



**ECOLOGICAL IMPACT ASSESSMENT**  
**ERAS-ECO WASTE RECOVERY / TRANSFER AND SLUDGE DRYING FACILITY**  
**AT FOXHOLE, YOUGHAL, COUNTY CORK**

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**Prepared for**  
**ERAS-ECO LTD**

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## 12.1 INTRODUCTION

Scott Cawley Ltd. was commissioned by ERAS-ECO Ltd to undertake an Ecological Impact Assessment of a proposed development at Foxhole, Youghal, County Cork. The proposed development will involve the upgrading of an existing Waste Recovery / Transfer and Sludge Drying Facility to an Integrated Waste Management Facility. This Ecological Impact Assessment provides an assessment of the likely significant impacts of the proposed extension on ecological features within the zone of influence of the proposed development.

The aims of this Ecological Impact Assessment were to:

- establish baseline ecological data for the proposed development site and other relevant areas;
- determine the ecological value of the identified ecological features;
- assess the impact of the proposed extension on ecological features of value;
- recommend mitigation measures to avoid, reduce and remedy the identified impacts; and
- identify any residual impacts after mitigation.

## 12.2 METHODOLOGY

### 12.2.1 Relevant legislation and policy context

The assessment of the likely impacts of the proposed extension on ecological resources has had regard to the following policy documents and legislation:

#### 12.2.1.1 National and International Policy and Legislation

- *Wildlife Act, 1976 and Wildlife (Amendment) Act (2000)* including all amendments 1976-2010. In this document, the legislation is referred to collectively as the Wildlife Acts
- *European Communities (Natural Habitats) Regulations 1997* including all amendments 1997-2010. In this document, the legislation is referred to collectively as the Habitats Regulations. These regulations transpose the EC Habitats Directive 92/43/EEC into Irish law
- *EC Birds Directive 79/409/EEC*
- *European Communities (EIA) Regulations*, including all amendments 1989-2010
- *Flora (Protection) Order, 1999*
- *Planning and Development Act, 2000*
- *National Biodiversity Plan, 2002 – 2008*

#### 12.2.1.2 Relevant Local Policies and Plans

- Cork County Development Plan 2009 - 2015

- Youghal Development Plan 2010-2016

References to relevant Objectives and Policies of these plans have been made in this report where appropriate.

### 12.2.2 Relevant guidelines

The baseline ecology surveys, evaluation and impact assessment had regard to the following legislation and guidelines:

#### 12.2.2.1 General

- *Guidelines for Ecological Impact Assessment in the United Kingdom* (IEEM, 2006).
- *Advice Notes on Current Practice (in preparation of Environmental Impact Statements)* (EPA, 2003).
- *Guidelines on the information to be contained in Environmental Impact Statements* (EPA, 2002).

#### 12.2.2.2 Habitats and flora

- *Best Practice Guidance for Habitat Survey and Mapping* (Heritage Council, Pre-publication version 2010)
- *A Guide to Habitats in Ireland* (Fossitt, 2000).

#### 12.2.2.3 Fauna

- *Bat Mitigation Guidelines for Ireland* (National Parks and Wildlife Service, 2006).
- *Bat Surveys: Good Practice Guidelines* (UK Bat Conservation Trust, 2007).
- NRA Series of *Environmental Planning and Construction Guidelines* (2005 – 2010)
- *Design Manual for Roads and Bridges Series* (UK Highways Agency, 1971 to date)

### 12.2.3 Desk study

A desk study was carried out in order to collect any available information on the local ecological environment.

The following resources assisted in the production of this report:

- Ordnance Survey Ireland maps and aerial photography;
- Data on species that are rare, protected or threatened located within the zone of influence of the proposed development, as held by the National Park and Wildlife Service (NPWS) Database, and / or the National Biodiversity Data Centre ([www.biodiversityireland.ie](http://www.biodiversityireland.ie));

- Other relevant ecological publications, reports and literature (as provided in the Reference list at the end of this report).
- Water quality surveys and dispersion modelling in the Blackwater estuary, contained in two reports by Aquafact Environmental Consultants (2005 and 2008)

#### 12.2.4 Consultation

A consultation letter was sent to the Development Applications Unit on the 10<sup>th</sup> August 2010. The local District Conservation Officer was also consulted informally by telephone on 5<sup>th</sup> October 2010, in order to discuss the scope of works and some of the conservation interests of the surrounding area.

