

# M7 OSBERSTOWN INTERCHANGE & R407 SALLINS BYPASS

## Habitats Directive Screening Report

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# OSBERSTOWN INTERCHANGE – SALLINS BYPASS

## HABITATS DIRECTIVE SCREENING REPORT

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## 1 INTRODUCTION

This report has been prepared by Paul Murphy of EirEco Environmental Consultants in association with Arup. The objective is to determine the potential effects, if any, of a proposed road scheme entailing the development of the Osberstown Interchange on the M7 and a bypass of Sallins Town, in Co. Kildare on the Natura 2000 network. The purpose of this assessment is to determine the appropriateness, or otherwise, of the proposed scheme in the context of the conservation status of the Natura 2000 network.

### 1.1 Regulatory 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 the framework for 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/EEC) (better known as “The Birds Directive”).

Article 6(3) and 6(4) of the Habitats Directive set out the decision-making tests for plans and projects likely to affect Natura 2000 sites (Annex 1.1). Article 6(3) establishes the requirement for Appropriate Assessment:

*“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 and 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 implication 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”*

### 1.2 Stages of Article 6 Assessment

An Appropriate Assessment (AA) of a plan or project is required where the plan or project is not directly connected with or necessary to the management of the site as a European Site and if it cannot be excluded, on the basis of objective scientific information following screening under Article 43 of SI 477/2011 European Communities (Birds and Natural Habitats) Regulations, that the plan or project, individually or in combination with other plans or projects, will have a significant effect on a European site. This Screening Report and Natura Impact Statement for Appropriate Assessment has been undertaken in accordance with the European Commission Methodological Guidance on the provision of Article 6(3) and 6(4) of the ‘Habitats’ Directive 92/43/EEC (EC 2001) “*Assessment of plans and projects significantly affecting Natura 2000 site – Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC*” and the European Commission Guidance ‘*Managing Natura 2000 Sites*’.

The Habitats Directive promotes a hierarchy of avoidance, mitigation and compensatory measures. Firstly, the proposed scheme should aim to avoid any negative impacts on European sites by identifying possible impacts early in the plan making, and writing the plan in order to avoid such impacts. Secondly, mitigation measures should be developed, if necessary, during the AA process to the point, where no adverse impacts on the site(s) remain. Where a proposed scheme is still likely to result in adverse effects and no alternative solutions are identified, if the proposed scheme is required for imperative reasons of overriding public interest (IROPI test) under Article 6 (4) of the Habitats Directive, then compensation measures are required to offset any remaining adverse effect.

The four stages identified within the Appropriate Assessment process are as follows:

#### *Stage One: Screening.*

The process which identifies the likely impacts upon a Natura 2000 site of a project or plan, either alone or in combination with other projects or plans, and considers whether these impacts are likely to be significant.

#### *Stage Two: Appropriate Assessment.*

The consideration of the impact on the integrity of the Natura 2000 site of the project or plan, either alone or in combination with other projects or plans, with respect to the sites structure and function

and its conservation objectives, Additionally, where there are adverse impacts, an assessment of the potential mitigation of those impacts.

*Stage Three: Assessment of Alternative Solutions.*

The process which examines alternative ways of achieving the objectives of the project or plan that avoid adverse impacts on the integrity of the Natura 2000 site.

*Stage Four: Assessment where no alternative solutions exist and 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.

This Screening Report utilises the following format:

**Screening**

- Description of the proposed project
- Identification of Natura 2000 sites (within 10km of the plan)
- Identification of potential impacts on the Natura 2000 sites
- Assessment of the significance of identified impacts on site integrity (if required)
- Exclusion of Natura sites from the assessment process where it can be objectively concluded that there will be no significant impacts

## 2. STAGE 1: SCREENING REPORT

### 2.1 Description of the Proposed Project

The proposed scheme involves the construction of a new interchange at Osberstown on the M7 motorway to the north of Naas and south-west of Sallins. From this interchange, a bypass to the west of Sallins town will rejoin the Clane Road R407 at Castlesize (See Figure 1). The proposed bypass will cross green-field conditions and entail a crossing of the Grand Canal (a proposed Natural Heritage Area) and two crossings of the River Liffey, an important salmonid river but not designated for nature conservation. A derelict spur off the Grand Canal which is also within the pNHA boundary will also be crossed.

Full details of the preliminary design for the road are provided in Chapter 4 of the EIS for the scheme.

