Appropriate Assessment Screening Report

as required under Article 6(3) of the Habitats Directive

(Council Directive 92/43/EEC)

Kilkenny Abbey Quarter Riverside Gardens

Prepared by: Moore Group – Environmental Services

17th November 2015

On behalf of Kilkenny County Council

Client	Kilkenny County Council
Project	Kilkenny Abbey Quarter Riverside Gardens AA Screening
Title	Appropriate Assessment Screening of Kilkenny Abbey Quarter Riverside Gardens

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1. Introduction

1.1. General Introduction

The Habitats Directive (Council Directive 92/43/EEC) requires that all plans and projects must be screened for potential impact on Special Areas of Conservation (SACs) or Special Protection Areas (SPAs). This process aims to establish whether a full Appropriate Assessment as required by Article 6 of the Directive is required in any particular case.

This report contains information required for the competent authority, in this case Kilkenny County Council, to complete an Appropriate Assessment (AA) process on the effects of the proposed development of Kilkenny Abbey Quarter Riverside Gardens at St. Francis' Abbey, Kilkenny. This report will form part of a Part 8 Planning Application by Kilkenny County Council.

The project site is located adjacent to the Breagagh River and the River Nore in Kilkenny City. The River Nore in Kilkenny City is designated as part of the River Barrow and River Nore SAC (Site Code: 002162) and River Nore SPA (Site Code: 004233).

The report has been prepared by Moore Group – Environmental Services on behalf of Kilkenny County Council and assesses the potential for the proposed development to impact on sites of European-scale ecological importance in accordance with Articles 6(3) and 6(4) of the Habitats Directive. The report was compiled by Ger O'Donohoe (B.Sc. Applied Aquatic Sciences (GMIT, 1993) & M.Sc. Environmental Sciences (TCD, 1999)) who has over 20 years experience in environmental impact assessment and has completed numerous Appropriate Assessment Screening Reports and Natura Impact Statements in terrestrial and aquatic habitats.

The report assesses the potential for the proposed development to impact on sites of European-scale ecological importance. It is necessary that the Project has regard to Article 6 of the Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora (as amended) (referred to as the Habitats Directive). This is transposed into Irish Law by the European Communities (Birds and Natural Habitats) Regulations, 2011 (S.I. 477) (referred to as the Habitats Regulations).

1.2. Legislative Background - The Habitats and Birds Directives

The Habitats Directive (Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora) is the main legislative instrument for the protection and conservation of biodiversity in the EU. Under the Directive member States are obliged to designate Special Areas of Conservation (SACs) which contain habitats or species considered important for protection and conservation in a European Union context.

The Birds Directive (Council Directive 79/409/EEC as codified by 2009/147/EC), is concerned with the long-term protection and management of all wild bird species and their habitats in the EU. Among other things, the Directive requires that Special Protection Areas (SPAs) be established to protect migratory species and species which are rare, vulnerable, in danger of extinction, or otherwise require special attention.

Special Areas of Conservation (SACs) designated under the Habitats Directive and Special Protection Areas, designated under the Birds Directive, form a pan-European network of protected sites known as Natura 2000. The Habitats Directive sets out a unified system for the protection and management of SACs and SPAs.

Articles 6(3) and 6(4) of the Habitats Directive set out the requirement for an assessment of proposed plans and projects likely to affect Natura 2000 sites.

Article 6(3) establishes the requirement to screen all plans and projects and to carry out a further assessment if required (Appropriate Assessment (AA)):

Article 6(3): “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 subjected to an 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): “If, in spite of a negative assessment of the implications for the 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 the Natura 2000 is protected. It shall inform the Commission of the compensatory measures adopted. Where the site concerned hosts a priority natural habitat type and/or a priority species the only considerations which may be raised are those relating to human health or public safety, to the beneficial consequences of primary importance for the environment or, further to an opinion from the Commission, to other imperative reasons of overriding public interest."

This Screening Report is a documentary record of the Appropriate Assessment process on the proposed development of a Riverside Walk at St. Francis' Abbey, Kilkenny, referred to in this case as the Project.

2. Methodology

The Commission's methodological guidance (EC, 2002) promotes a four-stage process to complete the AA, and outlines the issues and tests at each stage. An important aspect of the process is that the outcome at each successive stage determines whether a further stage in the process is required.

Stages 1-2 deal with the main requirements for assessment under Article 6(3). Stage 3 may be part of Article 6(3) or may be a necessary precursor to Stage 4. Stage 4 is the main derogation step of Article 6(4).

Stage 1 Screening: 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 or affect overall site integrity.

Stage 2 Appropriate Assessment: In this stage, the impact of the project is considered on the integrity of the Natura 2000 site with respect to the conservation objectives of the site and to its structure and function.

Stage 3 Assessment of Alternative Solutions: This stage examines alternative ways of implementing the project that, where possible, avoid any adverse impacts on the integrity of the Natura 2000 site.

Stage 4 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 sites will be necessary.

In order to ensure that the Project complies fully with the requirements of Article 6 of the Habitats Directive and all relevant Irish transposing legislation, Moore Group carried out the screening of the Project on behalf of Kilkenny County Council to see if Stage 2 AA is required.

2.1. Guidance

The AA has been compiled in accordance with guidance contained in the following documents:

- Appropriate Assessment of Plans and Projects in Ireland - Guidance for Planning Authorities. (Department of Environment, Heritage and Local Government, 2010 rev.).
- Appropriate Assessment under Article 6 of the Habitats Directive: Guidance for Planning Authorities. Circular NPWS 1/10 & PSSP 2/10.
- 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 Environment Directorate-General, 2001); hereafter referred to as the EC Article Guidance Document.
- Managing Natura 2000 Sites: The Provisions of Article 6 of the Habitat's Directive 92/43/EEC (EC Environment Directorate-General, 2000); hereafter referred to as MN2000.

2.2. Data Sources

Sources of information that were used to collect data on the Natura 2000 network of sites are listed below:

- Ordnance Survey of Ireland mapping and aerial photography available from www.osi.ie and Google Earth and Bing aerial photography.
- Online data available on Natura 2000 sites as held by the National Parks and Wildlife Service (NPWS) from www.npws.ie including; the Natura 2000 network Data Form; Site Synopsis; Generic Conservation Objective data
    - Online database of rare, threatened and protected species
    - Publicly accessible biodiversity datasets.
- Status of EU Protected Habitats in Ireland. (National Parks & Wildlife Service, 2013)
- Relevant Development Plans and Local Area Plans in neighbouring areas
- Central Access Scheme for the City of Kilkenny EIS 2011; Appendix D Natura Impact Statement
- Natura Impact Report of the Draft Masterplan for Abbey Creative Quarter, Kilkenny
- St. Francis' Abbey Brewery Demolition Works AA Screening Report
- Brewhouse Renovation AA Screening Report

2.3. Screening Steps

In complying with the obligations under Article 6(3) and following the EC2000 and MN2000 Guidance, this AA has been structured as a stage by stage approach as follows:

Screening stage

- Description of the Project;
- Brief description of the Natura 2000 site(s) potentially affected;
- Conservation objectives of the Natura 2000 site(s);
- Assessment criteria;
    - Likely impacts on Natura 2000 site(s);
    - Cumulative and in combination impacts;
    - Likely changes to Natura 2000 site(s);
    - Elements of the Project where the impacts are likely to be significant;
- Identification and description of individual and cumulative impacts likely to result;
- Assessment of the significance of the impacts identified above on site(s) integrity;
- Exclusion of site(s) where it can be objectively concluded that there will be no significant effects; and
- Screening conclusion and statement.

If the effects are deemed to be significant, potentially significant, or uncertain, or if the screening process becomes overly complicated, then the process must proceed to Stage 2 (AA).

3. Description of the Project

The footprint of the proposed Kilkenny Abbey Quarter Riverside Gardens forms part of the previous St. Francis' Abbey Brewery site located in the centre of Kilkenny City. The location of the development site is presented in Figure 1 and Figure 2 below.

