal injury of individuals of QI species as a direct result of the proposed development in both terrestrial and aquatic habitats.	Land within the proposed development footprint.
Spread of invasive non-native species resulting in habitat degradation.	Reduction in quality of retained habitat by reduction in species diversity.	Land within/adjacent the proposed development footprint and access routes.
Noise vibration resulting in disturbance.	Direct effect on feature species reducing their ability to forage or breed.	Generally assessed within 500 m of the proposed development footprint (e.g. for wintering birds), but can be significantly lower (e.g. 150 m for otter underground sites, or further (e.g. hen harriers may take flight when nesting at up to 750 m from works [6]).

[4] Judgment Of The European Court (Third Chamber) on 11 April 2013 in Case C 258/11 (REQUEST for a preliminary ruling under Article 267 TFEU from the Supreme Court (Ireland)) in relation to Peter Sweetman, Ireland, Attorney General, Minister for the Environment, Heritage and Local Government v An Bord Pleanála, para 46 (and others).

[5] A radius of 250 m is the area within which further survey of groundwater-dependent habitats is recommended, where wind turbine foundations or borrow pits are proposed, according to the Scottish Environmental Protection Agency (SEPA, 2014). This rationale is applied here given that Ground Investigation (GI) earthworks are localised in a similar way to the turbine foundations/borrow pits, and because abstraction is not proposed.

[6] Wintering birds collectively considered at risk of disturbance at up to 500 m based on compilation of data from Madsen (1985); Smit & Visser (1993) and Rees et al., (2005). Vibration and human presence effects to otter assessed within 150 m in accordance with guidance on road construction-related disturbance of underground sites from the National Roads Authority (NRA, 2006).

Potential Impact	Potential Effect	Zone of Influence – Likely area over which effect could occur
Human presence resulting in perceived disturbance to highly sensitive bird species at significant distance from works.	Indirect effect on feature populations, due to reduced breeding success (e.g. associated with interruptions to feeding of young resulting from adult birds temporarily abandoning breeding sites).	Generally assessed within 500 m of the proposed development (e.g. for wintering birds), but can extend further (e.g. hen harriers may take flight when nesting at up to 750 m from works[7]

3.1.4 Spatial Sensitivity

The ZoI of an effect is independent of the 'spatial sensitivity' of a QI (i.e. the area within which the QI may be present and therefore could be affected). See schematic provided in Appendix B. There is a potential pathway to LSE only if:

- A QI occurs within the ZoI (i.e. its spatial sensitivity overlaps the ZoI), *and*
- The QI is sensitive to that effect.

The spatial extents of sensitivity of QIs are identified in Appendix A. Where possible, QIs are grouped for the purpose of stream-lining this process, for those QIs which shared ecological dependencies and sensitivities. For instance pollution may affect two different species (e.g. ammocoetes of brook lamprey *Lampetra planeri* and river lamprey *Lampetra fluviatilis*) over a similar area because they share a similar ecological niche (i.e. muddy riverbanks into which larvae burrow), and because pollution is a threat of medium importance for both species (NPWS, 2013a).

3.1.5 Criteria to Identify a Preliminary List of Sites

The ZoI (i.e. "the nature, size and location of the Proposed Works) as per Table 3.1, and the spatial extents of sensitivity (i.e. "the sensitivities of the ecological receptors") in Appendix A, were used to identify a preliminary list of all European sites that could be affected by the proposed development:

- Any SACs within 10 km of the proposed development were listed because 10 km is the maximum potential ranging distance of mobile QI species from SACs according to best scientific knowledge (specifically otter territories typically extend this far; refer to Appendix A); and
- Any SPAs within 20 km of the proposed development were listed because 20 km is the maximum ranging distance for SPA QI bird species from SPAs according to best scientific knowledge (specifically certain goose species may forage this far from core SPA wetlands; refer to Appendix A).

3.1.6 In-combination Effects

Where source-pathway-effect linkages are identified between the project or plan and European sites, the potential for in-combination effects with other plans or projects is examined. If there are no identified pathways, there is no potential for the proposed development to have LSE, and also no potential for in-combination effects.

If required, the in-combination assessment would include plans and projects, whose implementation is 'reasonably foreseeable', including:

- the incomplete parts of projects that have been started but which are not yet completed;
- projects given consent but not yet started;
- projects that are subject to applications for consent;
- projects that are subject to outstanding appeal procedures;
- any known projects that are not subject to any consent;

[7] Hen harrier flight initiation distance of 750 m from Whitfield et al. (2008).

- ongoing projects subject to regulatory reviews, such as discharge consents or waste management licences;
- policies and proposals that are not yet fully implemented in plans that are still in force; and
- draft plans that are being brought forward by other public bodies.

4. Description of the Proposed Upgrade Works

4.1 Current WwTP Location

The Proposed Works is not directly connected with or necessary to the management of the European sites; the works will be carried out at Kilmeague WwTP, located in northwest County Kildare, approximately 13 km from Naas town and approximately 1.5 km north of Allen on the R415. The WwTP is located south of the town in the townland of Kilmeague. Kilmeague WwTP has been identified as requiring upgrade work/modifications in order to improve the operation of the Plant, ensure it meets minimum compliance standards and cater for existing and future hydraulic and organic loadings.

The Proposed Works consists of a number of upgrade elements:

- new inlet works and inlet manhole upgrades;
- new storm tank and storm water overflow;
- forward feed pumping station upgrades;
- sequential batch reactor upgrade;
- sludge storage upgrade;
- final effluent filtration tank upgrade;
- final effluent collection chamber upgrade
- inlet flowmeter chamber upgrades;
- new standby air blower;
- automatic desludging system upgrade;
- existing compressed air system removal;
- electronic control panels / motor control centre (MCC) and electrical installation upgrade;
- provision of process field instrumentation;
- new site housings (1 No. kiosk);
- existing control building refurbishment;
- incoming site electrical power supply upgrade;
- site access, drainage and security upgrade; and
- new control system and tie in with regional telemetry system.

These proposed upgrade works will be within the site boundary as shown in Figure 2: Site Plan. The site boundary is an existing Plant on hard stand material; therefore there is no potential for loss of any QI habitat or supporting habitat for any QI species.

The proposed upgrade works will ultimately improve the quality of the effluent entering into a nearby drainage ditch (see Figure 2) by preventing untreated effluent from being discharged into the ditch. New proposed storm tanks and storm water overflows will capture and store raw effluent prior to treatment and discharge. However, pollution prevention guidance should be adhered to during upgrade works connected or associated with the drainage ditch were the outfall discharges. The drainage ditch, discussed further in Section 4.2, currently drains into the River Liffey, c. 8 km downstream. The River Liffey is not a European designated site but ultimately flows into the Dublin Bay SPA. It is recommended that standard guidance published by the Inland Fisheries Ireland (IFI), Construction Industry Research and Information Association (CIRIA) and the Scottish Environment Protection Agency (SEPA) be implemented when carrying out upgrade works connected or associated with this drainage ditch.

Best practice guidance documents for Control of Water Pollution from Construction Projects are below:

- *(CIRIA, 2001) Control of Water Pollution from Construction Sites, Guidance for Consultants and Contractors'*
- Inland Fisheries Ireland (2016) Guidelines on Protection of Fisheries during Construction Works in and adjacent to Waters.
- *UK Environment Agency, SEPA and Heritage Service for Northern Ireland: PPG5 Pollution Prevention Guidelines Works and Maintenance in / or near Water (SEPA 2007).*

4.2 The Need for the Proposed Upgrade Works

The Kilmeague WwTP is an EPA WWDA (Waste Water Discharge Authorisation) Licenced facility, constructed in the mid-1990s. The Plant has been identified as requiring upgrade work/modifications in order to improve its operation and ensure it meets licence conditions.

Kilmeague WwTP was originally designed to cater for a population equivalent (PE) of 700, but it is currently overloaded, receiving a load of 803 PE. The ultimate future load is expected to be 1160 PE. The Kilmeague treatment system requires urgent upgrading. This preliminary upgrade works is set to improve the water quality of the receiving drainage ditch by preventing untreated effluent from entering. An investigation of a length (850 m) of the drainage ditch was undertaken in May 2016 which found that the ditch is contaminated by the effluent and untreated overflows from the Kilmeague WwTP for at least 750 m downstream. The quality of the stream / ditch remains poor up to the 1,370 m location and likely beyond.