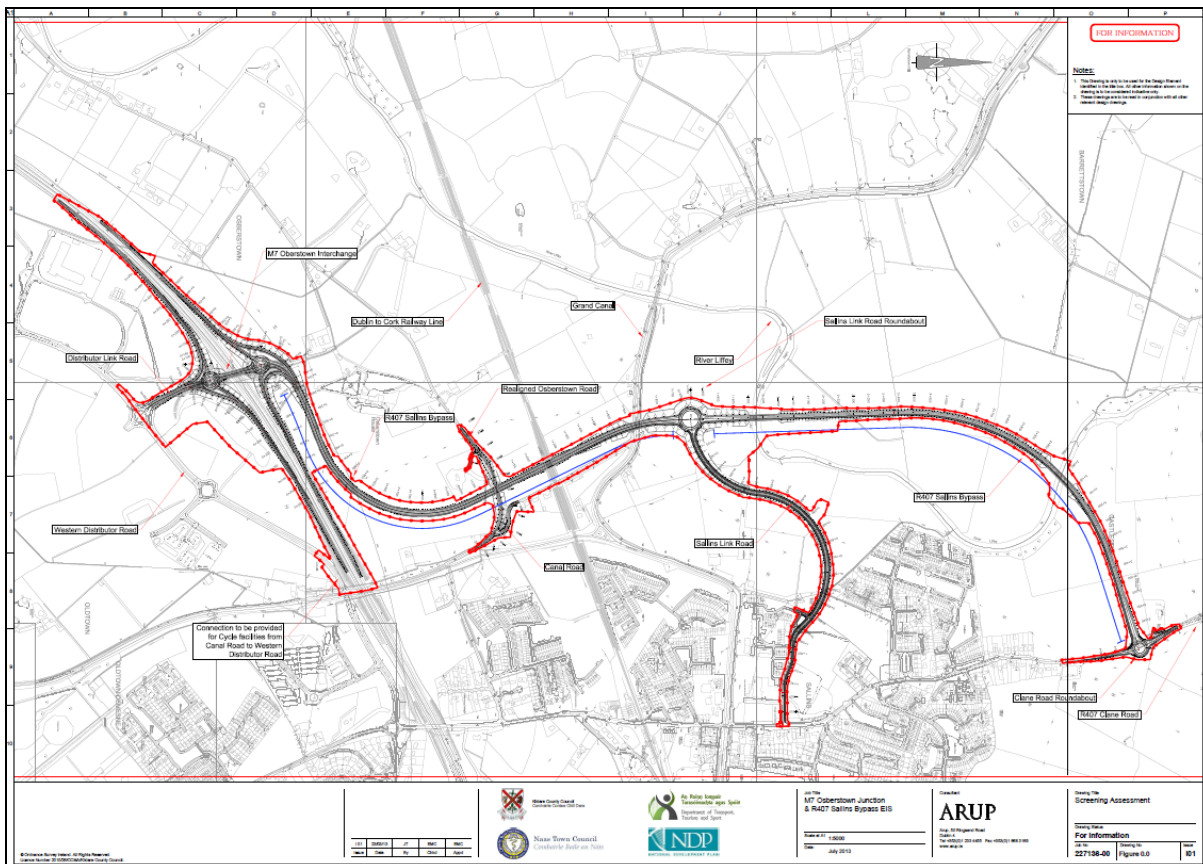


Figure 1. Proposed Scheme location

## 2.2 Natura Sites Identified

The proposed road scheme does not directly impact on any Natura 2000 sites, and all Natura 2000 sites within 10km of the proposed scheme are detailed in Table 1 below and shown in Figure 2. Site synopses for the various Natura 2000 sites are presented in Appendix A.

**Table 1. Natura 2000 sites within 10km of the proposed scheme.**

Site code	Site name	Approx. Distance km	Qualifying interests (Those with an asterisk are Priority habitats)
000391	Ballynafagh Bog SAC	7	* Active raised bogs Degraded raised bogs still capable of natural regeneration Depressions on peat substrates of the Rhynchosporion
001387	Ballynafagh Lake SAC	8	Vertigo moulinsiana Marsh fritillary Transition mires and quaking bogs Alkaline fens
002331	Mouds Bog SAC	5	* Active raised bogs Degraded raised bogs still capable of natural regeneration Depressions on peat substrates of the Rhynchosporion
000396	Pollardstown Fen SAC	5	Vertigo geyeri Vertigo angustior Vertigo moulinsiana Calcareous fens with Cladium mariscus and species of the Caricion davallianae Petrifying springs with tufa formation (Cratoneurion) Alkaline fens
004063	Poulaphuca Reservoir SPA	10	Greylag Goose Lesser Black-backed Gull
000397	Red Bog SAC	10	Natural eutrophic lakes with Magnopotamion or Hydrocharition-type vegetation Active raised bogs Transition mires and quaking bogs
001398	Rye Water Valley / Carton SAC	10	Vertigo angustior Vertigo moulinsiana Petrifying springs with tufa formation (Cratoneurion)