A data request form was sent to the National Parks and Wildlife Service in order to seek records of rare and protected species and habitats from their database.

A request was also sent to BirdWatch Ireland in order to acquire records on coastal waders that have been collected during their long-term IWeBS (Irish Wetland Bird Surveys) surveys. Results tables were purchased for both the Blackwater Estuary site and for the Tourig River subsite.

#### 12.2.5 Field surveys

The site was surveyed on the 12<sup>th</sup> of August 2010. The survey followed best practice and relevant guidelines and involved a detailed inspection of all areas of the proposed site as well as a general examination of surrounding area.

##### 12.2.5.1 Habitat and Flora Surveys

All habitat types were identified and classified using the *Guide to Habitats in Ireland (Fossitt, 2000)*. Within each habitat dominant and abundant plant species, indicator species and / or species of conservation interest were recorded. Plant nomenclature follows that of the *Checklist of the Flora of Britain & Ireland (BSBI, 2007)*.

##### 12.2.5.2 Fauna Surveys

As opposed to floral investigations, the surveying of faunal usage of subject lands cannot be based upon direct sightings alone. The presence of fauna was substantiated through the detection of field signs such as tracks, habitats, markings, feeding signs, and droppings, as well as by direct observation. Likewise, bird species noted within the study area were recorded along with any notable bird habitats, droppings, or tracks. In addition, the likely fauna species were assessed in relation to the habitats present within the site.

The habitats on site were assessed for signs of usage by protected fauna species and other fauna species of conservation importance. In addition the potential of the habitats and any buildings to support these fauna species was assessed.

The existing buildings on site were considered to have very low potential to support roosting bats (see description in section 12.3). The warehouses / industrial buildings had no searchable bat suitable areas (e.g. roof spaces / attics / basements), and no internal inspections of the buildings were undertaken.

## 12.2.6 Approach to Ecological Evaluation and Impact Assessment

### 12.2.6.1 Site Evaluation Criteria

The criteria used to assess the ecological value and significance of habitats are provided in Appendix 12-A. These follow the *Guidelines for Assessment of Ecological Impacts of National Road Schemes* (NRA, 2009) and are consistent with the approach recommended in the *Guidelines for Ecological Impact Assessment in the United Kingdom* (IEEM, 2006).

### 12.2.6.2 Impact Assessment Criteria

The impact significance for terrestrial and aquatic habitats has been assessed using the *Guidelines for Ecological Impact Assessment in the United Kingdom* (IEEM, 2006). Detailed Ecological Impact Assessment was undertaken for all Sensitive Ecological Receptors (as defined in Appendix 12-A) where there is potential to impact on these receptors due to the existence of a source-pathway-receptor link.<sup>1</sup> Based on these guidelines, the criteria used to characterise impacts are outlined in Table 12.1 below.

**Table 12.1 Characterisation of Impacts**

Parameter	Categories
Type of impact	Positive/ Negative
Magnitude of impact	Size or amount of impact
Extent	Area over which impact occurs (may be the same as magnitude if whole habitat impacted)
Duration	Time over which impact is expected to last. For example, described as Short-term, Medium-term or Long-term in relation to relevant species/ habitat time-scales.
Reversibility	Temporary/ Permanent
Timing and frequency	Timing of impacts in relation to relevant life-stages or seasons
Likelihood of impact occurring	Near-certain: probability >95% Probable: probability 50-95% Unlikely: probability 5-50% Extremely unlikely: probability <5%

<sup>1</sup> In ecological and environmental impact assessment, for an impact to occur there must be a risk enabled by having a 'source' (e.g. construction works at a proposed development site), a 'receptor' (e.g. a SAC or other ecologically sensitive feature), and a pathway between the source and the receptor (i.e. a watercourse which connects the proposed development site to the SAC). The risk of the impact does not automatically mean it will occur, nor that it will be significant. However, identification of the risk does mean that there is a possibility of ecological or environmental damage occurring, with the level and significance of the impact depending upon the nature and exposure to the risk and the characteristics of the receptor.