Treated effluent flows to a collection chamber and a final settlement tank before discharging to a point in a drainage ditch adjacent to the site. The final effluent from the Primary Discharge Point of Kilmeague WwTP was non-compliant in 2015 with the Emission Limit Values (ELVs) set in the wastewater discharge licence. There were six samples non-compliant with the ELVs in relation to carbonaceous biochemical oxygen demand (cBOD) and total suspended solids (TSS). The non-compliance is due to inadequate infrastructure and the lack of capacity to alter process parameters automatically, which will be addressed by the upgrade works.

The Plant is prone to overflows caused by high inflows and blockages of the influent pumps. The upgrade works, including the new storm tank and storm water overflow will prevent untreated effluent entering into the drainage ditch. This ensures that the key objective to ensure compliance with the licence requirements and the amendment to the licence issued by the EPA (including the following direction to cease immediately the discharge of unscreened raw effluent into the drainage ditch) will be met and complied with.

5. Baseline Environment

5.1 Sources Informing the Baseline Description

The baseline environment of the site for the Proposed Works in relation to European sites was analysed using the key sources below. Additional information sources are included in the References section (Section 8):

- Ordnance Survey Ireland mapping and aerial photography available from www.osi.ie;
- mapping of European site boundaries, conservation objectives and habitat /species distributions from NPWS online at www.npws.ie;
- protected species and habitat mapping data obtained from the NPWS Research Branch in 2016;
- data from NPWS Research Branch also included tabulated threats and pressures for QIs; and
- information on the conservation status of relevant cSAC and SPA species and habitats from NPWS conservation status assessments online.

Relevant plans from national to local scales are critical to inform a robust assessment of in-combination effects, and these are listed below;

- National Biodiversity Plan, 2011-2016 (DoEHLG, 2011).
- Kildare County Development Plan 2011-2017 (as varied)[8].

5.2 Surveys Informing the Baseline Description and AA Screening

No surveys were conducted, desk based review of available information only was utilised at this screening stage.

5.3 Baseline Description

The habitats and environment in the vicinity of the Proposed Works consist predominantly of improved agricultural grassland and cultivated land. Some scrub and woodland habitats occur, mainly marking field boundaries such as treelines and hedgerows. See Figure 2 for habitats in the immediate surrounding of the Plant. Four European sites are located within 10 km of the Proposed Works, namely Mouds Bog SAC, Ballynafagh Lake SAC, Ballynafagh Bog SAC and Pollardstown Fen SAC. The baseline data in the following sections was relevant to the identification of any source-pathway-receptor links between the Proposed Works and the European sites.

There were no SPAs within 20 km of the Proposed Works. Poulaphouca Reservoir SPA is 21 km from the works and designated for lesser black-backed gull (*Larus fuscus*) and greylag geese (*Anser anser*), neither of which forage over 20 km. For example, according to Bell (1988) and Hearn (personal communication cited in JNCC), greylag geese can be found up to 12 km from designated roosts/feeding sites. Therefore these QI were not considered in the screening.

[8] http://www.kildare.ie/CountyCouncil/Planning/DevelopmentPlans/KildareCountyDevelopmentPlan2011-2017/ (accessed December 2016)

Table 5.1: European sites within 10 km of the Proposed Works

European Sites	Site Code	Distance of site from Proposed Works	Qualifying Interests
Mouds Bog SAC	002331	2.1 km	**Annex I Habitats** Active raised bogs* [7110] Degraded raised bogs still capable of natural regeneration [7120] Depressions on peat substrates of the *Rhynchosporion* [7150]
Ballynafagh Lake SAC	001387	4.1 km	**Annex I Habitats** Alkaline fens [7230] **Annex II Species** Desmoulin's whorl snail (*Vertigo moulinsiana*) [1016] Marsh fritillary (*Euphydryas aurinia*) [1065]
Pollardstown Fen SAC	000396	5.2 km	**Annex I Habitats** Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae** [7210] Petrifying springs with tufa formation (*Cratoneurion*)* [7220] Alkaline fens [7230] **Annex II Species** Geyer's whorl snail (*Vertigo geyeri*) [1013] Narrow-mouthed whorl snail (*Vertigo angustior*) [1014] Desmoulin's whorl snail [1016]
Ballynafagh Bog SAC	000391	5.7 km	**Annex I Habitats** Active raised bogs [7110] Degraded raised bogs still capable of natural regeneration [7120] Depressions on peat substrates of the *Rhynchosporion* [7150]

6. Consultation

No consultation on the current Proposed Works has been undertaken to date.

As discussed in Section 2.3 the planning authority (KCC) is the competent authority for AA Screening and AA (if required). Should KCC conclude there is a likelihood of the Proposed Works, either individually or in combination with other plans or projects, causing significant effects to any European sites, it will undertake an AA and request that an NIS is provided for review. As part of the planning process under the Planning and Development (amendment) Regulations, 2016 the planning authority shall refer all planning applications that might have significant effects in relation to nature conservation to the Minister for Arts, Heritage, Regional, Rural & Gaeltacht Affairs.

7. Screening Assessment

7.1 Proximity of European Sites and their Qualifying Interests

Four European designated sites are located within 10 km of the Proposed Works which may be potentially effected; namely Mouds Bog SAC, Ballynafagh Lake SAC, Ballynafagh Bog SAC and Pollardstown Fen.

7.2 Source-Pathway-Receptor Links

Through desk basked review, no source-pathway-receptor links have been identified between the Proposed Works and the European designated sites (and their QI) considered in this report. Below and Table 7.1 demonstrates that there are no source-pathway-receptor links for each of the sites.

1. Mouds Bog SAC: No potential source-pathway-receptor link was identified for any of the QIs of this site. There is no hydrological link between the SAC and the Proposed Works, therefore none of the QIs would be affected and the conservation objectives of the SAC will not be compromised.
2. Ballynafagh Lake SAC: No potential source-pathway-receptor link was identified for any of the QIs of this site. There is no hydrological link between the SAC and the Proposed Works; therefore none of the QI species of this SAC would be affected. Further, no supporting habitat will be lost due to the nature of the upgrade works; which will be conducted on an existing Plant and within the site boundary. Desmoulin's whorl snail inhabits calcareous, lowland wetlands, occurring in fens and marshes and usually bordering watercourses including lakes. Therefore this QI would be restricted to the edges of Ballynafagh Lake and as such there is no potential for supporting habitat to be lost. There is also no potential for supporting habitat to be lost for the marsh fritillary. The immediate surrounding environment of the Proposed Works consists of improved agricultural grassland which is not suitable for this species. Improved agricultural grassland would not contain devil's-bit scabious (*Succisa pratensis*), an essential Plant for this butterfly.
3. Pollardstown Fen SAC: No potential source-pathway-receptor link was identified for any of the QIs of this site. No supporting habitat of the QI species will be lost due to the nature of the upgrade works which are being conducted on the existing Plant site and within the existing boundary. Pollardstown Fen is the only known site in Ireland (or Europe) to support all three species of Geyer's whorl snail, narrow-mouthed whorl snail and Desmoulin's whorl snail which are all groundwater dependant species. However, there is no hydrological link between the SAC and the Proposed Works, therefore the conservation objectives for this site will not be affected.
4. Ballynafagh Bog SAC: No potential source-pathway-receptor link was identified for any of the QIs of this site. There is no hydrological link between the SAC and the Proposed Works; therefore none of the QI bogland habitats of this SAC would be affected and the conservation objectives of the SAC will not be compromised.

Table 7.1 shows QIs of the European sites which could be potentially linked to the Proposed Works if there were a source-pathway-receptor link. This table summarises how there are no links.