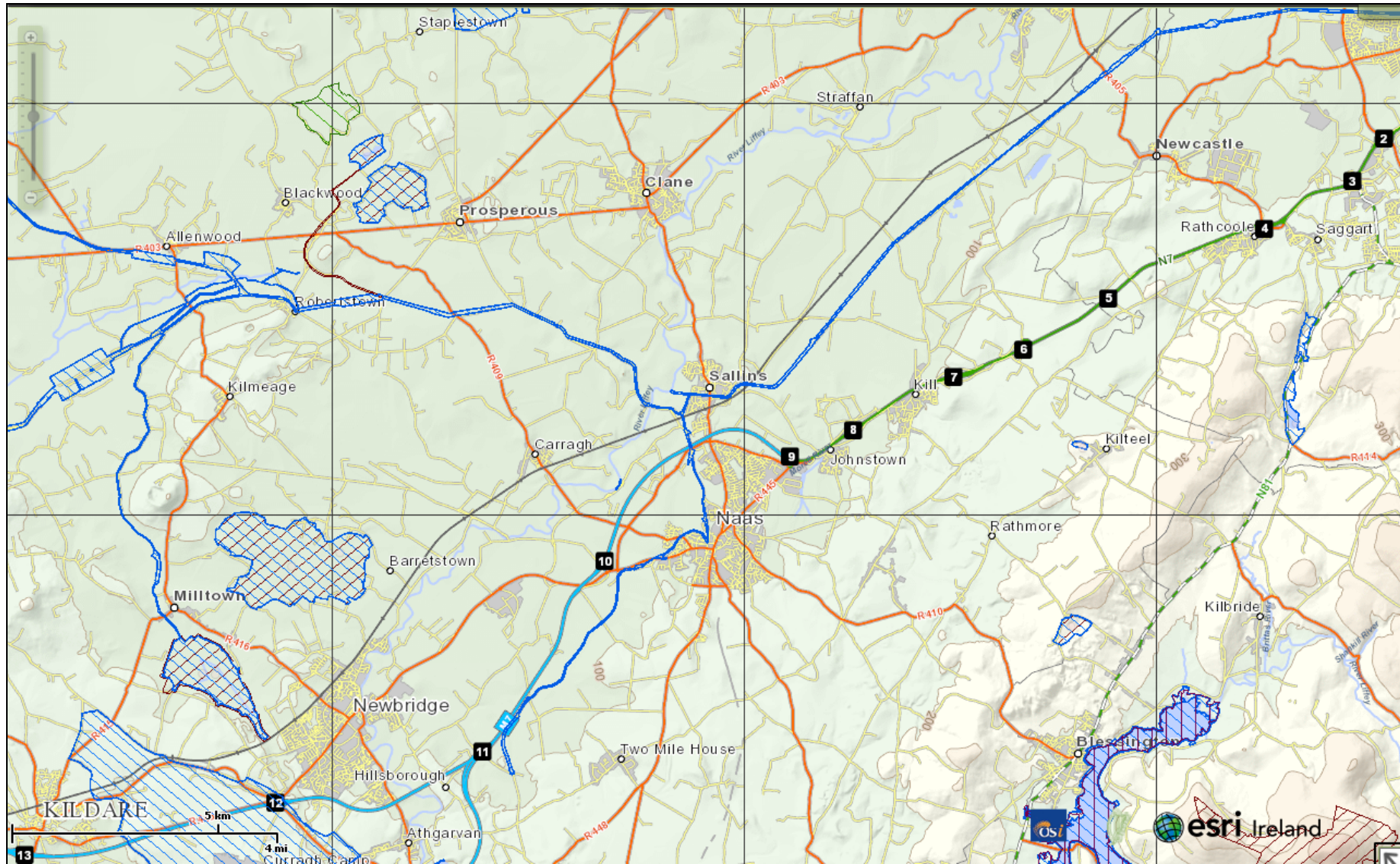


Figure 2. Proximity of the Scheme to Natura 2000 sites (Source: NPWS Mapviewer)



## 2.3 Identification of potential impacts

Development features that have the potential to impact on features and conservation objectives of any of the Natura 2000 sites within the 10km zone around the proposed road scheme location are now considered. The following assessment criteria were used to determine potential impacts from the proposed scheme on the Natura 2000 network within the 10km zone:

1. Description of the individual elements of the project (either alone or in combination with other plans or projects) likely to give rise to any direct, indirect or secondary impacts on the Natura 2000 sites.
2. Description of any likely changes to a Natura 2000 site.
3. Description of any likely impacts on the Natura 2000 network as a whole.
4. Description of those elements of the project or plan, or combination of elements, where the impacts are likely to be significant or where the scale of magnitude of impacts is not known.

### ***2.3.1 Description of the individual elements of the project (either alone or in combination with other plans or projects) likely to give rise to impacts on the Natura 2000 sites***

The proposed scheme description is outlined in Section 2.1 above. The scheme entails construction of a new interchange on the M7/M9 and a link road bypassing the town of Sallins. This will entail crossings of the Grand Canal, a proposed Natural Heritage Area, and two separate crossings of the River Liffey. Elements of the project that could give rise to impacts on the Natura 2000 network could be associated with either the construction or operational phase. During construction, there will be removal of vegetation along the scheme footprint with resultant displacement and disturbance to fauna. None of the habitats impacted by the scheme are Annex listed under the EU Habitats Directive. While a number of species listed under Annex II of the EU Habitats Directive occur within or associated with the River Liffey and Grand Canal, namely otter, freshwater crayfish, salmon and brook lamprey in addition to kingfisher (listed under Annex I of the EU Birds Directive) these species are not listed as qualifying interests for any of the Natura 2000 sites within 10km of the proposed scheme and thus are not considered further within the Screening process (these species have been fully addressed however within the EIS prepared for the scheme).

Potential construction impacts include potential for alteration of ground water hydrology at a local level though such impacts would not result in anything other than extremely localised change measured at most in 10's of meters. The proposed scheme is located approximately 5km from the nearest Natura 2000 sites (Mouds Bog SAC and Pollardstown Fen SAC). Both sites are groundwater dependant habitats but with no direct or indirect hydrological connectivity with the location of the proposed road scheme. Given the distance between source and receptor, there is no potential for direct or indirect impacts on these sites.

Silt-laden runoff into watercourses during construction along with accidental pollution events could result in deterioration of water quality downstream of the works area with such impacts potentially reaching over many kilometres. The Rye Water Valley / Carton SAC lies approximately 10km downstream of the proposed scheme on the Liffey catchment. This SAC extends to include the Carton Demesne and the Rye Water River corridor downstream to its confluence with the Liffey at Leixlip. There is therefore no potential for impacts on water quality within that site (effectively lying upstream of any pollution) and the qualifying interests for the site, namely petrifying springs and two species of Vertigo snail, are at no risk of direct or indirect impacts from the proposed scheme.

The operation phase of the scheme will result in increased levels of disturbance resulting from traffic and associated activities, and an increase in emissions to air from traffic. The separation between the source and potential receptors in the form of Natura 2000 sites is such that there is no potential for any direct or indirect. Both disturbance and elevated levels of NO<sub>x</sub>, dust and particulates will be

confined to the immediate vicinity of the scheme. The assessment of air quality associated with the proposed scheme (addressed in Section 12 of the EIS) identified potential increase in NO<sub>x</sub> concentrations of at most 6.10µg/m<sup>3</sup> within the Grand Canal pNHA and a maximum increase in the NO<sub>2</sub> dry deposition rate of 1.61 Kg(N)/ha/yr in 2015 and 2.0 Kg(N)/ha/yr. in 2030 (accounting for 40% of the critical load for inland and surface water habitats of 5-10 Kg(N)/ha/yr). These increases are marginal and will have no significant effect on habitats or species at a local level, with no potential for impacts in the Natura 2000 sites within 10km of the scheme.