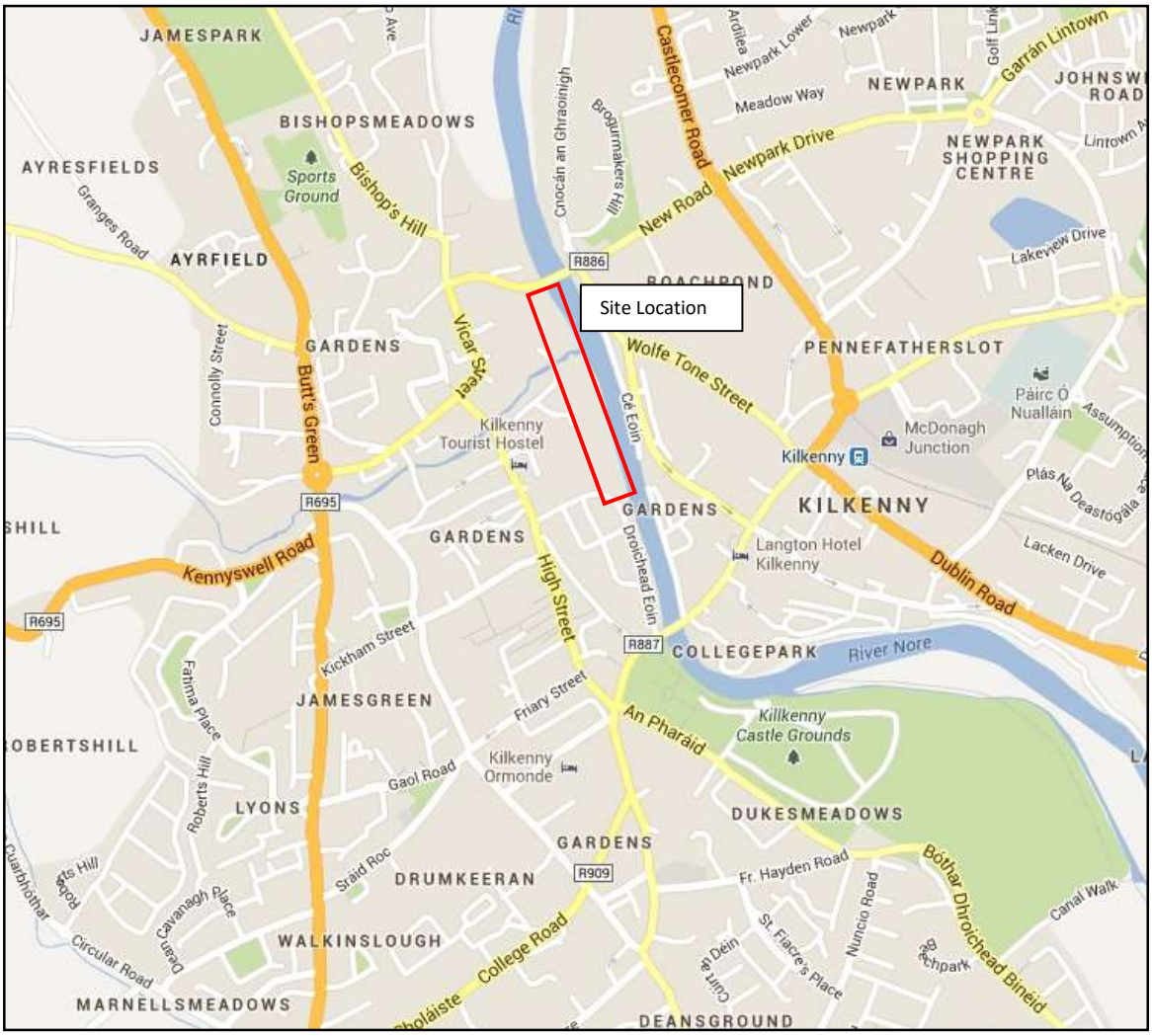

Figure 1. Site Location in Kilkenny City.

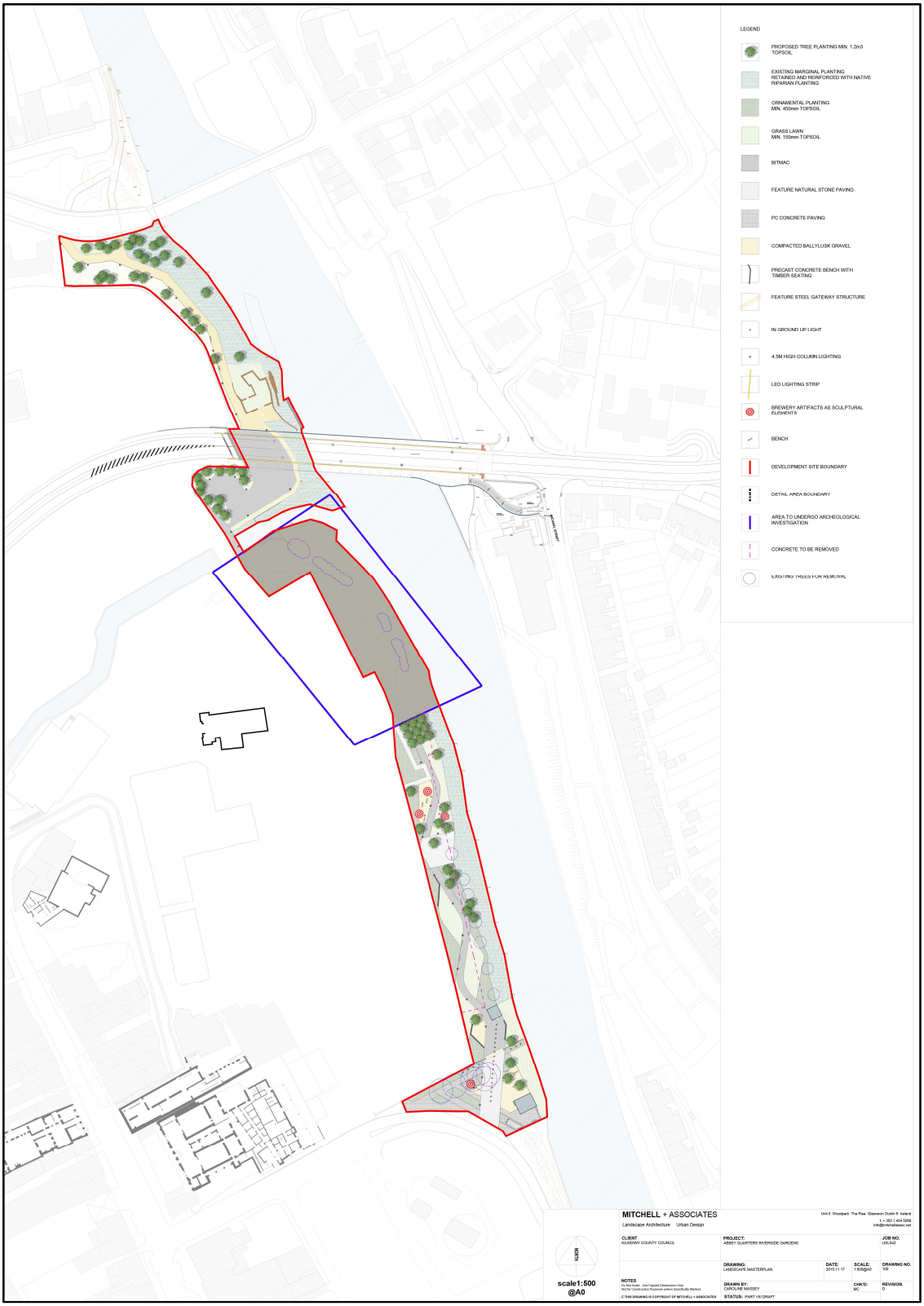

Figure 2. Showing the general layout of the proposed gardens.

The site in question is located along the western bank of the River Nore within the Kilkenny City Centre boundaries and its width will consist of, on average, a 15m strip. A large extent of the proposed scheme is located within the Diageo St. Francis' Abbey Brewery and is proposed to form part of the larger masterplan of the Diageo site and extends as far north as Green's Bridge.

The proposed development shall consist of a 15m wide strip located alongside the western bank of the River Nore intended to link the city with the existing Nore River Walk north of the site. The proposal has designated the area to the south of the site (The Tea Houses on Bateman's Quay) as the gateway to the Park which will be achieved in the form of a contemporary interpretation of the typical archway found across Kilkenny city. The area associated with the Tea rooms will be designed as a seating / viewing area along the river.

The project will include the following:

- the removal of the existing concrete slab,
- the raising of site levels,
- Provision of a 3m wide shared pedestrian / cycle, that will meander through the Gardens,
- Retention and reinforcement of the existing riparian planting along the river bank,
- Raising of the existing ground levels,
- Removal of the existing non-native Poplar Trees along the top of the River Bank,
- Provision of paved 'pocket' spaces,
- Provision of Ornamental planted areas and grassed lawns,
- Provision of Seating areas,
- Provision of Walkway Lighting,
- Installation of various elements from the Brewing process as features to reflect the past history of the site,
- Entrance "Gateway" Structure in the area of the Tea Houses on Bateman Quay,
- Retention of the existing boat slip,
- Provision of a Skate Park area to the north of the River Breagagh,
- Areas identified from historic mapping which indicate the potential for buried structures to be investigated with archaeological supervision. Any newly revealed features to be appropriately displayed.

It is the intention to retain and position artefacts from the Diageo site as Sculptural elements throughout the Park to animate spaces and acknowledge the site's former use. A 3m wide shared pedestrian and cycle route is proposed as the primary circulation route through the Park and shall meander along the river's

edge, allowing access to a series of spaces, varying in scale and function. The sequence of spaces will provide seating and gathering spaces to sit and enjoy the River Nore and elements and features to interact with. The proposals aim to create a variety of experiences along the linear route to retain interest, excitement and exploration. The planting strategy aims to create structure and year-round interest, to enhance the existing habitats and in doing so, improve the site's biodiversity.