Table 7.1 : European sites and QIs potentially affected

European Sites	Site Code	Distance from Proposed Works	Qualifying Interests	Source-Pathway-Receptor Link	QI Requiring Further Analysis of Potential for LSE?
Mouds Bog SAC	002331	2.1 km	Active raised bogs* [7110] Degraded raised bogs still capable of natural regeneration [7120] Depressions on peat substrates of the *Rhynchosporion* [7150]	No potential source-pathway-receptor link was identified for any of the QIs of this site. There is no hydrological link between the SAC and the Proposed Works.	None
Ballynafagh Lake SAC	001387	4.1 km	Alkaline fens [7230] Desmoulin's whorl snail (*Vertigo moulinsiana*) [1016] Marsh fritillary (*Euphydryas aurinia*) [1065]	No potential source-pathway-receptor link was identified for any of the QIs of this site. There is no hydrological link between the SAC and the Proposed Works. There will be no effect on the QI species of this SAC. No supporting habitat will be lost due to the nature of the upgrade works, which are being conducted on an existing Plant.	None
Pollardstown Fen SAC	000396	5.2 km	Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae** [7210] Petrifying springs with tufa formation (*Cratoneurion*)* [7220] Alkaline fens [7230] Geyer's whorl snail (*Vertigo geyeri*) [1013] Narrow-mouthed whorl snail (*Vertigo angustior*) [1014] Desmoulin's whorl snail (*Vertigo moulinsiana*) [1016]	No potential source-pathway-receptor link was identified for any of the QIs of this site. There is no hydrological link between the SAC and the Proposed Works. There will be no effect on the QI species of this SAC. No supporting habitat of the QI species will be lost due to the nature of the upgrade works which are being conducted on an existing Plant.	None

European Sites	Site Code	Distance from Proposed Works	Qualifying Interests	Source-Pathway-Receptor Link	QI Requiring Further Analysis of Potential for LSE?
Ballynafagh Bog SAC	000391	5.7 km	Active raised bogs [7110] Degraded raised bogs still capable of natural regeneration [7120] Depressions on peat substrates of the Rhynchosporion [7150]	No potential source-pathway-receptor link was identified for any of the QIs of this site. There is no hydrological link between the SAC and the Proposed Works. There will be no effect on the QI habitats of this SAC.	None

7.3 Assessment of Likely Significant Effects

In accordance with EC (2000) and DoEHG guidance (2010), significance was defined by any effect to the conservation objectives of a site. All professional judgements regarding the potential significance of effects were assessed with reference to significance indicators such as the duration of fragmentation, disturbance, or population density. Following the assessment of potential LSEs on each of the four SACs within 10 km, it was determined that there are no LSEs on the SAC or their QIs (habitats or species).

7.4 Screening Conclusion Statement

The Proposed Works is not connected with or necessary to the management of any European sites.

No source-pathway-receptors existed between the upgrade works and the European sites considered. There is no potential for the Proposed Works, either alone, or in-combination with other plans or projects to result in adverse effects on the integrity of the European sites considered in this assessment. In accordance with Article 6(3) of the Habitats Directive, an AA is therefore not required.

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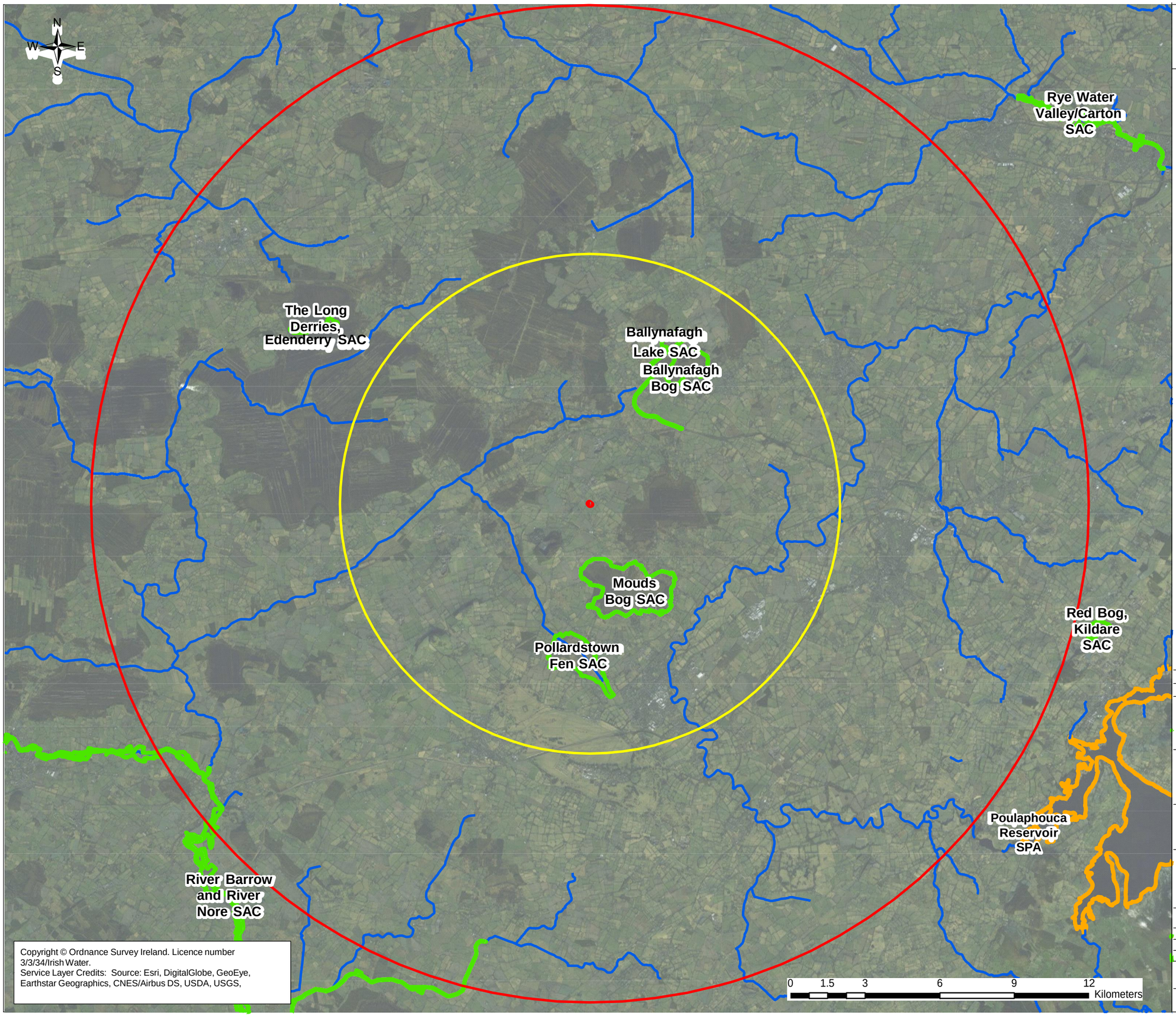
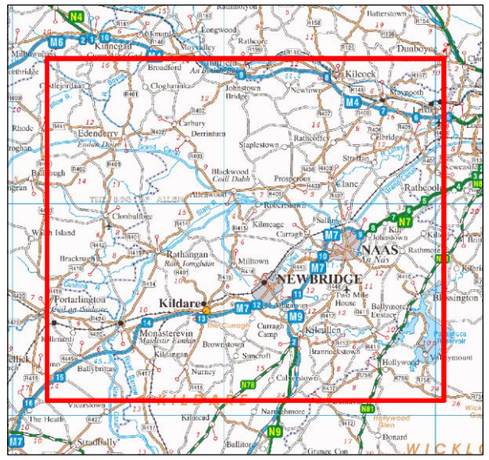
9. Figures

Figure 1. European Designated Sites



Legend

- Kilmeague WwTP
- 10 km Buffer
- 20 km Buffer
- Rivers
- SAC
- SPA



Rev.	Date	Purpose of revision	Drawn	Check'd	Rev'd	Appr'd
0	15/12/2016	Survey	HD	CC	PW	JB

JACOBS
Merrion House, Merrion Road, Dublin 4
Tel: 353.(0)1 2695666. www.jacobs.com

Client: **Irish Water**

Project: **Kilmeague WwTP Upgrade Works**

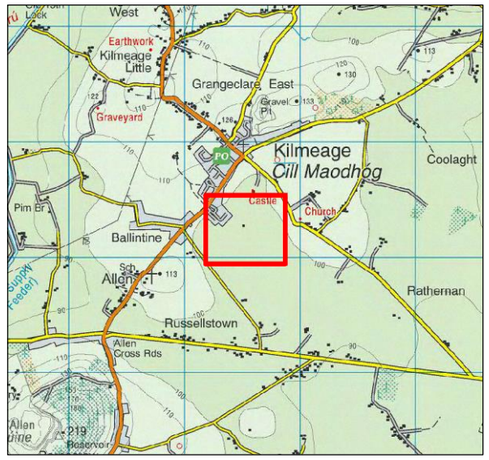
Drawing Title: **European Designated Sites**