An impact is considered to be ecologically significant if it impacts the integrity or conservation status of a Sensitive Ecological Receptor within a specified geographical area. If impacts are not found to be significant at the highest geographical level at which the Sensitive Ecological Receptor has been valued, then the impacts may be significant at a lower level. For instance there may be a significant impact at a local level on a species which is valued at an international level. The highest levels of impact significance for each Sensitive Ecological Receptor 'value' rating are shown in Table 12.2.

**Table 12.2 Maximum level of impact significance for Sensitive Ecological Receptors**

Ecological Sensitive Receptor 'value' rating	Highest significance level
International Importance	Significant Positive/ Negative impact at International level
National Importance	Significant Positive/ Negative impact at National level
County Importance	Significant Positive/ Negative impact at County level
Local Importance (higher value)	Significant Positive/ Negative impact at Local level
Local Importance (lower value)	Significant Positive/ Negative impact at Local level

Flora and fauna species have been evaluated in relation to the criteria set out in Appendix 12-A which includes for example legal protection they may be afforded (at International or National level), their conservation status and local abundance. For instance, a species that is listed on Annex II or IV of the EC Habitats Directive is considered to be of 'International' importance. As above, this does not mean that an impact will necessarily be significant at an International level.

### 12.2.7 Limitations / Data Deficiencies

The field survey work was conducted on the 12<sup>th</sup> of August 2010. This is an ideal month for the survey of habitats, because most plants are in flower or fruit and are therefore easier to identify.

Summer months are not considered to be an optimal time for surveys of Badger setts or Otter holts because tall vegetation can obscure entrances to burrows. However this was not considered to be a constraint on the ERAS-ECO site, as the majority of the site is built-over, and all hedgerows / waste ground habitats around the margins were easily accessible.

The site is located adjacent to an estuary which supports large numbers of wintering waterfowl. As many of these birds only arrive in coastal areas in September/October, it was not possible to survey for these species at the time of the site survey in August. However, IWeBS data has been acquired in order to provide an indication of the populations of birds recorded in the Blackwater estuary in recent years.

## 12.3 DESCRIPTION OF EXISTING ENVIRONMENT

### 12.3.1 Overview

The proposed development site is located to the north of Youghal town, adjacent to the Cork-Waterford county border (Irish National Grid 209764, 079813). It currently operates as a waste

treatment and transfer facility, and contains a number of industrial buildings, administrative storage areas and other components including a wastewater treatment plant. The majority of the site is composed of buildings and artificial surfaces, with small areas of amenity grassland, flower beds and gravel. The boundary along the road frontage is formed by a high stone wall and security gates. Other boundaries are formed by chain-link fences and lines of young trees.

The site is located in a low-density industrial area to the north of Youghal town, on the western bank of the Blackwater estuary. It is located on a polder (land that was formerly reclaimed from the estuary). A large council landfill is located immediately to the east, and some clusters of industrial / commercial buildings are located approximately 200m to the northwest and 300m to the west. The land to the south contains fields of grassland / wasteland that have established on the surface of the reclaimed land.

The underlying geology of the area is Waulsortian limestone (massive unbedded lime-mudstone), but the surface soils have been built up as part of the polderisation process, and therefore the surface vegetation is unlikely to have any association with the bedrock or subsoils. The soils are likely to be alluvial or estuarine in nature.

The zone of influence of the proposed development extends beyond the boundaries of the proposed development site due to the proposal to discharge waste waters immediately to the north of the site into the Blackwater estuary.

### 12.3.2 Designated Areas

#### Protected Areas

Candidate Special Areas of Conservation (cSAC) are designated under the EU Habitats Directive (92/43/EEC), which is transposed into Irish law through the EC (Natural Habitats) Regulations (1997). The legislation enables the protection of certain habitats (listed on Annex I of the directive) and/ or species (listed on Annex II).

Special Protection Areas (SPAs) are designated under the Birds Directive (79/409/EEC). This allows for the protection of areas containing rare species (listed on Annex I of the directive), regularly occurring populations of migratory species (such as ducks, geese or waders), or areas of international importance for migratory birds.