4. Identification of Natura 2000 Sites

4.1. Description of Natura Sites Potentially Affected

The site is located adjacent to the Breagagh River and River Nore which is designated as part of the River Barrow and River Nore SAC (Site Code: 002162) and River Nore SPA (Site Code: 004233)(See Figure 3 below). The Qualifying interests of the adjacent Natura 2000 sites are listed in Tables 1 and 2 below and Site Synopses are available on the NPWS metadata site.

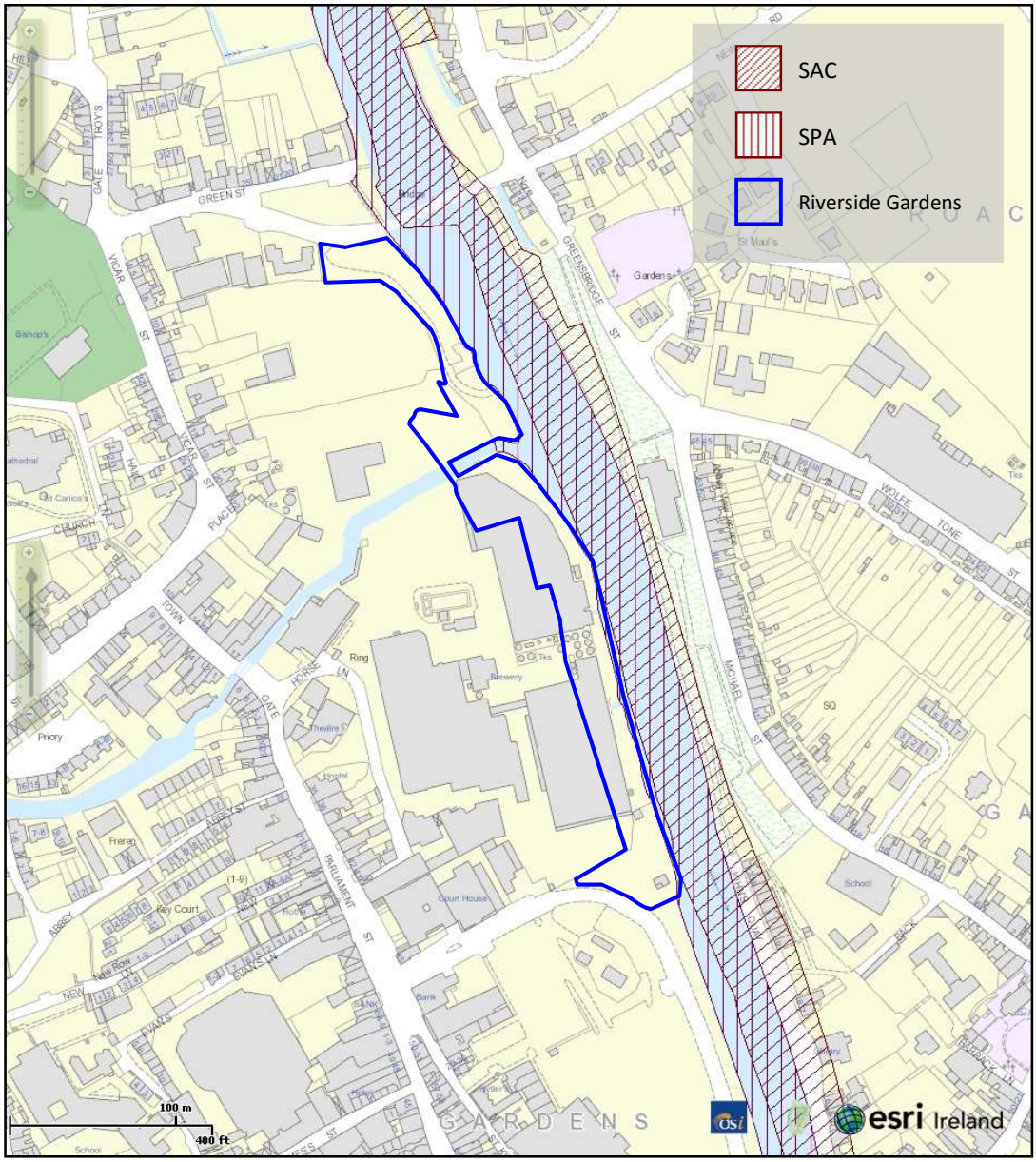

Figure 3. Indicative site Location in relation to the River Nore Natura 2000 sites.

Table 1. Special Areas of Conservation located downstream of the Project (*indicates priority habitat).

Site Code	Site Name	Qualifying Habitats	Qualifying Species
002162	River Barrow and River Nore SAC	1130 Estuaries 1140 Mudflats and sandflats not covered by seawater atlow tide 1310 Salicornia and other annuals colonizingmud and sand 1330 Atlantic saltmeadows(Glauco-Puccinellietaliamaritimae) 1410 Mediterranean saltmeadows(Juncetaliamaritimi) 3260 Water courses of plain tomontane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation 4030 European dry heaths 6430 Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels 7220 * Petrifying springs with tufa formation (Cratoneurion) 91A0 Old sessile oak woods with Ilex and Blechnumin the British Isles 91E0 * Alluvial forests with Alnus glutinosa and Fraxinus excelsior(Alno-Padion, Alnion incanae, Salicion albae)	1016 Desmoulin's whorl snail *Vertigo moulinsiana* 1029 Freshwater pearl mussel *Margaritifera margaritifera* 1092 White-clawed crayfish *Austropotamobius pallipes* 1095 Sea lamprey *Petromyzon marinus* 1096 Brook lamprey *Lampetra planeri* 1099 River lamprey *Lampetra fluviatilis* 1990 Nore freshwater pearl mussel *Margaritifera durrovensis* 1103 Twaite shad *Alosa fallax* 1106 Atlantic salmon (*Salmo salar*) (only in fresh water) 1355 Otter *Lutra lutra* 1421 Killarney fern *Trichomanes speciosum*

Table 2. Special Protection Areas located downstream of the Project.

Site Code	Site Name	Qualifying Habitats	Qualifying Species
004233	River Nore SPA		Kingfisher (Alcedo atthis) [A229]

4.2. Conservation Objectives of the Natura 2000 Sites

The following Conservation Objectives, available from the NPWS (Vers 1.0, 19th July 2011), are set out for the River Barrow and River Nore SAC:

1016 Desmoulin's whorl snail Vertigo moulinsiana

To maintain the favourable conservation condition of Desmoulin's whorl snail in the River Barrow and River Nore SAC, which is defined by the following list of attributes and targets:

Distribution: occupied sites, Number - No decline. Two known sites: Borris Bridge, Co. Carlow S711503; Boston Bridge, Kilnaseer S338774, Co. Laois.

Population size: adults, Number per positive sample - At least 5 adults snails in at least 50% of samples.

Population density, Percentage positive samples - Adult snails present in at least 60% of samples per site.

Area of occupancy, Hectares - Minimum of 1ha of suitable habitat per site

Habitat quality: vegetation, Percentage of samples with suitable vegetation - 90% of samples in habitat classes I and II as defined in Moorkens & Killeen (2011).

Habitat quality: soil moisture levels, Percentage of samples with appropriate soil moisture levels - 90% of samples in moisture class 3-4 as defined in Moorkens & Killeen (2011).

1029 Freshwater pearl mussel Margaritifera margaritifera

The status of the freshwater pearl mussel (*Margaritifera margaritifera*) as a qualifying Annex II species for the River Barrow and River Nore SAC is currently under review. The outcome of this review will determine whether a site-specific conservation objective is set for this species. Please note that the Nore freshwater pearl mussel (*Margaritifera durrovensis*) remains a qualifying species for this SAC. This document contains a conservation objective for the latter species.

1092 White-clawed crayfish Austropotamobius pallipes

To maintain the favourable conservation condition of White-clawed crayfish in the River Barrow and River Nore SAC, which is defined by the following list of attributes and targets:

Distribution, Occurrence - No reduction from baseline.
Population structure: recruitment, Percentage occurrence of juveniles and females with eggs - Juveniles and/or females with eggs in at least 50% of positive samples.

Negative indicator species, Occurrence - No alien crayfish species.

Disease, Occurrence - No instances of disease.

Water quality, EPA Q value - At least Q3-4 at all sites sampled by EPA.

Habitat quality: heterogeneity, Occurrence of positive habitat features - No decline in heterogeneity or habitat quality.

1095 Sea lamprey Petromyzon marinus

To restore the favourable conservation condition of Sea lamprey in the River Barrow and River Nore SAC, which is defined by the following list of attributes and targets:

Distribution: extent of anadromy, % of river accessible - Greater than 75% of main stem length of rivers accessible from estuary.

Population structure of juveniles, Number of age/size Groups - At least three age/size groups present.

Juvenile density in fine sediment, Juveniles/m² - Juvenile density at least 1/m².

Extent and distribution of spawning habitat, m² and occurrence - No decline in extent and distribution of spawning beds.