Drawing Status	FINAL	
Scale @ A3	1:146,000	DO NOT SCALE
Jacobs No.	321060AW	
Client No.	12/085-136	
Drawing No.	321060AW-SKT-0014	Rev 0

Figure 2. Site Plan

Legend

- Drainage ditch
- Kilmeague WwTP Site Boundary



0 12.5 25 50 75 100 Meters

Rev.	Date	Purpose of revision	Drawn	Check'd	Rev'd	Appr'd
0	15/12/2016	Survey	HD	CC	PW	JB

JACOBS
Merrion House, Merrion Road, Dublin 4
Tel: 353.(0)1 2695666. www.jacobs.com

Client

Irish Water

Project

Kilmeague WwTP Upgrade Works

Drawing Title

Site Plan

Drawing Status: FINAL

Scale @ A3	1:2,139	DO NOT SCALE
Jacobs No.	321060AW	
Client No.	12/085-136	
Drawing No.	321060AW-SKT-0015	Rev 0

Appendix A. **Extents of Sensitivity of QIs**

Table 1A– Extents of Sensitivity for QI Habitats and Species Informing the Screening for AA

QI Feature (s)	Effects to which QIs Potentially Sensitive	Sensitivity Extent and Potential Mobility	Rationale
Marsh fritillary individuals or their habitat	Direct injury to butterflies or their habitats.	QI is highly mobile and butterflies could establish metapopulations up to 10 km beyond designated areas, as this corresponds to their potential dispersal range.	The maximum dispersal range of Irish populations of the species is 10 km Zimmerman et al. (2011). The SAC designated for the species is 4.1 km of the Proposed Works however there is no supporting habitat for marsh fritillary in the surrounding environment of the Proposed Works therefore there will be no direct effect to butterflies or their habitats.
Ground water dependent species: Narrow-mouthed whorl snail, Geyer's whorl snail and Desmoulin's whorl snail.	Direct habitat loss or damage within footprint of works.	All three QIs have limited mobility within their generally restricted sites and within ranges of c. 3000-5000 km^2 none of which overlap with the Proposed Works site area. **Narrow-mouthed whorl snail.** The Favourable Reference Range (FRR) for narrow-mouthed whorl snail in Ireland is taken to be its present (post 1994) range which is 3200 km^2 (Moorkens, 2007a). According to Moorkens (2007a), the species is specific in its habitat requirements, particularly with respect to ground water levels and vegetation composition. Therefore, suitable habitat within a larger site such as Pollardstown Fen may be very restricted (e.g. transitional marsh). Although the individuals are mobile, the species requires specific habitats to move and would not be found in unsuitable habitat such as the improved agricultural grassland around the Proposed Works. Their mobility is also very limited due to their small size (2 mm according to Moorkens and Killeen (2011)) and their dispersal mechanisms. According to Cameron et al. (2003), available information suggests that this species can be dispersed by various mechanisms and has been recorded as being transported by slugs and small mammals, and wind-blown litter is also likely to play a significant role, over limited distances of up to 100 m within a	The Proposed Works are not hydrologically linked with ground water dependent species habitats so there will be no affect to these QI species. The drainage ditch nearby the Plant drains into the River Liffey that, unlike the River Barrow and River Slane which drain into Pollardstown Fen SAC, is not hydrologically linked with the SAC. Due to the 4.1 km and 5.2 km respective distance between Ballynafagh Lake, Pollardstown Fen SAC and the Proposed Works, limited species mobility and unsuitable habitat surrounding the Works, there is no risk of these three species being affected by the Proposed Works.

		twelve month period. Due to the 5.2 km distance between the SAC and the Proposed Works, this species limited mobility and the unsuitable habitat surrounding the Works, there is no risk of this species being affected by the Proposed Works. **Geyer's whorl snail.** The FRR for Geyer's whorl snail is 4300 km2. Sites for this species range in their area of macro-habitat, from less than' 0.01 km^2 to over 1 km^2 in size (Moorkens, 2007b). This species has specific macro- and micro-habitat requirements, particularly with respect to ground water levels and vegetation composition. Therefore, suitable habitat within any site may be very restricted. This species occurs in calcareous, ground-water fed flushes, often of limited extent (a few m^2), and especially on gently sloping ground (Colville,1996b, as cited in Cameron et al., 2003). It may be found in association with spring-fed, neutral to base-rich transition mires and fens, occurring locally within (but usually toward the margin of) these wetland habitats. There is difficulty in sampling quantitatively for Geyer's whorl snail, especially in cases when the animal occupies extremely small areas (such as 1 or 2 m^2) within a larger area of apparently suitable macro-habitat. It is recognised that populations of this species can be very localised and patchy where they occur, being absent from some areas of apparently ideal habitat/micro-habitat, but present in others (Willing, 2013). Although precise distance over which this species can move could not be found, given the unsuitable habitat surrounding the Works the species is not expected to be present. **Desmoulin's whorl snail.** The FRR for Desmoulin's whorl snail in Ireland is taken to be 5200 km^2 (Moorkens, 2007c). This species mainly inhabits calcareous, lowland wetlands. It occurs in swamps, fens and marshes Usually bordering rivers, canals, lakes and ponds (Killeen, 1996). The current range is 79% of its	

		favourable range due to habitat loss. According to Moorkens (2007c), any of the sites lost are from riparian margins of the Grand and Royal canals which have been cleaned and marginal vegetation has been lost. Other sites have been lost through large-scale drainage. Mobility of this species is mediated via mammals, the snail being brushed from vegetation as the animals pass. Where it inhabits the riparian zone of running water bodies, this snail can also be transported downstream attached to floating vegetation (Cameron et al., 2003). Although precise distance over which this species can move could not be found, given the unsuitable habitat surrounding the Works the species is not expected to be present.	
Ground water dependent habitats: Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae*,* Alkaline fens Petrifying springs with tufa formation (*Cratoneurion*)*, Turloughs Depressions on peat substrates of the *Rhynchosporion* Active raised bogs* Degraded raised bogs still capable of natural regeneration	Habitat loss or indirect effects from changes to direction of groundwater flow or groundwater volume.	Although QIs have no mobility, they are dependent on groundwater flow which is mobile. Any effects to groundwater resources within 250 m of the QIs could be significant. The nearest ground water dependent habitat is 2.1 km from the Proposed Works.	No changes to direction of groundwater flow or groundwater volume will occur due to the Proposed Works.

Appendix B. **Zone of Influence Schematic**

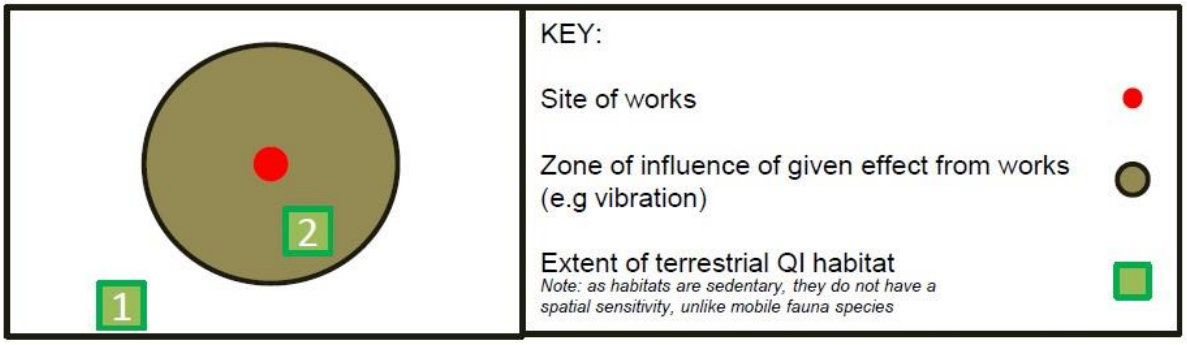


Figure 1: QI habitats and zone of influence of effects from works – note QI habitat 1 outside the zone of influence, and QI habitat 2 within the zone of influence; there is potential for LSEs arising from works to affect QI habitat 2, but not QI habitat 1.