All Natura 2000 sites within 10km of the proposed scheme are sufficiently removed and independent of the location of the proposed scheme that no potential exists for any direct, indirect or secondary impacts.

A review was undertaken of other plans or projects in the vicinity of the proposed scheme that have a potential to result in an in-combination effect with the proposed scheme. The following projects were identified:

1. M7 Naas to Newbridge Bypass Upgrade Scheme
2. Upper Liffey Valley extension to Osberstown Waste Water Treatment Plant

The M7 Naas to Newbridge Bypass Upgrade scheme is currently at design stage with the Environmental Impact Statement due to be published before the end of 2013. This scheme entails widening of the existing carriageway within the existing fence line for the road. There will be no alteration to any watercourses crossed by the existing road with the exception of the Ladystown Stream at the Newhall Interchange, which will require a channel reconfiguration to avoid a lengthy culvert. The existing culvert has a barrier to upstream fish movement at its downstream end (a c1m high weir) which would be removed as part of the works and thus constitute a positive impact. This stream, along with all other streams crossed by the existing M7-M9 stretch in question, are tributaries of the River Liffey and any deterioration in water quality could have an in-combination effect with the proposed Osberstown Interchange and Sallins Bypass scheme. The M7-M9 widening will be subject to similar sensitive construction requirements as the current scheme and there should therefore be no in-combination negative effects arising.

The Upper Liffey Valley extension to Osberstown Waste Water Treatment Plant entails extending the catchment area for waste water in a number of areas with the associated development of new collection network and pumping stations. The WWTP has the capacity to accommodate this increased loading and therefore the scheme will result in an overall reduced risk of surface and groundwater pollution. The construction phase entails a minor risk of affecting water quality during works in the vicinity of watercourses but these are readily mitigated for by sensitive design and construction, with significant watercourse crossings being undertaken by directional drilling. Again, no in-combination effects are anticipated between either scheme.

In conclusion, there are no elements of the proposed plan, either alone or in combination with other plans or projects that could give rise to impacts on any Natura 2000 sites.

### **2.3.2 Description of any likely changes to a Natura 2000 site**

There is no potential for any likely changes to any Natura 2000 site arising from the proposed plan. The distance between the scheme and the nearest designated sites, Mouds Bog SAC and Pollardstown Fen SAC, is 5km and while the Rye Water Valley / Carton SAC lies downstream of the proposed scheme on the Liffey catchment, it could not be affected by changes in water quality as a result of the scheme due to the hydraulic gradient.

Construction of the proposed road scheme in the vicinity of the River Liffey and Grand Canal poses a risk of pollution or siltation entering these watercourses as identified within the EIS and deterioration in water quality could impact on various aquatic species afforded protection under the EU Habitats or Birds Directive. To address these impacts, a comprehensive suite of measures have been specified within the EIS to minimise the risk of sediment or pollution arising from construction and operational phases of the scheme (see Chapter 4 and Section 13.6.2 of the EIS).

In conclusion, there are no elements of the proposed plan, either alone or in combination with other plans or projects that could give rise to any likely changes in any Natura 2000 sites.

### **2.3.3 Description of any likely impacts on the Natura 2000 network as a whole**

There is no risk of any likely impacts on the Natura 2000 network as a result of the proposed scheme due to the physical distance and lack of connectivity (whether ecologically or hydrologically) between the proposed development and Natura 2000 sites.

### **2.3.4 Description of those elements of the project or plan, or combination of elements, where the impacts are likely to be significant or where the scale of magnitude of impacts is not known**

There are no elements of the proposed plan that will give rise to potential impacts of any magnitude on any Natura 2000 site.

## **2.4 Exclusion of Natura sites from the assessment process where it can be objectively concluded that there will be no significant impacts**

The Natura 2000 sites identified within 10km of the proposed project can be excluded from the assessment process as it has been objectively concluded that these sites are not at risk of any direct or indirect impacts, significant or otherwise.

## **2.5 Conclusion**

It has been objectively concluded that there will be no direct or indirect impact on any Natura 2000 site, either alone or in-combination, associated with the proposed Osberstown Interchange and Sallins Bypass scheme.

On this basis, the screening stage has concluded there is therefore no requirement to proceed to Stage 2 of the Appropriate Assessment process.

**APPENDIX A**

**SITE SYNOPSES FOR NATURA 2000 SITES WITHIN 10KM OF THE PROPOSED SCHEME**

## SITE SYNOPSIS

**SITE NAME : BALLYNAFAGH BOG**

**SITE CODE : 000391**

This site is a raised bog situated about 1 km west of Prosperous in County Kildare. The area is directly underlain by muddy, fossiliferous limestones, interbedded with calcareous shales. The subsoils are predominantly clay-rich tills. All are of low permeability.

The site supports the E.U. Habitats Directive Annex I habitats active raised bog, degraded raised bog and Rhynchosporion vegetation. An estimated 46% of the site consists of intact raised bog habitat. In the wettest area towards the centre, a system of tear pools occurs, grown over with Bog Mosses (*Sphagnum capillifolium* and *S. magellanicum*). There is a small pool-and-hummock system, with pools colonised by another species of Bog Moss (*Sphagnum cuspidatum*). White Beak-sedge (*Rhynchospora alba*), Cottongrasses (*Eriophorum* spp.) and the insectivorous Great Sundew (*Drosera anglica*) are abundant in wet channels. Bog Rosemary (*Andromeda polifolia*) and Cranberry (*Vaccinium oxycoccos*) are found on the hummocks.