Availability of juvenile habitat, Number of positive sites in 3rd order channels (and greater), downstream of spawning areas - More than 50% of sample sites positive.

1096 Brook lamprey Lampetra planeri

To restore the favourable conservation condition of Brook lamprey in the River Barrow and River Nore SAC, which is defined by the following list of attributes and targets:

Distribution: extent of anadromy, % of river accessible - Access to all watercourses down to first order streams.

Population structure of juveniles, Number of age/size Groups - At least three age/size groups of brook/river lamprey present.

Juvenile density in fine sediment, Juveniles/m² - Mean catchment juvenile density of brook/river lamprey at least 2/m².

Extent and distribution of spawning habitat, m² and occurrence - No decline in extent and distribution of spawning beds.

Availability of juvenile habitat, Number of positive sites in 2nd order channels (and greater), downstream of spawning areas - More than 50% of sample sites positive.

1099 River lamprey Lampetra fluviatilis

To restore the favourable conservation condition of River lamprey in the River Barrow and River Nore SAC, which is defined by the following list of attributes and targets:

Distribution: extent of anadromy, % of river accessible - Greater than 75% of main stem and major tributaries down to second order accessible from estuary.

Population structure of juveniles, Number of age/size Groups - At least three age/size groups of river/brook lamprey present.

Juvenile density in fine sediment, Juveniles/m² - Mean catchment juvenile density of brook/river lamprey at least 2/m².

Extent and distribution of spawning habitat, m² and occurrence - No decline in extent and distribution of spawning beds.

Availability of juvenile habitat, Number of positive sites in 2nd order channels (and greater), downstream of spawning areas - More than 50% of sample sites positive.

1103 Twaite shad Alosa fallax

To restore the favourable conservation condition of Twaite shad in the River Barrow and River Nore SAC, which is defined by the following list of attributes and targets:

Distribution: extent of anadromy, % of river accessible - Greater than 75% of main stem length of rivers accessible from estuary.

Population structure: age classes, Number of age classes - More than one age class present.

Extent and distribution of spawning habitat, m² and occurrence - No decline in extent and distribution of spawning habitats.

Water quality: oxygen levels, Milligrammes per litre - No lower than 5mg/l

Spawning habitat quality: Filamentous algae; macrophytes; sediment, Occurrence - Maintain stable gravel substrate with very little fine material, free of filamentous algal (macroalgae) growth and macrophyte (rooted higher plants) growth.

1106 Atlantic salmon (Salmo salar) (only in fresh water)

To restore the favourable conservation condition of Salmon in the River Barrow and River Nore SAC, which is defined by the following list of attributes and targets:

Distribution: extent of anadromy, % of river accessible - 100% of river channels down to second order accessible from estuary.

Adult spawning fish, Number - Conservation Limit (CL) for each system consistently exceeded.

Salmon fry abundance, Number of fry/5 minutes electrofishing - Maintain or exceed 0+ fry mean catchment-wide abundance threshold value. Currently set at 17 salmon fry/5 min sampling.

Out-migrating smolt abundance, Number - No significant decline.

Number and distribution of redds, Number and occurrence - No decline in number and distribution of spawning redds due to anthropogenic causes.

Water quality, EPA Q value - At least Q4 at all sites sampled by EPA.

1130 Estuaries

To maintain the favourable conservation condition of Estuaries in the River Barrow and River Nore SAC, which is defined by the following list of attributes and targets:

Habitat area, Hectares - The permanent habitat area is stable or increasing, subject to natural processes.

Community distribution, Hectares - The following sediment communities should be maintained in a natural condition: Muddy estuarine community complex; Sand to muddy fine sand community complex; Fine sand with *Fabulina fabula* community.

Community extent, Hectares - Maintain the natural extent of the Sabellaria alveolata reef, subject to natural process.

1140 Mudflats and sandflats not covered by seawater at low tide

To maintain the favourable conservation condition of the Mudflats and sandflats not covered by seawater at low tide in the River Barrow and River Nore SAC, which is defined by the following list of attributes and targets:

Habitat, area Hectares - The permanent habitat area is stable or increasing, subject to natural processes.

Community distribution, Hectares - The following sediment communities should be maintained in a natural condition: Muddy estuarine community complex; Sand to muddy fine sand community complex.

1310 Salicornia and other annuals colonizing mud and sand

To maintain the favourable conservation condition of Salicornia and other annuals colonizing mud and sand in the River Barrow and River Nore SAC, which is defined by the following list of attributes and targets:

Habitat area, Hectares - Area stable or increasing, subject to natural processes, including erosion and succession. For the one subsite mapped: Ringville - 0.03ha.

Habitat distribution, Occurrence - No decline, subject to natural processes.

Physical structure: sediment supply, Presence/absence of physical barriers - Maintain or where necessary restore natural circulation of sediments and organic matter, without any physical obstructions.

Physical structure: flooding regime, Hectares flooded; frequency - Maintain natural tidal regime.

Physical structure: creeks and pans, Occurrence - Maintain/restore creek and pan structure, subject to natural processes, including erosion and succession.

Vegetation structure: zonation, Occurrence - Maintain range of saltmarsh habitat zonations including transitional zones, subject to natural processes including erosion and succession.

Vegetation structure: vegetation height, Centimeters - Maintain structural variation within sward.

Vegetation structure: vegetation cover, Percentage cover at a representative sample of monitoring stops - Maintain more than 90% of area outside creeks vegetated.

Vegetation composition: typical species and sub-communities, Percentage cover - Maintain the presence of species-poor communities with typical species listed in Saltmarsh Monitoring Project (McCorry & Ryle, 2009).

Vegetation structure: negative indicator species- Spartina anglica, Hectares - No significant expansion of common cordgrass (Spartina anglica), with an annual spread of less than 1% where it is already known to occur.

1330 Atlantic salt meadows (Glauco-Puccinellietalia maritimae)

To restore the favourable conservation condition of Atlantic salt meadows (Glauco-Puccinellietalia maritimae) in the River Barrow and River Nore SAC, which is defined by the following list of attributes and targets:

Habitat area, Hectares - Area stable or increasing, subject to natural processes, including erosion and succession. For sub-sites mapped: Dunbrody Abbey - 1.25ha, Killowen - 2.59ha, Rochestown - 17.50ha, Ringville - 6.70ha.

Habitat distribution, Occurrence - No decline subject to natural processes.

Physical structure: sediment supply, Presence/ absence of physical barriers - Maintain natural circulation of sediments and organic matter, without any physical obstructions.

Physical structure: flooding regime, Hectares flooded; frequency - Maintain natural tidal regime.

Physical structure: creeks and pans, Occurrence - Maintain creek and pan structure, subject to natural processes, including erosion and succession.

Vegetation structure: zonation, Occurrence - Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession.

Vegetation structure: vegetation height, Centimeters - Maintain structural variation within sward.

Vegetation structure: vegetation cover, Percentage cover at a representative sample of monitoring stops - Maintain more than 90% of area outside creeks vegetated.

Vegetation composition: typical species and sub-communities, Percentage cover - Maintain the presence of species-poor communities with typical species listed in Saltmarsh Monitoring Project (McCorry and Ryle, 2009).

Vegetation structure: negative indicator species- Spartina anglica, Hectares - No significant expansion of common cordgrass (Spartina anglica), with an annual spread of less than 1% where it is already known to occur.

1355 Otter Lutra lutra

To restore the favourable conservation condition of Otter in the River Barrow and River Nore SAC, which is defined by the following list of attributes and targets:

Distribution, Percentage positive survey sites - No significant decline.

Extent of terrestrial habitat, Hectares - No significant decline. Area mapped and calculated as 122.8ha above high water mark (HWM); 1136.0ha along river banks / around ponds.

Extent of marine habitat, Hectares - No significant decline. Area mapped and calculated as 857.7ha.

Extent of freshwater (river) habitat, Kilometers - No significant decline. Length mapped and calculated as 616.6km.

Extent of freshwater (lake) habitat, Hectares - No significant decline. Area mapped and calculated as 2.6ha.

Couching sites and holts, Number- No significant decline.

Fish biomass available, Kilograms - No significant decline.

1410 Mediterranean salt meadows (Juncetalia maritimi)

To restore the favourable conservation condition of Mediterranean salt meadows (Juncetalia maritimi) in the River Barrow and River Nore SAC, which is defined by the following list of attributes and targets:

Habitat area, Hectares - Area increasing, subject to natural processes, includingerosion and succession. For sub-sites mapped: Dunbrody Abbey - 0.08ha, Rochestown - 0.04ha, Ringville - 6.70ha.

Habitat distribution, Occurrence - No decline, subject to natural processes.

Physical structure: sediment supply, Presence/absence of physical barriers - Maintain natural circulation of sediments and organic matter, without any physical obstructions.

Physical structure: flooding regime, Hectares flooded; frequency - Maintain natural tidal regime.

Physical structure: creeks and pans, Occurrence - Maintain/restore creek and pan structure, subject to natural processes, including erosion and succession.