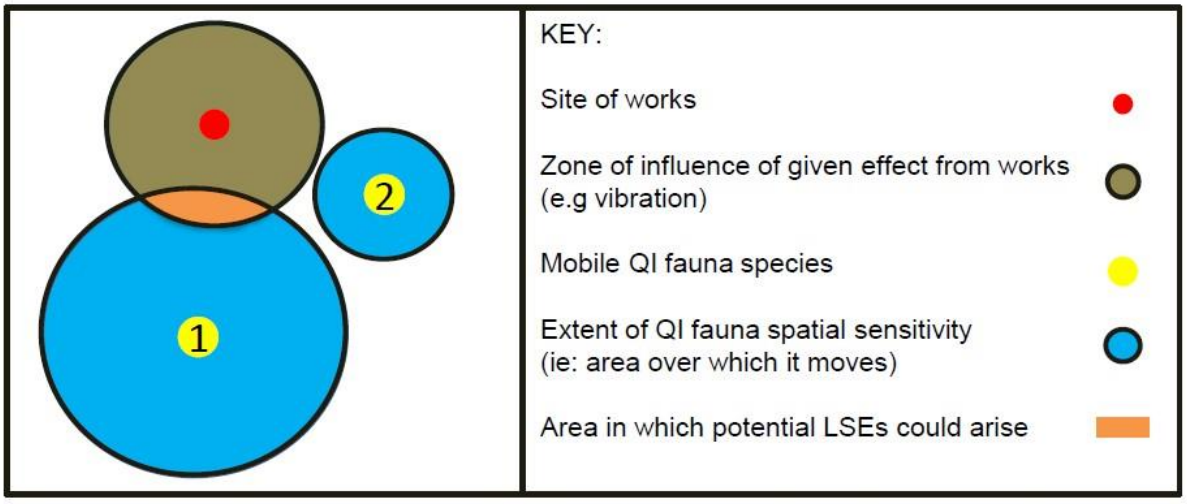


Figure 2: Relationship between zone of influence, LSEs and spatial sensitivity of mobile fauna species– note that QI fauna species 1 has potential to be affected by LSEs arising from works, while QI fauna species 2 shows no such potential, due to differing extents of spatial sensitivity.

Irish Water Report

Appropriate Assessment Screening as part of the Kilmeague WwTP Discharge License Review

Contents

Introduction

This report provides an Appropriate Assessment (AA) of the existing Waste Water Treatment Plant (WwTP) in Kilmeague, County Kildare for the purposes of the Waste Water Discharge (Authorisation) Regulations, 2007 (S.I. No. 684 of 2007), as amended. It assesses whether the on-going operation of the plant, alone or in combination with other plans and projects, is likely to have significant effects on a European Site(s) in view of best scientific knowledge and the conservation objectives of the site(s). European Sites are those identified as sites of European Community importance designated as Special Areas of Conservation under the Habitats Directive or as Special Protection Areas under the Birds Directive.

This report follows the guidance for AA published by the Environmental Protection Agency's (EPA) '*Note on Appropriate Assessments for the purposes of the Waste Water Discharge (Authorisation) Regulations, 2007 (S.I. No. 684 of 2007)*' (EPA, 2009); and takes account of the Department of the Environment, Heritage and Local Government's guidelines '*Appropriate Assessment of Plans and Projects in Ireland. Guidance for Planning Authorities*' (DoEHLG, 2009) and Circular L8/08 '*Water Services Investment and Rural Water Programmes – Protection of Natural Heritage and National Monuments*' (DoEHLG, 2008).

Legislative Context

The Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora, better known as "The Habitats Directive", provides legal protection for habitats and species of European importance. Articles 3 to 9 provide the legislative means to protect habitats and species of Community interest through the establishment and conservation of an EU-wide network of sites known as Natura 2000. These are Special Areas of Conservation (SACs) designated under the Habitats Directive and Special Protection Areas (SPAs) designated under the Conservation of Wild Birds Directive (79/409/ECC) as codified by Directive 2009/147/EC.

Articles 6(3) and 6(4) of the Habitats Directive set out the decision-making tests for plans and projects likely to affect European sites (Annex 1.1). Article 6(3) establishes the requirement for Appropriate Assessment (AA):

> *Any plan or project not directly connected with or necessary to the management of the [Natura 2000] site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subjected to appropriate assessment of its implications for the site in view of the site's conservation objectives. In light of the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public.*

Article 6(4) states:

> *If, in spite of a negative assessment of the implications for the [Natura 2000] site and in the absence of alternative solutions, a plan or project must nevertheless be carried out for imperative reasons of overriding public interest, including those of a social or economic nature, Member States shall take all compensatory measures necessary to ensure that the overall coherence of Natura 2000 is protected. It shall inform the Commission of the compensatory measures adopted.*

Methodology

Guidance Followed

Both EU and national guidance exists 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 Screening has had regard to the following guidance:

- Note on Appropriate Assessments for the purposes of the Waste Water Discharge (Authorisation) Regulations, 2007 (S.I. No. 684 of 2007). Environmental Protection Agency, (EPA, 2009).

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

- Circular L8/08 – Water Services Investment and Rural Water Programmes – Protection of Natural Heritage and National Monuments. Department of Environment, Heritage and Local Government, (DoEHLG, 2008).

- Communication from the Commission on the Precautionary Principle. Office for Official Publications of the European Communities, Luxembourg, (EC, 2000a).

- Managing Natura 2000 Sites: the provisions of Article 6 of the 'Habitats' Directive 92/43/EEC, Office for Official Publications of the European Communities, Luxembourg, (EC, 2000b).

- 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 (EC, 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. Office for Official Publications of the European Communities, Luxembourg, (EC, 2007).

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

- Marine Natura Impact Statements in Irish Special Areas of Conservation: A working document, National Parks and Wildlife Service, Dublin (NPWS, 2012).

- European Communities (Birds and Natural Habitats) Regulations, 2011 (S.I. No.477 of 2011).

- Interpretation Manual of European Union Habitats. Version EUR 28. European Commission (EC, 2013).

Stages Involved in the Appropriate Assessment Process

Stage 1: Screening / Test of Significance
This process identifies whether the WwTP discharge is directly connected to or necessary for the management of a European Site(s); and identifies whether the discharge is likely to have significant impacts upon a European Site(s) either alone or in combination with other projects or plans.

The output from this stage is a determination for each European Site(s) of not significant, significant, potentially significant, or uncertain effects. The latter three determinations will cause that site to be brought forward to Stage 2.

Stage 2: Appropriate Assessment
This stage considers the impact of the WwTP discharge on the integrity of a European Site(s), either alone or in combination with other projects or plans, with respect to (1) the site's conservation objectives; and (2) the site's structure and function and its overall integrity. Additionally, where there are adverse impacts, an assessment of the potential mitigation of those impacts

The output from this stage is a Natura Impact Statement (NIS). This document must include sufficient information for the EPA to carry out the appropriate assessment. If the assessment is negative, i.e. adverse effects on the integrity of a site cannot be excluded, then the process must consider alternatives (Stage 3) or proceed to Stage 4.

Stage 3: Assessment of Alternatives
This process examines alternative ways of achieving the objectives of the project or plan that avoid adverse impacts on the integrity of the European Site. This assessment may be carried out concurrently with Stage 2 in order to find the most appropriate solution. If no alternatives exist or all alternatives would result in negative impacts to the integrity of the European Sites then the process either moves to Stage 4 or the project is abandoned.

Stage 4: Assessment Where Adverse Impacts Remain
An assessment of compensatory measures where, in the light of an assessment of Imperative Reasons of Overriding Public Interest (IROPI), it is deemed that the project or plan should proceed.

Stage 1: Screening / Test of Significance

In complying with the obligations under Article 6(3) and following the appropriate guidelines, this AA Screening has been structured as a stage by stage approach as follows:

- Description of the project;
- Identification of European Sites potentially affected;
- Identification and description of individual and cumulative impacts likely to result;
- Assessment of the likely significance of any effects on European Sites;
- Exclusion of sites where it can be objectively concluded that there will be no significant effects; and
- Screening conclusion.