Natural Heritage Areas (NHAs) are designations introduced under the Wildlife (Amendment) Act (2000) in order to protect habitats, species or geology of national importance. Many of the NHAs in Ireland overlap with Natura 2000 sites. Although many NHA designations are not yet fully in force under this legislation (referred to as 'proposed NHAs' or pNHAs), they are offered protection in the meantime under planning legislation which requires that planning authorities give due regard to their protection in planning policies and decisions.

If a development has potential to cause any direct or indirect impacts upon an SAC or SPA (together termed the 'Natura 2000' network of sites), an Appropriate Assessment (contained in a 'Natura Impact Statement') of the development must be carried in accordance with Article 6 of the EC Habitats Directive. NHAs are not subject to Appropriate Assessment, and impacts upon them are assessed as part of an Environmental Impact Assessment.

The area covered by the proposed development is not under any ecological designation as per the European Communities (Natural Habitats) Regulations 1997 (amended 2005), the EU Birds Directive 1979 or the Wildlife (Amendment) Act (2000). It lies within 15km of 3 cSACs, 3 SPAs and 8 pNHAs. A summary of these is listed in Table 12.3 below.

A *Natura Impact Statement* for the proposed development has been prepared and submitted as part of this application. This identifies all Natura 2000 sites within 15km of the proposed development site and identifies whether a source-pathway-receptor link exists between the proposed development site and any of these Natura 2000 sites. The table from the *Natura Impact Statement* has been reproduced below in Table 12.3 and has been expanded to also include pNHAs.

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**Table 12.3 Designated Areas within 5km of the Proposed Development (information downloaded from [www.npws.ie](http://www.npws.ie) on 19 August 2010)**

Site name and code	Designation	Distance from Proposed Development	Reasons for designation	Do any potential source-pathway-receptor links exist between the proposed development and the Natura 2000 site?
<b>Natura 2000 sites (including overlapping pNHAs)</b>				
Blackwater River (Cork/Waterford)	cSAC (002170), pNHA (000072)	0	Estuaries, mudflats saltmarsh, shingle, river vegetation, alluvial forests, Oak woodlands, Yew woodlands, Salmon, Sea Lamprey, Brook Lamprey, River Lamprey, Otter, Freshwater Pearl Mussel, White-clawed Crayfish	Yes - Discharge of treated wastewater and surfacewater runoff into the Natura 2000 site which could affect water quality and threaten the qualifying interests of the site Lighting, landscaping and noise may also result in the disturbance of fauna (particularly birds) within the designated sites.
Blackwater Estuary SPA	SPA (004028)	0	Black-tailed Godwit and eight species of national importance	Yes - as described above.
Ballymacoda (Clonpriest And Pillmore)	cSAC, pNHA (000077)	6.8	Estuaries, mudflats, saltmarsh	No – no hydraulic or other link between the source (proposed development) and the receptor (species and habitats for which the SAC is designated)
Ballymacoda Bay	SPA (004023)	5.5	>20,000 waterfowl, Black-tailed Godwit and fifteen species of national importance	No - as described above.
Ardmore Head	cSAC (002123)	10.5	Vegetated sea cliffs, dry heath	No - as described above.
Helvick Head to Ballyquin SPA	SPA (004192)	11.5	Chough, Peregrine and three species of national importance	No - as described above.
<b>pNHAs with no overlapping Natura 2000 site</b>				
Ballyvergan Marsh	pNHA (000078)	3.7	Reedswamp, dune and associated habitats. Important for reedswamp birds and Hen Harrier	No - as described above.

**Table 12.3 Designated Areas within 5km of the Proposed Development (information downloaded from [www.npws.ie](http://www.npws.ie) on 19 August 2010)**

Capel Island And Knockadoon Head	pNHA (000083), also a National Nature Reserve	9.4	Geological interest, heathland habitats and coastal birds. Covers the island, mainland and seafloor	No - as described above.
Ballyeelinan Wood	pNHA (001692)	11	Wooded valley by the sea with fast stream and waterfall. Undisturbed northern end with oak.	No - as described above.
Ballyquirk Pond	pNHA (001235)	11.5	Small pond containing aquatic vegetation and a rare species of grass	No - as described above.
Clasharinka Pond	pNHA (001183)	13	Large pond containing supporting a rare species of grass	No - as described above.
Ballycotton, Ballynamona And Shanagarry	pNHA (000076)	14.5	A range of wintering waterfowl.	No - as described above.