Vegetation structure: zonation, Occurrence - Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession.

Vegetation structure: vegetation height, Centimetres - Maintain structural variation within sward.

Vegetation structure: vegetation cover, Percentage cover at a representative sample of monitoring stops - Maintain more than 90% of area outside creeks vegetated.

Vegetation composition: typical species, Percentage cover - Maintain range of subcommunities with typical species listed in Saltmarsh Monitoring Project (McCorry and Ryle, 2009).

Vegetation structure: negative indicator species - Spartina anglica, Hectares -No significant expansion of common cordgrass (Spartina anglica), with an annual spread of less than 1% where it is already known to occur.

1421 Killarney fern Trichomanes speciosum

To maintain the favourable conservation condition of Killarney Fern in the River Barrow and River Nore SAC, which is defined by the following list of attributes and targets:

Distribution, Location - No decline. Three locations known, with three colonies of gametophyte and one sporophyte colony.

Population size, Number - Maintain at least three colonies of gametophyte, and at least one sporophyte colony of over 35 fronds.

Population structure: juvenile fronds, Occurrence - At least one of the locations to have a population structure comprising sporophyte, unfurling fronds, 'juvenile' sporophyte and gametophyte generations.

Habitat extent, m^2 - No loss of suitable habitat, such as shaded rock crevices, caves or gullies in or near to, known colonies. No loss of woodland canopy at or near to known locations.

Hydrological conditions: visible water, Occurrence - Maintain hydrological conditions at the locations so that all colonies are in dripping or damp seeping habitats, and water is visible at all locations.

Hydrological conditions: humidity, Number of dessicated fronds - No increase. Presence of dessicated sporophyte fronds or gametophyte mats indicates conditions are unsuitable.

Light levels: shading, Percentage - No changes due to anthropogenic impacts.

Invasive species, Occurrence - Absent or under control.

1990 Nore freshwater pearl mussel Margaritifera durrovensis

To restore the favourable conservation condition of the Nore freshwater pearl mussel in the River Barrow and River Nore SAC, which is defined by the following list of attributes and targets:

Distribution, Kilometres - Maintain at 15.5km.

Population size: adult mussels, Number - Restore to 5,000 adult mussels.

Population structure: recruitment, Percentage per size class - Restore to at least 20% of population no more than 65mm in length; and at least 5% of population no more than 30mm in length.

Population structure: adult mortality, Percentage- No more than 5% decline from previous number of live adults counted; dead shells less than 1% of the adult population and scattered in distribution.

Habitat extent, Kilometres - Restore suitable habitat in length of river corresponding to distribution target (15.5km; see map 7) and any additional stretches necessary for salmonid spawning.

Water quality: Macroinvertebrates and phytobenthos(diatoms), Ecological quality ratio (EQR) - Restore water qualitymacroinvertebrates: EQR greater than 0.90; phytobenthos: EQR greater than 0.93.

Substratum quality: Filamentous algae (macroalgae), macrophytes (rooted higher plants), Percentage - Restore substratum qualityfilamentous algae: absent or trace (<5%); macrophytes: absent or trace (<5%).

Substratum quality: sediment, Occurrence - Restore substratum quality stable cobble and gravel substrate with very little fine material; no artificially elevated levels of fine sediment.

Substratum quality: oxygen availability, Redox potential - Restore to no more than 20% decline from water column to 5cm depth in substrate.

Hydrological regime: flow variability, Metres per second - Restore appropriate hydrological regimes.

Host fish, Number - Maintain sufficient juvenile salmonids to host glochidial larvae.

3260 Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation

To maintain the favourable conservation condition of Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation in the River Barrow and River Nore SAC, which is defined by the following list of attributes and targets:

Habitat distribution, Occurrence - No decline, subject to natural processes.

Habitat area, Kilometres - Area stable or increasing, subject to natural processes.

Hydrological regime: river flow, Metres per second - Maintain appropriate hydrological regimes.

Hydrological regime: groundwater discharge, Metres per second - The groundwater flow to the habitat should be permanent and sufficient to maintain tufa formation.

Substratum composition: particle size range, Millimetres- The substratum should be dominated by large particles and free from fine sediments.

Water chemistry: minerals, Milligrammes per litre - The groundwater and surface water should have sufficient concentrations of minerals to allow deposition and persistence of tufa deposits.

Water quality: suspended sediment, Milligrammes per litre - The concentration of suspended solids in the water column should be sufficiently low to prevent excessive deposition of fine sediments.

Water quality: nutrients, Milligrammes per litre - The concentration of nutrients in the water column should be sufficiently low to prevent changes in species composition or habitat condition.

Vegetation composition: typical species, Occurrence - Typical species of the relevant habitat sub-type should be present and in good condition.

Floodplain connectivity, Area - The area of active floodplain at and upstream of the habitat should be maintained.

4030 European dry heaths

To maintain the favourable conservation condition of European dry heaths in the River Barrow and River Nore SAC, which is defined by the following list of attributes and targets:

Habitat distribution, Occurrence - No decline from current habitat distribution, subject to natural processes.

Habitat area, Hectares - Area stable or increasing, subject to natural processes. Habitat area is not known but estimated as less than 400ha of the area of the SAC, occurring in dispersed locations.

Physical structure: free-draining, acid, low nutrient soil; rock outcrops, Occurrence - No significant change in soil nutrient status, subject to natural processes. No increase or decrease in area of natural rock outcrop

Vegetation structure: subshrub indicator species, Percentage cover - Cover of characteristic subshrub indicator species at least 25%: gorse (Ulex europaeus) and where rocky outcrops occur bilberry (Vaccinium myrtillus) and woodrush (Luzula sylvatica). Some rock outcrops support English stonecrop (Sedum anglicum), sheep's bit (Jasione montana) and wild madder (Rubia peregrina) as well as important moss and lichen assemblages.

Vegetation structure: senescent gorse, Percentage cover - Cover of senescent gorse less than 50%.

Vegetation structure: browsing, Percentage cover - Long shoots of bilberry with signs of browsing collectively less than 33%.

Vegetation structure: native trees and shrubs, Percentage cover - Cover of scattered native trees and shrub less than 20%.

Vegetation composition: positive indicator species, Number - Number of positive indicator species at least 2 e.g. gorse and associated dry heath/ acid grassland flora.

Vegetation structure: positive indicator species, Percentage cover - Cover of positive indicator species at least 60%. This should include plant species characterisitic of dry heath in this SAC including gorse, bilberry and associated acid grassland flora.

Vegetation composition: bryophyte and non-crustose lichen species, Number - Number of bryophyte or noncrustose lichen species present at least 2.

Vegetation composition: bracken (Pteridium aquilinum), Percentage cover - Cover of bracken less than 10% - however see'Notes'.

Vegetation structure: weedy negative indicator species, Percentage cover - Cover of agricultural weed species (negative indicator species) less than 1%.

Vegetation composition: nonnative species, Percentage cover - Cover of non-native species less than 1%.

Vegetation composition: rare/scarce heath species, Location, area and number - No decline in distribution or population sizes of rare, threatened or scarce species, including Greater Broomrape (Orobanche rapum-genistae) and the legally protected clustered clover (Trifolium glomeratum).

Vegetation structure: disturbed bare ground, Percentage cover - Cover of disturbed bare ground less than 10% (but if peat soil less than 5%).

Vegetation structure: burning, Occurrence - No signs of burning within sensitive areas.

6430 Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels

To maintain the favourable conservation condition of Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels in the River Barrow and River Nore SAC, which is defined by the following list of attributes and targets:

Habitat distribution, Occurrence - No decline, subject to natural processes.

Habitat area, Hectares - Area stable or increasing, subject to natural processes

Hydrological regime: Flooding depth/height of water table, Metres - Maintain appropriate hydrological regimes.

Vegetation structure:sward height, Centimetres - 30-70% of sward is between 40 and 150cm in height.

Vegetation composition: broadleaf herb: grass ratio, Percentage - Broadleaf herb component of vegetation between 40 and 90%.

Vegetation composition: typical species, Number - At least 5 positive indicator species present.

Vegetation composition: negative indicator species, Occurrence - Negative indicator species, particularly non-native invasive species, absent or under control- NB Indian balsam (Impatiens glandulifera), monkeyflower (Mimulus guttatus), Japanese knotweed (Fallopia japonica) and giant hogweed (Heracleum mantegazzianum).

*7220 * Petrifying springs with tufa formation (Cratoneurion)*

To maintain the favourable conservation condition of Petrifying springs with tufa formation (Cratoneurion) in the River Barrow and River Nore SAC, which is defined by the following list of attributes and targets:

Habitat area, Square metres - Area stable or increasing, subject to natural processes.

Habitat distribution, Occurrence - No decline.

Hydrological regime: height of water table; water flow, Metres; metres per second - Maintain appropriate hydrological regimes.

Water quality, Water chemistry measures - Maintain oligotrophic and calcareous conditions.

Vegetation composition: typical species, Occurrence - Maintain typical species.