Field Walkover Surveys

Field walkover surveys were undertaken on the 7th of October 2016 to identify the potential for qualifying species and habitats in the surrounding environments of the current WwTP discharge at Kilmeague. The field surveys were completed by a qualified ecologist. Biological water quality sampling was undertaken at a suitable downstream location and involved kick sampling and subsequent application of the EPA Q-rating scheme (Toner *et al*, 2005[1]).

Consultation

The EPA, as the competent authority, will seek NPWS advice as may be required in reaching their decision on a WwTP discharge. The NPWS can only communicate with the applicant (i.e. Irish Water) on request from the competent authority, when the formal application process to the competent authority has already commenced.

[1] Toner, P., Bowman, K., Clabby, K., Lucey, J., McGarrigle, M, Concannon, C., Clenaghan, C., Cunningham, P., Delaney, J., O'Boyle, S., MaCarthaigh, M., Craig, M., and Quinn, R. 2005. Water Quality in Ireland 2001-2003. Environmental Protection Agency, Wexford.

Screening

Description of the Project

Kilmeague village is located in Co. Kildare ca. 13km from Naas town. Kilmeague Waste Water Treatment Plant (WwTP) is located to the south of the town and designed to cater for a population equivalent of 700p.e. The plant is licenced by the EPA (D0233-01). The WwTP discharges to an unnamed stream (IE_EA_09L011050 LIFFEY_090, 'the Kilmeague Stream') at ING 277460, 222298, which enters the River Liffey ca. 8km downstream of the WwTP just over 1km upstream of Victoria Bridge (Figure 1).

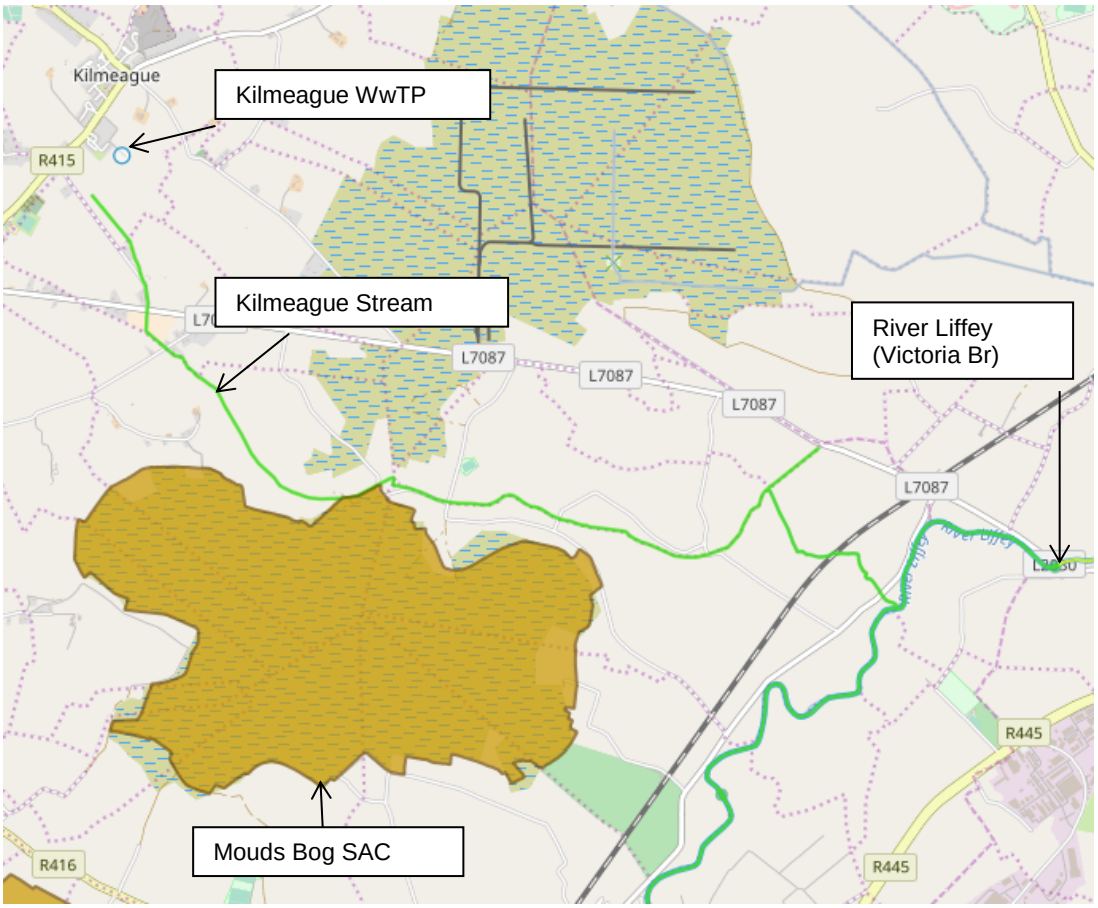


Figure 1 Location of Kilmeague WwTP (Source EPA online maps accessed 18.06.18)

According to the 2017 AER, the population equivalent for the plant is quoted as being 1239 p.e. The plant has a design capacity of 700 p.e. Effluent data from 2017 is presented in Table 1.0 together with the WWDL ELV's.

Table 1.0: Effluent Monitoring Data at Primary Discharge 2017

Sample Date	cBOD mg/l	COD mg/l	Suspe-nded solids mg/l	pH	Total Nitrogen mg/l	Total Phos-phorous mg/l	Ammonia mg/l	Ortho-Phosphate mg/l
WWDL ELV's	10		20					
10/01/17	3	53	15	7.37	27.2	4.75	19.1	1.95
14/02/17	4	69	14	7.37	21	2.2	12.9	1.6
08/03/17	5	60	13	7.49	13.2	2.05	8.8	1.5
19/04/17	8	71	13	7.63	23.7	1.39	17.1	0.69
10/05/17	3	49	10	7.72	24.8	2.45	17.3	1.3
13/06/17	3	49	14	7.73	21.2	2.1	14.3	1
11/07/17	5	64	8	7.16	25.6	1.1	21.7	0.6
10/08/17	4	38	12	7.41	24.2	1.95	16.6	1.6
12/09/17	2	53	13	7.43	13.3	2	9.9	0.85
10/10/17	4	44	11	7.34	22.6	0.75	18.6	0.7
02/11/17	2	36	6	7.36	16.1	1.35	8.9	0.88
14/11/17	2	34	7	7.32	17.6	1.8	13.2	0.73
06/12/17	2	52	13	7.65	16.6	1.29	12.2	0.75

The effluent from the primary discharge complies with the licence ELV's and also meets the Urban Wastewater Treatment Regulations 2001 (S.I. No. 254/2001) as amended for all relevant parameters on all dates in 2017. The agglomeration does not discharge to any waterbody listed as a Sensitive Area on Schedule 1 of the Urban Waste Water Treatment (Amendment) Regulations 2010 (S.I. No. 48/2010).

The plant is currently overloaded and the associated stormwater overflow is currently non-compliant. Irish Water has recently been granted permission for the installation of inletworks and a stormwater tank.

Description of the Receiving Environment and Monitoring Results

The downstream monitoring point is located 70m downstream of the primary discharge point within the drainage ditch stream into which the WwTP discharges.

Table 2.0: Monitoring Data Downstream of WwTP Discharge

Sample Date	BOD mg/ l	COD mg/l	Suspended solids mg/l	Total Nitrogen mg/l	Total Phosphorus mg/l	Ammonia mg/l	Ortho-Phosphate mg/l	DO mg/l
SWR EQS	≤2.6 (good) ≤2.2 (high)					≤0.14 (good) ≤0.090 (high)	≤0.075 (good) ≤0.045 (high)	
04/01/17	**5**	46	6	10.2	0.56	**3**	**0.43**	10.2
01/02/17	**2**	24	5	8	0.29	**0.93**	**0.18**	9.4
02/03/17	**2**	51	5	6.1	0.11	**0.9**	**0.09**	11.1
04/04/17	**4**	48	8	5.8	0.33	**1.1**	**0.22**	10.9
09/05/17	**4**	62	8	8.5	1.12	**2.1**	**0.66**	9.2
01/06/17	**4**	33	4	5.6	0.14	**1.18**	**0.12**	10.5
05/07/17	**4**	54	6	7.4	0.6	**1.9**	**0.3**	9.2
18/07/17	**4**	25	8	5.1	0.49	**3.2**	**0.39**	8.4
15/08/17	**4**	49	2	1.6	0.25	**0.9**	**0.16**	8.2
13/09/17	**4**	36	10	6.4	1.9	**5.3**	**1**	8.8
10/10/17	2	36	2	8.8	0.26	**3.1**	**0.22**	8.7
01/11/17	**4**	32	4	3.1	0.32	**0.8**	**0.15**	8.2
14/12/17	**18**	56	8	7.5	1.2	**3.6**	**0.8**	6.2

The data demonstrates that the water quality downstream of the WwTP was not in compliance with Schedule 5 of the European Communities Environmental Objectives (Surface Water) Regulations 2009 (S.I. No. 272 of 2009) on all monitoring dates in 2017. It is noted that the samping point, just 70m downstream of the discharge point and within a drainage ditch, is not at an appropriate downstream location and a new monitoring point will be proposed.