A large portion of the site contains old cutaway bog colonised by Rushes (*Juncus* spp.) and Common Cottongrass (*Eriophorum angustifolium*), with Downy Birch (*Betula pubescens*) forming patches of scrub/woodland.

The site is within the territory of a breeding pair of Merlin, a species listed on Annex I of the EU Birds Directive. Several pairs of Curlew and Snipe breed on the bog. Scrub species such as Stonechat, Redpoll and Long-tailed Tit occur on the cutaway.

The bog has been damaged by afforestation, mechanised peat-cutting and drainage. These three activities pose the main threats to the survival of raised bogs.

Raised bogs are a rare habitat in Europe, and in Ireland continue to be under threat. Ballynafagh Bog, although damaged, is of added interest as the most easterly site with a high proportion of intact raised bog habitat remaining in Ireland.

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## SITE SYNOPSIS

**SITE NAME: BALLYNAFAGH LAKE**

**SITE CODE: 001387**

Ballynafagh Lake is located about 2 km north-west of Prosperous in Co. Kildare. It is a shallow alkaline lake with patches of emergent vegetation in the middle as well as around the shore. Submerged plants include Starwort (*Callitriche* spp.) and Bladderwort (*Utricularia minor*), with Duckweed (*Lemna minor*) and the liverwort *Riccocarpus natans* occurring on the surface.

Alkaline fen vegetation occurs at the lake edge, notably a plant community dominated by Blunt-flowered Rush (*Juncus subnodulosus*) and Black-bog Rush (*Schoenus nigricans*), with frequent Sedges (*Carex lepidocarpa*, *C. rostrata*). Other species in this area include Marsh Marigold (*Caltha palustris*), Red Rattle (*Pedicularis palustris*), Arrow Grass (*Triglochin palustre*), Water Mint (*Mentha aquatica*) and Bulrush (*Typha latifolia*). Extensive stands of Reed (*Phragmites australis*), Bulrush and Bottle Sedge (*Carex rostrata*) occur around the open water. A stand of Great Fen-sedge (*Cladium mariscus*) occurs in the western corner.

The lake is surrounded by acid grassland, heath and bog. Here the vegetation includes Bent Grass (*Agrostis tenuis*), Purple Moor-grass (*Molinia caerulea*), Bog Myrtle (*Myrica gale*), Bracken (*Pteridium aquilinum*), Gorse (*Ulex europaeus*) and Heather (*Calluna vulgaris*). Wet woodland of Birch (*Betula* spp.), Willow (*Salix* spp.) and Alder (*Alnus* spp.) occurs in the north-west corner of the lake.

The Blackwood Feeder connects Ballynafagh Lake to the Grand Canal and is of particular conservation significance for the populations of two rare snail species, *Vertigo moulinsiana* and *Pisidium pseudosphaerium*, that it supports. The former species is listed on Annex II of the E.U. Habitats Directive, while the latter has previously been recorded only from sites along the Royal Canal. *Vertigo moulinsiana* also occurs in wetland vegetation by Ballynafagh Lake itself. A high diversity of molluscan species is found on the site (42 species recorded in 1997).

A wide diversity of insects is also found at Ballynafagh Lake, including the Marsh Fritillary butterfly, a species listed on Annex II of the EU Habitats Directive.

Breeding birds of the lake include Little Grebe, Mallard, Moorhen, Coot, Snipe and Water Rail. In May 1993 a pair of Curlew was observed holding territory. Sedge Warbler, Reed Bunting and Whitethroat breed within the site. Black-headed Gulls formerly bred at the lake but only single birds were observed in 1993. Wintering waterfowl include: Whooper Swan 20, Teal 114, Mallard 110, Golden Plover 40 and Curlew 117 (all counts average peaks, 1 season 1984/85 - 86/87). The main landuse of the lake is fishing. There is a No Shooting Area Order on the site.

Although originally a reservoir, Ballynafagh Lake has developed a very natural vegetation with some interesting plant communities, including alkaline fen, a habitat that is listed on Annex I of the E.U. Habitats Directive. The site supports a high diversity of molluscan species, with some rare species recorded, including *Vertigo moulinsiana*, a species that is listed on Annex II of the E.U. Habitats Directive. The site is also of ornithological importance.

## SITE SYNOPSIS

**SITE NAME: MOUDS BOG**

**SITE CODE: 002331**

Mouds Bog is located about 3 km north-west of Newbridge in Co. Kildare, close to the Hill of Allen, and includes amongst others, the townlands of Grangehiggin, Barretstown and Hawkfield. The site comprises a raised bog that includes both areas of high bog and cutover. Much of the margins of the site are bounded by trackways.

The site is a candidate Special Area of Conservation selected for active raised bog, degraded raised bog and Rhynchosporion, habitats that are listed on Annex I of the E.U. Habitats Directive. Active raised bog comprises areas of high bog that are wet and actively peat-forming, where the percentage cover of bog mosses (*Sphagnum* spp.) is high, and where some or all of the following features occur: hummocks, pools, wet flats, *Sphagnum* lawns, flushes and soaks. Degraded raised bog corresponds to those areas of high bog whose hydrology has been adversely affected by peat cutting, drainage and other land use activities, but which are capable of regeneration. The Rhynchosporion habitat occurs in wet depressions, pool edges and erosion channels where the vegetation includes White Beak-sedge (*Rhynchospora alba*) and/or Brown Beak-sedge (*R. fusca*), and at least some of the following associated species, Bog Asphodel (*Narthecium ossifragum*), Sundews (*Drosera* spp.), Deergrass (*Scirpus cespitosus*), Carnation Sedge (*Carex panicea*).