91A0 Old sessile oak woods with Ilex and Blechnum in the British Isles

To restore the favourable conservation condition of Old oak woodland with Ilex and Blechnum in the River Barrow and River Nore SAC, which is defined by the following list of attributes and targets:

Habitat area, Hectares - Area stable or increasing, subject to natural processes, at least 85.08ha for sub-sites surveyed.

Habitat distribution, Occurrence - No decline.

Woodland size, Hectares - Area stable of increasing. Where topographically possible, "large" woods at least 25ha in size and “small” woods at least 3ha in size.

Woodland structure: cover and height, Percentage and metres - Diverse structure with a relatively closed canopy containing mature trees; subcanopy layer with semimature trees and shrubs; and well-developed herb layer

Woodland structure: community diversity and extent, Hectares - Maintain diversity and extent of community types

Woodland structure: natural regeneration, Seedling:sapling:pole ratio - Seedlings, saplings and pole age-classes occur in adequate proportions to ensure survival of woodland canopy.

Woodland structure: dead wood, m^3 per hectare; number per hectare - At least $30m^3$/ha of fallen timber greater than 10cm diameter; 30 snags/ha; both categories should include stems greater than 40cm diameter.

Woodland structure: veteran trees, Number per hectare - No decline.

Woodland structure: indicators of local disctinctiveness, Occurrence - No decline.

Vegetation composition: native tree cover, Percentage - No decline. Native tree cover not less than 95%

Vegetation composition: typical species, Occurrence - A variety of typical native species present, depending on woodland type, including oak (Quercus petraea) and birch (Betula pubescens).

Vegetation composition: negative indicator species, Occurrence - Negative indicator species, particularly non-native invasive species, absent or under control.

*91E0 *Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)*

To restore the favourable conservation condition of Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae) in the River Barrow and River Nore SAC, which is defined by the following list of attributes and targets:

Habitat area, Hectares - Area stable or increasing, subject to natural processes, at least 181.54ha for sites surveyed.

Habitat distribution, Occurrence - No decline.

Woodland size, Hectares - Area stable or increasing. Where topographically possible, "large" woods at least 25ha in size and “small” woods at least 3ha in size.

Woodland structure: cover and height, Percentage and metres - Diverse structure with a relatively closed canopy containing mature trees; subcanopy layer with semimature trees and shrubs; and well-developed herb layer.

Woodland structure: community diversity and extent, Hectares - Maintain diversity and extent of community types.

Woodland structure: natural regeneration, Seedling: sapling: pole ratio - Seedlings, saplings and pole age-classes occur in adequate proportions to ensure survival of woodland canopy.

Hydrological regime: flooding depth/height of water table, Metres - Appropriate hydrological regime necessary for maintenance of alluvial vegetation.

Woodland structure: dead wood, m^3 per hectare; number per hectare - At least $30m^3$/ha of fallen timber greater than 10cm diameter; 30 snags/ha; both categories should include stems greater than 40cm diameter (greater than 20cm diameter in the case of alder).

Woodland structure: veteran trees, Number per hectare - No decline.

Woodland structure: indicators of local disctinctiveness, Occurrence - No decline.

Vegetation composition: native tree cover, Percentage - No decline. Native tree cover not less than 95%.

Vegetation composition: typical species, Occurrence - A variety of typical native species present, depending on woodland type, including alder (Alnus glutinosa), willows (Salix spp) and, locally, oak (Quercus robur) and ash (Fraxinus excelsior).

Vegetation composition: negative indicator species, Occurrence - Negative indicator species, particularly non-native invasive species, absent or under control.

The following Conservation Objective, available from the NPWS (Generic Version 4.0, 13th February 2015), is set out for the River Nore SPA:

Objective: To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA: Kingfisher *Alcedo atthis*.

4.3. Assessment Criteria

4.3.1. Examples of Direct, Indirect or Secondary Impacts

In order to identify those sites that could be potentially affected, it is necessary to describe the Natura 2000 site in the context of why it has been designated i.e. in terms of its Qualifying Interests and the environmental and ecological conditions that maintain the condition of these features. The underpinning conditions that are required to maintain the 'health' of these features are listed in Table 3 below.

Table 3. Qualifying Interests and Key environmental conditions supporting site integrity.

Qualifying Interests	Key environmental conditions supporting site integrity	Current Threats to Qualifying Interests
* Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)	Riparian/lacustrine habitat prone to flooding.	Grazing, Invasive Species, Drainage, Planting of nonnative conifers, felling of native tree species.
Atlantic Salmon Salmo salar	Surface water dependent Highly sensitive to hydrological change	Numerous threats impact upon this species. Some of these include: cultivation, pesticides; fertilization; pollution; water pollution; biocenotic evolution; accumulation of organic material; eutrophication; over-fishing; forest-related pressures; parasites.

Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)	Marine and groundwater dependent. Medium sensitivity to hydrological change. Changes in salinity and tidal regime. Overgrazing, erosion and accretion.	Overgrazing; erosion; invasive species, particularly common cordgrass (Spartina anglica); infilling and reclamation.
Brook Lamprey *Lampetra planeri*	Surface water dependent Highly sensitive to hydrological change.	Channel maintenance, barriers, passage obstruction, gross pollution and specific pollutants.
Desmoulin's whorl snail *Vertigo moulinsiana*	Stable wetland water table. Emergent vegetation. Groundwater supply.	Climate Change, Flooding, Urbanisation (Habitat Encroachment, Pesticides, Fertilised, Grazing, Undergrazing, Afforestation, Stock Feeding, Burning, Peat Extraction, Communications Networks, Paths & Tracks, Walking/horse riding & non-motorised vehicles, Water Pollution, Landfill, Drainage, Modifying structures of inland watercourses.
Estuaries	Surface and marine water dependent. Low sensitivity to hydrological changes. Aquaculture, fishing and pollution.	Aquaculture, fishing, dumping of wastes and water pollution.
European dry heaths	Dry siliceous heaths occur on a range of slopes, in both upland and lowland areas, though most usually on slopes of 5-20° or more, often on upper slopes of hills and mountains, and are usually reported as being concentrated towards the drier south and east of the country.	Overgrazing, Abandonment of pastoral systems, General Forestry management, Forestry planting, Burning, Fertilisation, Agricultural improvement, Sand and gravel extraction
Freshwater Pearl Mussel Margaritifera margaritifera	Surface water dependent Highly sensitive to hydrological change Very highly sensitive to pollution.	Poor substrate quality due to increased growth of algal and macrophyte vegetation as a result of severe nutrient enrichment, as well as physical siltation.
Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels	Habitats are formed on gleyed soils, rich in nutrients, sand, silty and sand-silty ones with a high ground water level. Usually these nitrophylious communities are located in the form of the narrow strips near riverbeds and channels and occupy a small area.	Change of hydrological regime, adjustment of river channels, expansion of neophyte species, farming.

Killarney fern *Trichomanes speciosum*	Sensitive to desiccation and are not adapted to reduce or control water loss.	Human disturbance, Grazing, Woodland clearance, Natural processes such as wind felling of trees, competition from other plants, unusual weather conditions such as a prolonged frost or drought, and rock falls, Modifications to hydrology, Water pollution by nitrogenous waste,
Kingfisher *Alcedo atthis*	Marine/freshwater food availability. Undisturbed soft substrate riparian nest sites. Regularity of extreme weather. Water quality.	Disturbance from riverside recreation, loss of nest sites due to bankside interference. Loss of riparian scrub and woodland.
Nore freshwater pearl mussel *Margaritifera durrovensis*	Surface water dependent Highly sensitive to hydrological change Very highly sensitive to pollution.	Poor substrate quality due to increased growth of algal and macrophyte vegetation as a result of severe nutrient enrichment, as well as physical siltation.
Mediterranean salt meadows (*Juncetalia maritimi*)	Marine and groundwater dependent. Sensitivity to hydrological change. Changes in salinity and tidal regime. Overgrazing, erosion and accretion	Overgrazing; erosion; invasive species, particularly common cordgrass (Spartina anglica); infilling and reclamation.
Mudflats and sandflats not covered by seawater at low tide	Surface and marine water dependent. Low sensitivity to hydrological changes. Aquaculture, fishing and pollution.	Aquaculture, fishing, dumping of wastes and water pollution.
Old sessile oak woods with Ilex and Blechnumin the British Isles	Changes in management. Changes in nutrient or base status. Introduction of alien species.	The introduction of alien species; sub-optimal grazing patterns; general forestry management; increases in urbanisation and human habitation adjacent to oak woodlands; and the construction of communication networks through the woodland.
Otter (*Lutra lutra*)	Prey availability. Water Quality. Riparian vegetation for breeding sites. Unhindered passage along waterways.	Decrease in water quality: Use of pesticides; fertilization; vegetation removal; professional fishing (including lobster pots and fyke nets); hunting; poisoning; sand and gravel extraction; mechanical removal of peat; 33rbanized areas; human habitation; continuous urbanization; drainage; management of aquatic and bank vegetation for drainage