The Kilmeague stream enters the River Liffey at a point 8km away from the WWTP just over 1km upstream of Victoria Bridge (Figure 1). The stream has been assigned Good Water Framework Directive (WFD) status (2010-2015). The River Liffey upstream (RS09L011000) and downstream (RS09L011050) of where the stream enters in the townland of Morristown has also been assigned Good status (Q4 rating) by the EPA and Good WFD status[2].

Information pertaining to the catchment arising from the River Basin Management Plan was reviewed[3]. The Kilmeague stream is not indentified as being at risk from urban wastewater or any other catchment pressure.

[2] http://gis.epa.ie/Envision
[3] https://www.catchments.ie/maps/

Ecological Survey

A review of the NBDC website indicated there are no records of protected species within the Kilmeague stream. There are records of otter and crayfish in the River Liffey downstream and their distribution is indicated in the 10km squares (N72 and N81) where the stream is located (NPWS, 2013[4]). The presence of brook and river lamprey is indicated in the 10km square N81 (NPWS, 2013). The Liffey is an important salmonid river supporting salmon, sea trout and brown trout (O'Reilly, 2004[5]). A survey of the River Liffey at Lucan by IFI in 2009 (The Central and Regional Fisheries Board, 2009[6]) found seven fish species including salmon, brown trout, european eel and lamprey.

It is considered that the stream currently has little or no ecological value between the WwTP and the accessible stretch of stream ca 1.4km downsteam of the discharge, with the flow up to this point mostly comprised of the discharge. Sewage fungus was notable to ca. 750m downstream of the discharge point. This section physically has no fisheries potential due to the shallow narrow and heavily vegetated nature of the stream. The stream is also completely shaded for large sections.

Between 2-4km downstream of the discharge the stream acquires further flows from land drainage diluting the effects of the WwTP discharge. The physical characteristics of the stream with respect to depth, substrate and vegetation cover are not suitable for any life stage of salmonid fish (DANI, 1995[7]) primarily to due water depth and the influence of peat. The stream generally lacked suitable riffle habitat for kick-sampling with the exception of one stretch ca. 6km downsteam of the discharge, and 2km upstream of the confluence of the Liffey. Biological water quality sampling at this location found that the stream attains a Q2-3 score indicating Poor water quality. It is noted the poor quality of the substrate and shaded nature of the channel may have contributed to this score. Physically the habitat improves close to the River Liffey and could potentially support coarse fish, otter, crayfish and brook lamprey.

[4] NPWS (2013) The Status of EU Protected Habitats and Species in Ireland. Species Assessments Volume 3, Version 1.0. Unpublished Report, National Parks & Wildlife Services. Department of Arts, Heritage and the Gaeltacht, Dublin, Ireland.

[5] O'Reilly (2004) Rivers of Ireland: A flyfishers guide.

[6] The Central and Regional Fisheries Boards (2009) Eastern River Basin District Rivers. Sampling Fish for the Water Framework Directive – Rivers 2009.

[7] DANI (1995) Advisory Leaflet No. 1 The evaluation of habitat for salmon and trout. Department of Agriculture for Northern Ireland. Fisheries Division. EU Salmonid Enhancement Programme.

Identification of European Sites within the zone of influence of the WwTP discharge

This section of the screening process examines the European Sites within a 15km radius of Kilmeague WwTP, as well as any additional further sites potentially connected via surface and groundwater pathways, in order to determine which sites are within the zone of influence of the discharge. A 15km buffer zone has been chosen as an inital precautionary measure, to ensure that all potentially affected European Sites are considered in the screening process, which is in line with Appropriate Assessment of Plans and Projects in Ireland – Guidance for Planning Authorities produced by the Department of the Environment, Heritage and Local Government.

Table 3.0 list the European Sites that are within 15km of the WwTP. The qualifying interests of each of the identified European Sites is also provided. There are no SPA's within 15km of the Kilmeague discharge.

Table 3.0: SACs located within 15km of the WwTP Discharge Point

Site Code	Site Name	Qualifying Habitats	Qualify Species
002331	Mouds Bog	Active raised bogs [7110] Degraded raised bogs still capable of natural regeneration [7120] Depressions on peat substrates of the Rhynchosporion [7150]	
001387	Ballynafagh Lake	Alkaline fens [7230]	*Vertigo moulinsiana* (Desmoulin's Whorl Snail) [1016] *Euphydryas aurinia* (Marsh Fritillary) [1065]
000391	Ballynafagh Bog	Active raised bogs [7110] Degraded raised bogs still capable of natural regeneration [7120] Depressions on peat substrates of the Rhynchosporion [7150]	
000396	Pollardstown Fen	Calcareous fens with Cladium mariscus and species of the Caricion davallianae [7210] Petrifying springs with tufa formation (Cratoneurion) [7220] Alkaline fens [7230]	*Vertigo geyeri* (Geyer's Whorl Snail) [1013] *Vertigo angustior* (Narrow-mouthed Whorl Snail) [1014] *Vertigo moulinsiana* (Desmoulin's Whorl Snail) [1016]
000925	The Long Derries	Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites) [6210]	

Of the sites within 15km, considering the source-pathway-receptor model, only one SAC is potentially within the zone of influence of the discharge. The potential pathway occurs where receiving stream runs adjacent to Mouds Bog ca. 3.7km downstream of the primary discharge point.

Given the nature of the qualifying interests of the other sites (terrestrial habitats), the lack of hydrological connection, and the distance from the WwTP discharge, no pathway has been identified that could give rise to any effects on these sites.

Beyond the 15km zone, there is a theoretical pathway for effects via the River Liffey to the designated sites of Dublin Bay, however, considering the scale of the discharge, the distance is considered such as to preclude any potential for these sites to fall within the zone of influence of the discharge.

Possible Effects of the Waste Water Discharge on the European Sites

The purpose of this section of the screening is to examine the possibility that the existing waste water discharge, either individually or in combination with other plans and projects, may result in significant negative effects on the Conservation Objectives and the integrity of the European Sites identified to be within the potential zone of influence of the discharge. Further examination is therefore required to identify if there are water dependent qualifying interests which may be sensitive to the potential impacts of the discharge, considering the nature and scale of the discharge.

Using the source-pathway-receptor model, of the sites considered, only Mouds Bog SAC is considered to be within the potential zone of influence of the discharge. All other sites are therefore excluded from further assessment.

The Conservation Objectives of Mouds Bog SAC was reviewed as part of this Screening Assessment:

- NPWS (2015) Conservation Objectives: Mouds Bog SAC 002331. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

The existing discharge is not directly connected with or necessary to the management of any site for nature conservation.

Direct, Indirect or Secondary Impacts

A survey of the stream between the discharge location and the River Liffey idenfified that the discharge is having an effect in the immediate stretch downstream of the WwTP, but that the effect is less apparent further downstream as land drainage provides additional flow and dilution in the stream. There are no European Sites identified downstream with aquatic dependant qualifying interests with the potential to be impacted by the discharge. At the point at which the stream flows adjacent to Mouds Bog SAC, the water quality has improved as the ditch stream has acquired additional overland/sub-surface flow. Mouds Bog is designated for raised bog habitats. The lands that run adjacent to the Kilmeague stream comprise agriculture and afforested cutaway, with the edge of the raised bog located 0.5km to the south. Given the

improvement in water quality at this point, the fact raised bog ecosystems are primarily supported by rainwater, and the lack of potential for interaction with sensitive habitats, it is considered that there is no potential for the existing WwTP discharge to significantly effect any qualifying interests of Mouds Bog SAC.