The site consists of two basins of high bog separated by a central ridge. Otherwise the bog is flat with slopes at its margins. An area of wet quaking bog with well-developed pools occurs either side of the central ridge. The western high bog supports a number of small flush areas along with a wet quaking soak with scattered Downy Birch (*Betula pubescens*). The margins have extensive areas of cutover, especially to the west.

This is an example of a Midland Raised Bog at the eastern extremity of its current range with typical species including Ling Heather (*Calluna vulgaris*) along with Bog-rosemary (*Andromeda polifolia*) and Cranberry (*Vaccinium oxycoccos*). The central high bog supports wet flat quaking areas on both sides of the mineral ridge with frequent small pools supporting bog mosses (*Sphagnum cuspidatum*, *S. magellanicum*, *S. capillifolium*) and Greater Sundew (*Drosera anglica*). Abundant Ling Heather dominates the drier central ridge. The three flush areas along the southern perimeter of the east and west dome support a hummock/hollow system with Ling Heather, Bog-myrtle (*Myrica gale*) and in places Crowberry (*Empetrum nigrum*) - the wet hollows support a variety of bog mosses which include *S. tenellum*. A wet quaking soak to the south supports abundant bog moss (*S. cuspidatum*) and tall Common Cottongrass (*Eriophorum angustifolium*). Cutover areas to the north-east support Purple Moor-grass (*Molinia caerulea*), Soft Rush (*Juncus effusus*) with encroaching Downy Birch and Gorse (*Ulex europaeus*) in places.



Red Grouse, a Red listed species and one that is becoming increasingly rare in Ireland, has been recorded on this site. Other birds noted on the site include Skylark, Meadow Pipit, Curlew and Kestrel.

Current landuse on the site consists of peat-cutting, with extensive active industrial peat moss production in the western section of the remaining high bog. Domestic turf cutting is widely practised along the southern margin of the bog, in the south-west corner and in the centre of the northern edge. Apart from the western cutover margin, the high bog is not being actively drained. Some small areas of the cutover have been reclaimed for agriculture in recent years. Burning has taken place in the recent past, and there is extensive damage in the west of the site due to industrial peat production. These are all activities that have resulted in loss of habitat and damage to the hydrological status of the site, and pose a continuing threat to its viability. Despite the damaging effects the high bog has retained some wet areas largely due to the topography of the site.

Mouds Bog is significant in terms of its high bog area and geographical location as it is at the eastern extreme of the range of raised bogs in Ireland. It is a site of considerable conservation significance comprising a large raised bog, a rare habitat in the E.U. and one that is becoming increasingly scarce and under threat in Ireland. This site supports a good diversity of raised bog microhabitats including hummock/hollow complexes, pools and flushes, and cutover which add to the diversity and scientific value of the site. Active raised bog is listed as a priority habitat on Annex I of the E.U. Habitats Directive. Priority status is given to habitats and species that are threatened throughout the E.U. Ireland has a high proportion of the total E.U. resource of this habitat type (over 60%) and so has a special responsibility for its conservation at an international level.

## SITE SYNOPSIS

**SITE NAME : POLLARDSTOWN FEN**

**SITE CODE : 000396**

Pollardstown Fen is situated on the northern margin of the Curragh of Kildare, approximately 3km west-north-west of Newbridge. It lies in a shallow depression, running in a north-west/south-east direction. About 40 springs provide a continuous supply of water to the fen. These rise chiefly at its margins, along distinct seepage areas of mineral ground above the fen level. The continual inflow of calcium-rich water from the Curragh, and from the limestone ground to the north, creates waterlogged conditions which lead to peat formation. There are layers of calcareous marl in this peat, reflecting inundation by calcium-rich water. This peat-marl deposit reaches some 6 m at its deepest point and is underlain by clay.

Pollardstown Fen is unusual in Ireland as it is an extensive area of primary and secondary fen peat, lacking scrub vegetation on its surface. The fen vegetation is generally from 0.5 - 1.5 m high and consists mainly of Saw Sedge (*Cladium mariscus*), Reed (*Phragmites australis*), Blunt-flowered Rush (*Juncus subnodulosus*) and a variety of Sedges (*Carex* spp.). The vegetation is quite varied and species-rich with numerous well-defined plant communities and several rare or scarce species, including Narrow-leaved Marsh Orchid (*Dactylorhiza traunsteineri*), Fly Orchid (*Ophrys insectifera*) and Broad-leaved Bog Cotton (*Eriophorum latifolium*). Of particular interest is the occurrence of the moss, *Homalothecium nitens* - a boreal relict species which is rare in Ireland. Species and communities characteristic of more nutrient-rich conditions occur on the fen margins where the water first emerges from the ground, while the central fen area is dominated by more uniform and less nutrient-demanding vegetation types.

Damp pastures occur on wet mineral soils and partly-drained peats on the fen margins. These are reasonably species-rich, with particularly good displays of orchids in some areas.

The fen has ornithological importance for both breeding and wintering birds. Little Grebe, Coot, Moorhen, Teal, Mallard, Mute Swan, Water Rail, Snipe, Sedge Warbler and Reed Bunting all breed annually within the fen vegetation. Reed Warbler and Garganey, both rare breeding species in Ireland, have been recorded at Pollardstown and may have bred. In recent years two very specialised bird species associated with fens, Marsh Harrier and Savi's Warbler, have been seen at Pollardstown.

An area of reclaimed land was reflooded in 1983 and has now reverted to open water, swamp and regenerating fen. Since the reflooding of the fen and the development of the shallow lake, wintering waterfowl have been attracted in increased numbers. Maximum counts during winter 1984/85 were as follows: Little Grebe 24; Teal 161; Mallard 220; Coot 81; Snipe 68.