		purposes; ; and canalization or modifying structures of inland water course.
* Petrifying springs with tufa formation (Cratoneurion)	Groundwater dependent. Highly sensitive to hydrological changes. Changes in nutrient or base status.	Peat or turf cutting; arterial drainage; local drainage; water abstraction and agricultural reclamation.
River Lamprey (*Lampetra fluviatilis*)	Riverine habitat. Water quality. Riverbed breeding gravels and silt nursery substrate. Unhindered migratory channels.	Obstructions to movement; gross pollution; and specific pollutants.
Salicornia and other annuals colonizing mud and sand	Marine and groundwater dependent. Medium sensitivity to hydrological change. Changes in salinity and tidal regime. Infilling, reclamation, invasive species.	Invasive Species; erosion and accretion.
Sea Lamprey Petromyzon marinus	Surface water dependent Highly sensitive to hydrological change.	Obstructions to movement; gross pollution; and specific pollutants.
Salicornia and other annuals colonizing mud and sand	Marine and groundwater dependent. Medium sensitivity to hydrological change. Changes in salinity and tidal regime. Infilling, reclamation, invasive species.	Invasive Species; erosion and accretion.
Twaite shad *Alosa fallax*	Surface water dependent Sensitive to hydrological change	Threats include: pesticides; fertilization; pollution; water pollution; accumulation of organic material; eutrophication; forest-related pressures.
Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation	Surface and groundwater dependent. Highly sensitive to hydrological changes. Highly sensitive to pollution.	Eutrophication; overgrazing, excessive fertilisation; afforestation; and the introduction of invasive alien species.
White-clawed crayfish *Austropotamobius pallipes*	Surface water dependent. Highly sensitive to hydrological change, Very highly sensitive to pollution.	Introduction of diseases transmitted by introduced American crayfish.

4.3.2. Ecological Network Supporting Natura 2000 Sites

An analysis of the proposed Natural Heritage Areas and designated Natural Heritage Areas in terms of their role in supporting the species using Natura 2000 sites was undertaken. It was assumed that these supporting roles mainly related to mobile fauna such as mammals and birds which may use pNHAs and NHAs as “stepping stones” between Natura 2000 sites.

Article 10 of the Habitats Directive and the Habitats Regulations 2011 place a high degree of importance on such non-Natura 2000 areas as features that connect the Natura 2000 network. Features such as ponds, woodlands and important hedgerows were taken into account during the rest of the AA process.

There are two proposed Natural Heritage Areas within 5 km of the project site, namely; Newpark Marsh (000845) and Lough Macask (001914). However, these sites have no biological connectivity with the project site.

5. Identification of Potential Impacts & Assessment of Significance

This section uses the information collected on the sensitivity of each Natura 2000 site and describes any likely significant effects of implementation of the Project.

The project is not directly connected with or necessary to the management of the European site considered in the assessment and therefore potential impacts must be identified and considered.

5.1. Potential Impacts

There will be no direct impacts on the River Nore SAC or SPA habitats or species of conservation concern as none of the qualifying habitats or species occur under the footprint or zone of influence of the proposed development.

The demolition of the brewery buildings may leave the Poplar treeline along the river bank open to damage from wind throw and so it is proposed to cut these tall top heavy trees. The root bases will be retained *in situ* in order to maintain the stability of the bank and existing bankside vegetation.

Bankside vegetation will be supplemented with additional low growing shrubs. This will require the importation of additional topsoil to the upper bank in order to merge with the proposed river walk habitats.

Having established that there would be no direct impacts the assessment considers the potential for indirect impacts.

The species for which the River Nore is designated including Salmon, Shad, Otter and Lamprey which occur downstream require a high degree of water quality. Similarly the fish food sources of Kingfisher require a

high water quality level. Therefore any impacts that could affect the water quality of the river need to be avoided including potentially elevated suspended solids and pollution from hydrocarbons or any other polluting substances that would decrease oxygen levels or cause eutrophication or in the worst case mortality to those species.

A worst case scenario would possibly occur if there were significant impacts on the River Nore as a result of a decrease in water quality which would affect the aquatic species which depend on a good water quality status. However, given the type of work to be undertaken, the potential for indirect impacts is unlikely.

Standard Best Practice Construction measures will be employed to ensure that no pollutant construction materials such as sand, cement, concrete or waste water would enter the River Nore during the construction phase. This Best Practice will be outlined in a draft Construction Environmental Management Plan which has been prepared by the Landscape Architects for the Project. It will be a requirement of the contract for the development of the gardens that the contractor will develop and implement the Construction Environmental Management Plan.

A suitably qualified ecologist will be employed to review the Construction Environmental Management Plan and will visit the site during site preparation and during the construction works to meet the contractor and review how the plan measures are being implemented.

The likely effects of the Project are presented In Table 4 to follow, both in isolation and potentially in combination with other plans and projects.

5.2. Assessment of Potential Cumulative Effects

Cumulative impacts or effects are changes in the environment that result from numerous human-induced, small-scale alterations. Cumulative impacts can be thought of as occurring through two main pathways: first, through persistent additions or losses of the same materials or resource, and second, through the compounding effects as a result of the coming together of two or more effects.

As part of the Screening for an Appropriate Assessment, in addition to the proposed works, other relevant projects and plans in the region must also be considered at this stage. This step aims to identify at this early stage any possible significant in-combination or cumulative effects / impacts of the proposed development with other such plans and projects on the Natura 2000 sites.

A Natura Impact Report in support of the Appropriate Assessment of the Draft Masterplan for Abbey Creative Quarter, Kilkenny was undertaken in June 2015. The risks to the safeguarding and integrity of the qualifying interests and conservation objectives of the Natura 2000 network were addressed by the recommended inclusion of mitigation measures and additional text to the Masterplan document that will prioritise the avoidance of impacts in the first place and mitigate impacts where these cannot be avoided. In addition, all lower level plans and projects arising through the implementation of the Plan will themselves be subject to Appropriate Assessment when further details of design and location are known.

There is one other significant project, namely, the Kilkenny Central Access Scheme in the north of the study area. An EIS for the scheme was completed in 2011 and a Natura Impact Statement produced for the scheme. The Natura Impact Statement outlines a number of mitigation measures that need to be employed during the construction phase and the operation phase of the scheme. The NIS established that if those mitigation measures are employed; there should be no significant impact on the River Nore. No Impacts on the Natura 2000 sites are foreseen as a result of the riverside gardens project and therefore in-combination impacts with the Central Access Scheme will not arise.

Within the St. Francis Brewery site, the demolition programme of certain buildings no longer in operation by the previous occupants will have commenced by the time this report is submitted. Moore Group compiled an AA Screening Report for the demolition process and found that with best practice there would be no significant impacts on the River Nore European Sites and as such there would be no in-combination effects with regard to the proposed development.

Any new applications for the project area will be assessed on a case by case basis by Kilkenny County Council which will determine the requirement for AA Screening as per the requirements of Article 6(3) of the Habitats Directive.

Table 4. Outlining the potential impacts of the Project.

Site	Potential Direct Impacts e.g. Habitat Loss	Potential Indirect Impacts e.g. alteration to hydrological regime	Surface or Groundwater Contamination	Disturbance to Protected Species (Habitats Directive Annex II & IV)	Stage 2 AA Required
002162 River Barrow and River Nore SAC	None	An outline drainage strategy has been prepared to inform the masterplan for the gardens and to ensure a sustainable urban drainage system is accommodated for in the earliest designs, considering the use of attenuation systems to meet development needs in line with local environment requirements.	None. All surface and waste water will be contained within the site. This will be controlled by the implementation of a Construction Environmental Management Plan which will be drawn up by the Landscape Architects and developed and implemented by the contractor.	It is predicted that there would be no significant impact on the qualifying SAC or SPA species including Otters and Kingfisher from the construction or operation phase of the scheme.	No
004233 River Nore SPA	None	An outline drainage strategy has been prepared to inform the masterplan for the gardens and to ensure a sustainable urban drainage system is accommodated for in the earliest designs, considering the use of attenuation systems to meet development needs in line with local environment requirements.	None. All surface and waste water will be contained within the site. This will be controlled by the implementation of a Construction Environmental Management Plan which will be drawn up by the Landscape Architects and developed and implemented by the contractor.	It is predicted that there would be no significant impact on the qualifying SAC or SPA species including Otters and Kingfisher from the construction or operation phase of the scheme.	No

6. Screening Statement

It has been objectively concluded by Moore Group Environmental Services that:

1. The project is not directly connected with, or necessary to the conservation management of the River Barrow and River Nore SAC or River Nore SPA or any other Natura 2000 sites.
2. The implementation of the project will not have a significant direct impact on the River Barrow and River Nore SAC or River Nore SPA.
3. The proposed development is unlikely to indirectly, significantly affect the Qualifying interests or Conservation Objectives of the River Barrow and River Nore SAC or River Nore SPA.
4. The project, alone or in combination with other projects, will not have significant effects on the River Barrow and River Nore SAC or River Nore SPA or any other Natura 2000 sites in view of their conservation objectives.
5. It has been determined by Moore Group Environmental Services that it is possible to rule out significant impacts on any Natura 2000 sites considered in the assessment.
6. It is possible to conclude that there would be no significant effects, no potentially significant effects and no uncertain effects if the project were to proceed.