In accordance with the Waste Water Discharge (Authorisation) Regulations 2007 (S.I. No. 684 of 2007) the waste water discharged from Kilmeague WwTP does will not impact on the conservation objectives of any European Site. No significant adverse impacts on the Annex I habitats or Annex II species of any of European Sites are anticipated as a result of the waste water discharge from Kilmeague WwTP.

Possible Cumulative Impacts with other Plans and Projects in the Area

As part of Stage 1 Screening, in addition to the existing WwTP discharge, other relevant projects and plans in the region must also be considered. This step aims to identify at this early stage any possible significant effects on the European Sites from the existing discharge in-combination or cumulative with other plans and projects.

Existing plans which have been examined include:

- Kildare County Development Plan 20117-2023;
- River Basin Management Plan (2018-2021) and associated information on the catchments available on www.catchments.ie;
- Kildare Biodiversity Plan 2009-2014.

The above plans have been assessed in accordance with Article 6(3) of the Habitats Directive and Part XAB of the Planning and Development Act, 2000, and are not envisaged to result in significant effects on the integrity of the Natura 2000 network.

Kildare County Councils planning maps website was reviewed in order to identify projects that could potentially combine with the existing discharge at Kilmeague to result in significant effects on European sites. The vast majority of applications are for one-off houses or alterations to existing structures. One relatively large housing development was granted permission in Kilmeague in 2007 (Planning Ref 07191), however this has yet to proceed, and any connection requirement to the wastewater network will be subject to the plant having capacity. Irish Water has been granted permission for the installation of inletworks and a stormwater tank (Planning Ref 17962). Construction activities have no potential to significantly impact on any downstream European site given the distance involved and nature of the downstream sites.

There is no potential for the existing discharge to give arise to effects ‘alone’, and therefore no potential for the existing discharge to interact with any other project to contribute to cumulative impacts on any European Site.

Screening Assessment

Table 4.0 provides a summary of the likely significant impact of the current waste water discharge on the conservation objectives of the European Sites potentially linked to the Kilmeague WwTP as identified in Table 3.0.

Table 4.0: Potential Significant Effects on European Sites from the Kilmeague Waste Water Discharge

Site Name	Direct Impacts	Indirect/ Secondary	Resource Requirements (Drinking Water Abstraction Etc.)	Emissions (Disposal to Land, Water or Air)	Excavation Requirements	Transportation Requirements	Duration of Construction, Operation, Decommissioning
Mouds Bog	No impact on qualifying interest	No impact on qualifying interest	No impact on qualifying interest	No impact on qualifying interest	No impact on qualifying interest	No impact on qualifying interest	No impact on qualifying interest
Ballynafagh Lake	No impact on qualifying interest	No impact on qualifying interest	No impact on qualifying interest	No impact on qualifying interest	No impact on qualifying interest	No impact on qualifying interest	No impact on qualifying interest
Ballynafagh Bog	No impact on qualifying interest	No impact on qualifying interest	No impact on qualifying interest	No impact on qualifying interest	No impact on qualifying interest	No impact on qualifying interest	No impact on qualifying interest
Pollardstown Fen	No impact on qualifying interest	No impact on qualifying interest	No impact on qualifying interest	No impact on qualifying interest	No impact on qualifying interest	No impact on qualifying interest	No impact on qualifying interest
The Long Derries	No impact on qualifying interest	No impact on qualifying interest	No impact on qualifying interest	No impact on qualifying interest	No impact on qualifying interest	No impact on qualifying interest	No impact on qualifying interest

Likely Changes to the European Site(s)

The likely changes that will arise from the Kilmeague waste water discharge have been examined in the context of a number of factors that could potentially affect the integrity of the identified European Sites. Overall, it has been found that the current waste water discharge is not likely to result in significant effects on any European Site. .

Table 5.0: Likely Significant Effects on European Sites

Site Name	Reduction of Habitat Area	Disturbance to Key Species	Habitat or Species Fragmentation	Reduction in Species Density	Changes in Key Indicators of Conservation Value (Water Quality Etc.)	Climate Change
Mouds Bog SAC	None	None	None	None	None	None
Ballynafagh Lake SAC	None	None	None	None	None	None
Ballynafagh Bog SAC	None	None	None	None	None	None
Pollardstown Fen SAC	None	None	None	None	None	None
The Long Derries SAC	None	None	None	None	None	None

Elements of the Project where the Impacts are Likely to be Significant

No elements of the current waste water discharge are likely to cause significant impacts on European Sites.

Screening Conclusions and Statement

The likely impacts that will arise from the current waste water discharge have been examined in the context of a number of factors that could potentially affect the integrity of the Natura 2000 network. None of the sites within the potential zone of influence of the discharge location will be adversely affected. A finding of No Significant Effects Matrix has been completed and is presented in next section of this Screening Statement.

On the basis of the findings of this Screening for Appropriate Assessment of European Sites, it is concluded that the current waste water discharge from the Kilmeague WwTP will not have a significant effect on the Natura 2000 network and a Stage 2 Appropriate Assessment is not required.

Finding of No Significant Effects Report Matrix

Name of project or plan	Kilmeague Waste Water Discharge License
Name and location of European site	Mouds Bog SAC Ballynafagh Lake SAC Ballynafagh Bog SAC Pollardstown Fen SAC The Long Derries SAC
Description of the project or plan	Kilmeague village is located in Co. Kildare ca. 13km from Naas town. Kilmeague Waste Water Treatment Plant (WwTP) is located to the south of the town and designed to cater for a population equivalent of 700p.e. The plant is licenced by the EPA (D0233-01). The WwTP discharges to an unnamed stream (IE_EA_09L011050 LIFFEY_090, 'the Kilmeague Stream') at ING 277460, 222298, which enters the River Liffey ca. 8km downstream of the WwTP just over 1km upstream of Victoria Bridge .
Is the project or plan directly connected with or necessary to the management of the site?	No.
Are there other projects or plans that together with the project or plan being assessed could affect the site?	No.
The Assessment of Significance of Effects	
Describe how the project or plan (alone or in combination) is likely to affect the European Site(s).	Of the sites within 15km, considering the source-pathway-receptor model, only one SAC is potentially within the zone of influence of the discharge. The potential pathway occurs where receiving stream runs adjacent to Mouds Bog ca. 3.7km downstream of the primary discharge point.
Explain why these effects are not considered significant.	A survey of the stream between the discharge location and the River Liffey idenfified that the discharge is having an effect in the immediate stretch downstream of the WwTP, but that the effect is less apparent further downstream as land drainage provides additional flow and dilution in the stream. There are no European Sites identified downstream with aquatic dependant qualifying interests with the potential to be impacted by the discharge. At the point at which the stream flows adjacent to Mouds Bog SAC, the water quality has improved as the ditch stream has acquired additional overland/sub-surface flow. Mouds Bog is designated for raised bog habitats. The lands that run adjacent to the Kilmeague stream comprise agriculture and afforested

	cutaway, with the edge of the raised bog located 0.5km to the south. Given the improvement in water quality at this point, the fact raised bog ecosystems are primarily supported by rainwater, and the lack of potential for interaction with sensitive habitats, it is considered that there is no potential for the existing WwTP discharge to significantly effect any qualifying interests of Mouds Bog SAC.
List of agencies consulted: provide contact name and telephone or e-mail address.	N/A
Response to consultation.	N/A
Data Collected to Carry Out the Assessment	
Who carried out the assessment?	Qualified Ecologist, Irish Water
Sources of data	NPWS database; EPA database; WFD Ireland database; and Information from Irish Water.
Level of assessment completed	Desktop study and site visit
Where can the full results of the assessment be accessed and viewed?	EPA
Overall Conclusion	Stage 1 Screening indicates that the Kilmeague WwTP discharge will not have a significant negative impact on the Natura 2000 network alone or in-combination with other plans and projects. Therefore, a Stage 2 'Appropriate Assessment' under Article 6(3) of the Habitats Directive 92/43/EEC is not required.