Otter and Brook Lamprey (*Lampetra planeri*), two species listed in Annex II of the EU Habitats Directive, occur at Pollardstown.

Various groups of the invertebrate fauna have been studied and the system has been shown to support a true fen fauna. The species complexes represented are often rare in Ireland, with the sub-aquatic organisms particularly well represented. A number of internationally important invertebrates (mostly Order Diptera, i.e. two-winged flies) have been recorded from the site. Of particular conservation importance, however, is the occurrence of all three of the Whorl Snails (*Vertigo* spp.) that are listed on Annex II of the EU Habitats Directive. Pollardstown is the only known site in Ireland (or Europe) to support all three species (*Vertigo geyeri*, *V. angustior*, *V. moulinsiana*) and thus provides a unique opportunity to study their different habitat and hydrological requirements.

Much of the fen vegetation is now owned by the Office of Public Works and is a Statutory Nature Reserve.

Pollardstown fen is the largest spring-fed fen in Ireland and has a well developed flora and fauna. Owing to the rarity of this habitat and the numbers of rare organisms found there, the site is rated as of international importance.

## SITE SYNOPSIS

**SITE NAME: POULAPHOUCA RESERVOIR SPA**

**SITE CODE: 004063**

Poulaphouca Reservoir SPA, located in the western foothills of the Wicklow Mountains, was created in 1944 by damming of the River Liffey for the purpose of generating electricity from hydropower. The reservoir covers an area of approximately 20 square kilometres and is the largest inland water body in the mid-east and south-east regions. The reservoir receives water from two main sources, the River Liffey at the northern end, and the Kings River at the southern end. The exit is into the River Liffey gorge at the western end. Underlying the reservoir are sands and gravels deposited during the last glaciation. The shores of the lake are mostly sandy. When water levels are low the exposed lake muds are colonised by an ephemeral flora of annual plant species. Wet grassland areas occur in sheltered bays around the lake but especially in the northern part. Reed Canary-grass (*Phalaris arundinacea*) is the main grass species present, but other plant species characteristic of wet grasslands occur, including Creeping Bent (*Agrostis stolonifera*), Meadowsweet (*Filipendula ulmaria*), Yellow Iris (*Iris pseudacorus*) and Water Mint (*Mentha aquatica*). Sedges (*Carex* spp.) are locally common, while Rusty Willow (*Salix cinerea* subsp. *oleifolia*) scrub is often found associated with the wet grassland. In some places the water washes against grassy banks which are generally less than a metre high, and in a few places there are steep sand and clay cliffs, up to 15 m high - these are remnants of the old River Liffey channel. In many places the banks are actively eroding, and a strip of conifers has been planted around much of the perimeter of the reservoir in an attempt to stabilize the banks.

Poulaphouca Reservoir is of international importance for its Greylag Goose population, which is one of the largest in the country. The site provides the main roost for the birds, with feeding occurring mostly on improved grassland outside of the site. An average peak of 1,058 individuals occurred during the five seasons 1995/96 to 1999/00. A range of other waterfowl species occur in relatively low numbers, including Whooper Swan (34), Wigeon (262), Teal (136), Mallard (283), Goldeneye (36), Cormorant (16), Great Crested Grebe (11), Curlew (118) and Mute Swan (17). The site is also used by Grey Heron (12).

The reservoir attracts roosting gulls during winter, most notably a large population of Lesser Black-backed Gull (1,116), which in Ireland is rare in winter away from the south coast. Black-headed Gull (1,245) and Common Gull (229) also occur.

Breeding birds at the site include Great Crested Grebe (several pairs), which is localised in its distribution in eastern Ireland, as well as Snipe and Lapwing.

The principal interest of the site is the Greylag Goose population, which is of international importance. A range of other wildfowl species also occurs, including

Whooper Swan, a species that is listed on Annex I of the E.U. Birds Directive. The site is also notable as a winter roost for gulls, especially Lesser Black-backed Gull.

2.3.2005

## SITE SYNOPSIS

**SITE NAME: RED BOG, KILDARE**

**SITE CODE: 000397**

Red Bog, Kildare is located 3 km north of the village of Blessington in east Co. Kildare, close to the boundary with Co. Wicklow. It comprises a wetland complex of lake, fen and bog situated in a hollow between ridges of glacially-deposited material and underlain by rocks of Ordovician age.

The site is a candidate SAC selected for transition mire, a habitat listed on Annex I of the E.U. Habitats Directive.

The shores of the lake are muddy and support such species as Bog Stitchwort (*Stellaria alsine*), Brooklime (*Veronica beccabunga*) and Soft Rush (*Juncus effusus*). Fringing the lakeshore is a narrow zone with emergent Soft Rush, Water-plantain (*Alisma plantago-aquatica*), Bottle Sedge (*Carex rostrata*), as well as the moss *Climacium dendroides*. In places, particularly at either end of the lake and along its south-eastern side, this zone grades into extensive areas of quaking scraw vegetation of dense Bogbean (*Menyanthes trifoliata*) and Marsh Cinquefoil (*Potentilla palustris*), accompanied by such species as Sharp-flowered Rush (*Juncus acutiflorus*), Cuckooflower (*Cardamine pratensis*), Marsh Speedwell (*Veronica scutellata*), Common Marsh-bedstraw (*Galium palustre*), Water Horsetail (*Equisetum fluviatile*), Common Sedge (*Carex nigra*), Common Spotted-orchid (*Dactylorhiza fuchsii*) and the mosses *Rhytidiadelphus squarrosus* and *Sphagnum squarrosum*. Bulrush (*Typha latifolia*) and areas of Willow scrub (*Salix* spp.) also occur in association with this vegetation.