It is the view of Moore Group Environmental Services that it is not necessary to undertake any further stage of the Appropriate Assessment process.

A finding of no significant effects report is presented in Appendix A in accordance with the EU Commission's methodological guidance (European Commission, 2001).

7. References

Crowe, O. (2005) Ireland's Wetlands and their Waterbirds; Status and Distribution. Birdwatch Ireland.

Department of the Environment, Heritage and Local Government (2010) Guidance on Appropriate Assessment of Plans and Projects in Ireland (as amended February 2010).

European Commission (2000) Managing Natura 2000 sites: the provisions of Article 6 of the 'Habitats' Directive 92/43/EEC.

European Commission Environment DG (2001) 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 92/43EEC. European Commission, Brussels.

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 interests, compensatory measures, overall coherence and opinion of the Commission. European Commission, Brussels.

Murphy, D.F. (2004) Requirements for the Protection of Fisheries Habitat During Construction and Development Works at River Sites. Eastern Regional Fisheries Board, Dublin.

NPWS (2010) River Nore SPA [004233] Site Synopsis. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

NPWS (2011) Conservation Objectives: River Barrow and River Nore SAC 002162. Version 1.0. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

NPWS (2013) The Status of EU Protected Habitats and Species in Ireland. National Parks and Wildlife Service, Department of the Environment, Heritage and Local Government, Dublin.

NPWS (2014) River Barrow and River Nore SAC [002162] Site Synopsis. Version date: 01.04.2014 002162_Rev14_01.Docx. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

NPWS (2015) Conservation objectives for River Nore SPA [004233]. Generic Version 4.0. Department of Arts, Heritage and the Gaeltacht.

Appendix A

FINDING **O**F **N**O **S**IGNIFICANT **E**FFECTS REPORT

Finding no significant effects report matrix

Name of project or plan

Kilkenny Abbey Quarter Riverside Gardens.

Name and location of the Natura 2000 site(s)

The site is located adjacent to the Breagagh River and the River Nore which is designated as part of the River Barrow and River Nore SAC (Site Code: 002162) and River Nore SPA (Site Code: 004233).

Description of the project or plan

The site in question is located along the western bank of the River Nore within the Kilkenny City Centre boundaries and its width will consist of, on average, a 15m strip. A large extent of the proposed scheme is located within the Diageo St. Francis' Abbey Brewery and is proposed to form part of the larger masterplan of the Diageo site and extends as far north as Green's Bridge.

The proposed development shall consist of a 15m wide strip located alongside the western bank of the River Nore intended to link the city with the existing Nore River Walk north of the site. The proposal has designated the area to the south of the site (The Tea Houses on Bateman's Quay) as the gateway to the Park which will be achieved in the form of a contemporary interpretation of the typical archway found across Kilkenny city. The area associated with the Tea rooms will be designed as a seating / viewing area along the river.

The project will include the following:

- the removal of the existing concrete slab,
- the raising of site levels,
- Provision of a 3m wide shared pedestrian / cycle, that will meander through the Gardens,
- Retention and reinforcement of the existing riparian planting along the river bank,
- Raising of the existing ground levels,
- Removal of the existing non-native Poplar Trees along the top of the River Bank,
- Provision of paved 'pocket' spaces,
- Provision of Ornamental planted areas and grassed lawns,
- Provision of Seating areas,
- Provision of Walkway Lighting,
- Installation of various elements from the Brewing process as features to reflect the past history of the site,
- Entrance "Gateway" Structure in the area of the Tea Houses on Bateman Quay,
- Retention of the existing boat slip,
- Provision of a Skate Park area to the north of the River Breagagh,
- Areas identified from historic mapping which indicate the potential for buried structures to be investigated with archaeological supervision. Any newly revealed features to be appropriately displayed.

It is the intention to retain and position artefacts from the Diageo site as Sculptural elements throughout the Park to animate spaces and acknowledge the site's former use. A 3m wide shared pedestrian and cycle route is proposed as the primary circulation route through the Park and shall meander along the river's edge, allowing access to a series of spaces, varying in scale and function. The sequence of spaces will provide

seating and gathering spaces to sit and enjoy the River Nore and elements and features to interact with. The proposals aim to create a variety of experiences along the linear route to retain interest, excitement and exploration. The planting strategy aims to create structure and year-round interest, to enhance the existing habitats and in doing so, improve the site's biodiversity.

Is the project or plan directly connected with or necessary to the management of the site(s)

No

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

A Natura Impact Report in support of the Appropriate Assessment of the Draft Masterplan for Abbey Creative Quarter, Kilkenny was undertaken in June 2015. The risks to the safeguarding and integrity of the qualifying interests and conservation objectives of the Natura 2000 network were addressed by the recommended inclusion of mitigation measures and additional text to the Masterplan document that will prioritise the avoidance of impacts in the first place and mitigate impacts where these cannot be avoided. In addition, all lower level plans and projects arising through the implementation of the Plan will themselves be subject to Appropriate Assessment when further details of design and location are known.

There is one other significant project, namely, the Kilkenny Central Access Scheme in the north of the study area. An EIS for the scheme was completed in 2011 and a Natura Impact Statement produced for the scheme. The Natura Impact Statement outlines a number of mitigation measures that need to be employed during the construction phase and the operation phase of the scheme. The NIS established that if those mitigation measures are employed; there should be no significant impact on the River Nore. No Impacts on the Natura 2000 sites are foreseen as a result of the riverside gardens project and therefore in-combination impacts with the Central Access Scheme will not arise.

Within the St. Francis Brewery site, the demolition programme of certain buildings no longer in operation by the previous occupants will have commenced by the time this report is submitted. Moore Group compiled an AA Screening Report for the demolition process and found that with best practice there would be no significant impacts on the River Nore European Sites and as such there would be no in-combination effects with regard to the proposed development.

Any new applications for the project area will be assessed on a case by case basis by Kilkenny County Council which will determine the requirement for AA Screening as per the requirements of Article 6(3) of the Habitats Directive.

The assessment of significance of effects

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

There will be no direct impacts on the River Nore SAC or SPA habitats or species of conservation concern.

Having established that there would be no direct impacts the assessment considers the potential for indirect impacts.

The species for which the River Nore is designated including Salmon, Shad, Otter and Lamprey which occur downstream require a high degree of water quality. Similarly the fish food sources of Kingfisher require a high water quality level. Therefore any impacts that could affect the water quality of the river need to be

avoided including potentially elevated suspended solids and pollution from hydrocarbons or any other polluting substances that would decrease oxygen levels or cause eutrophication or in the worst case mortality to those species.

A worst case scenario would possibly occur if there were significant impacts on the River Nore as a result of a decrease in water quality which would affect the aquatic species which depend on a good water quality status. .

Explain why these effects are not considered significant.

Taking into account the standard best practice construction methodology to be employed as part of the project there will be no indirect impact on the integrity of the SAC or SPA.

A suitably qualified ecologist will be employed to review the Construction Environmental Management Plan and will visit the site during site preparation and during the construction works to meet the contractor and review how the plan measures are being implemented.

List of agencies consulted: provide contact name and telephone or e-mail address

The need for AA Screening was determined in pre-planning consultation between the Project Team and Kilkenny Co. Co. Planning Section.

Response to consultation

The need for AA Screening was determined in pre-planning meetings between the Project Team and Kilkenny Co. Co. Planning Section.

Data collected to carry out the assessment

Who carried out the assessment

Moore Group Environmental Services.

Sources of data

NPWS database of designated sites at www.npws.ie
National Biodiversity Data Centre database http://maps.biodiversityireland.ie

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Level of assessment completed

Desktop Assessment.

Where can the full results of the assessment be accessed and viewed

Kilkenny County Council Planning Section.

Overall Conclusions

It has been objectively concluded by Moore Group Environmental Services that:

1. The project is not directly connected with, or necessary to the conservation management of the River Barrow and River Nore SAC or River Nore SPA or any other Natura 2000 sites.
2. The implementation of the project will not have a significant direct impact on the River Barrow and River Nore SAC or River Nore SPA.
3. The proposed development is unlikely to indirectly, significantly affect the Qualifying interests or Conservation Objectives of the River Barrow and River Nore SAC or River Nore SPA.
4. The project, alone or in combination with other projects, will not have significant effects on the River Barrow and River Nore SAC or River Nore SPA or any other Natura 2000 sites in view of their conservation objectives.
5. It has been determined by Moore Group Environmental Services that it is possible to rule out significant impacts on any Natura 2000 sites considered in the assessment.
6. It is possible to conclude that there would be no significant effects, no potentially significant effects and no uncertain effects if the project were to proceed.

It is the view of Moore Group Environmental Services that it is not necessary to undertake any further stage of the Appropriate Assessment process.