The deeper water supports submerged aquatic plants such as Water-starwort (*Callitriche*) and Water-crowfoot (*Ranunculus* spp.), while in sheltered areas floating plants including Duckweed (*Lemna minor*) and the liverwort *Riccia fluitans* are found.

At the north-east end of the site bog vegetation has developed, with Ling Heather (*Calluna vulgaris*) and Hare's-tail Cottongrass (*Eriophorum vaginatum*) being the most frequent species. Other bog plants found here include Bog Asphodel (*Narthecium ossifragum*), Cross-leaved Heath (*Erica tetralix*), Tormentil (*Potentilla erecta*), Heath Wood-rush (*Luzula multiflora*), the mosses *Sphagnum palustre*, *S. capillifolium*, *S. subnitens*, *Hypnum cupressiforme*, *Polytrichum commune* and *Dicranum scoparium*, and the lichen *Cladonia portentosa*.

Red Bog is of ornithological significance and breeding birds recorded from the site include Mute Swan, Mallard, Tufted Duck, Coot, Moorhen, Snipe and Black-headed Gull (< 20 pairs).

Gravel extraction, drainage and eutrophication of the wetland from agricultural activities in the surrounding lands all pose a threat to the site.

Red Bog, Kildare is a site of particular conservation significance, supporting as it does, a good example of a transition mire, a habitat that is listed on Annex I of the E.U. Habitats Directive.

13.06.2003

## SITE SYNOPSIS

**SITE CODE: RYE WATER VALLEY/CARTON**

**SITE CODE: 001398**

This site is located between Leixlip and Maynooth. It extends along the Rye Water, a tributary of the R. Liffey.

The Rye Water in Carton Estate is dammed at intervals, creating a series of lakes. Reed Grass (*Glyceria maxima*) is frequent around the lakes, along with Yellow Flag (*Iris pseudacorus*), Reed Canary-grass (*Phalaris arundinacea*), Bulrush (*Typha latifolia*), Water Forget-me-not (*Myosotis scorpioides*), Marsh Marigold (*Caltha palustris*) and Starwort (*Callitriche* spp.). Along the remainder of the site the river has recently been dredged and much of the Reed fringe removed.

To the north-west of Carton Bridge a small clump of Willows (*Salix* spp.), with Dogwood (*Cornus* sp.) some Alder (*Alnus glutinosa*), Ash (*Fraxinus excelsior*) and Elder (*Sambucus nigra*) occurs. The ground flora found here includes Golden Saxifrage (*Chrysosplenium oppositifolium*), Meadowsweet (*Filipendula ulmaria*), Common Valerian (*Valeriana officinalis*), Wavy Bitter-cress (*Cardamine flexuosa*) and Bittersweet (*Solanum dulcamara*).

The woods on Carton Estate are mostly old demesne woods with both deciduous and coniferous species. Conifers, including some Yew (*Taxus baccata*) are dominant, with Beech (*Fagus sylvatica*), Oak (*Quercus* sp.), Sycamore (*Acer pseudoplatanus*), Ash and Hazel (*Corylus avellana*) also occurring. The ground flora is dominated by Ivy (*Hedera helix*) with such species as Hedge Woundwort (*Stachys sylvatica*), Wood Speedwell (*Veronica montana*), Woodruff (*Galium odoratum*), Wood Avens (*Geum urbanum*), Common Dog- violet (*Viola riviniana*), Wild Angelica (*Angelica sylvestris*), Ramsons (*Allium ursinum*), Ground-ivy (*Glechoma hederacea*) and Ivy Broomrape (*Orobancha hederæ*) also occurring.

Hairy St. John's-wort (*Hypericum hirsutum*), a species legally protected under the Flora Protection Order (1987), occurs in Carton Estate; there is an old record from the estate for the similarly protected, Hairy Violet (*Viola hirta*), but this has not been recorded from here in recent years. Another species listed in the Red Data Book, Green Figwort (*Scrophularia umbrosa*), occurs on the site in several locations by the Rye Water. The woods at Carton Demesne are the site of a rare Myxomycete fungus, *Diderma deplanatum*.

Within the woods, Blackcap, Woodcock and Long-eared Owl have been recorded. Little Grebe, Coot, Moorhen, Tufted Duck, Teal and Kingfisher, the latter a species listed on Annex I of the EU Birds Directive, occur on and about the lake.

The marsh, mineral spring and seepage area found at Louisa Bridge supports a good diversity of plant species, including Stoneworts, Arrowgrass (*Triglochin palustris*),



Purple Moor-grass (*Molinia caerulea*), Sedges (*Carex* spp.), Common Butterwort (*Pinguicula vulgaris*), Marsh Lousewort (*Pedicularis palustris*), Grass-of-parnassus (*Parnassia palustris*) and Cuckooflower (*Cardamine pratensis*). The mineral spring found at the site is of a type considered to be rare in Europe and is a habitat listed on Annex I of the EU Habitats Directive. The Red Data Book species Blue Fleabane (*Erigeron acer*) is found growing on a wall at Louisa Bridge. The Rye Water is a spawning ground for Trout and Salmon, and the rare, White-clawed Crayfish (*Austropotamobius pallipes*) has been recorded at Leixlip. The latter two species are listed on Annex II of the EU Habitats Directive. The semi-aquatic snails *Vertigo angustior* and *V. moulinsiana* occur in marsh vegetation near Louisa Bridge; both are rare in Ireland and Europe and are listed on Annex II of the EU Habitats Directive. The scarce Dragonfly, *Orthetrum coerulescens*, has been recorded at Louisa Bridge.

The main importance of the site lies in the presence of several rare and threatened plant and animal species, and of a rare habitat, thermal, mineral, petrifying spring. The woods found on Carton Estate and their birdlife are of additional interest.