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The proposed development site lies within 15km of 6 pNHAs (this figure excludes pNHAs that overlap with Natura 2000 sites), of which all are located more than 3km from the proposed development site and do not have any source-pathway-receptor link to the proposed development. Therefore the proposed development is not predicted to have any impacts upon these sites, and they have not been considered further during the Ecological Impact Assessment.

### 12.3.3 Records of Protected, Rare and Other Notable Flora and Fauna species

Distribution records for many rare / protected species in Ireland are provided in a grid of 10km x 10km that cover all of Ireland. The study area lies within national grid square X07, and also lies close to three further sites X08, X17, X18. Desktop data records were obtained from the NPWS via a data request as well as from the online databases of NPWS and the National Biodiversity Network. The results are shown in Table 12.4.

<b>Table 12.4 Rare and Protected Species Recorded from the Surrounding 10km Square</b>					
<b>Latin Name*</b>	<b>English Name</b>	<b>Approximate location</b>	<b>Date(s)</b>	<b>10 km Squares</b>	<b>Level of Protection**</b>
<b>Flora</b>					
<i>Centaureum pulchellum</i>	Lesser Centaury	Youghal	1845	X17	FPO 1999, RDB V
<i>Geranium rotundifolium</i>	Round-leaved Crane's-bill			X07, X08, X17	RDB V
<i>Hyoscyamus niger</i>	Henbane	Ring, Youghal (Cork)	1845	X07	RDB R
<i>Mentha pulegium</i>	Pennyroyal			X07	FPO 1999, RDB V
<i>Orobanche rapum-genistae</i>	Greater Broomrape			X08	RDB R
<i>Salvia verbenaca</i>	Wild Clary	Claycastle (Youghal), Summerfield (Youghal)	1992-2006	X07	RDB R
<i>Trichomanes speciosum</i>	Killarney Fern	Glendine	1837	X07	EU HD - II, IV, FPO 1999, RDB V
<b>Fauna</b>					
<i>Alosa alosa</i>	Allis Shad		2003	X08	EU HD - II, V, RDB E
<i>Alosa fallax</i>	Twaite Shad		2002, 2003	X08, X17	EU HD - II, V, RDB V
<i>Caretta caretta</i>	Loggerhead Turtle		1840	X07, X17	EU HD - IV
<i>Dama dama</i>	Fallow Deer	Ballynatray House (Waterford)	1982-2005	X08, X17, X18	WA
<i>Dermochelys coriacea</i>	Leatherback Turtle		1984	X17	EU HD - IV
<i>Erinaceus europaeus</i>	Hedgehog	Kinsalebeg (Waterford)	1975-1981	X08, X17, X18	WA
<i>Euphydryas aurinia</i>	Marsh Fritillary			X18	EU HD II, WA

<i>Halichoerus grypus</i>	Grey seal	Capel Island	1990	X17	EU HD - II, V, WA
<i>Lepus timidus subsp. hibernicus</i>	Irish Hare	Kinsalebeg (Waterford)	1980-1990	X07, X08, X17, X18	EU HD - V, WA
<i>Lutra lutra</i>	Otter	Clashmore (Waterford), Youghal	1982-1991	X07, X08, X17, X18	EU HD - II, IV, WA, RDB NT
<i>Martes martes</i>	Pine Marten	Youghal Bridge	2005	X08	EU HD - V, WA
<i>Meles meles</i>	Badger	Ballycolman (Cork), Ardoginna Head (Waterford)	1979-1991	X07, X08, X17, X18	WA
<i>Mustela erminea subsp. hibernica</i>	Stoat	Youghal, Clashmore (Waterford), Killeagh (Cork)	1972-1983	X07, X08, X18	WA
<i>Petromyzon marinus</i>	Sea Lamprey		2003	X18	EU HD - II
<i>Plecotus auritus</i>	Brown Long-eared Bat	Ballynatray House, Co. Waterford	1982	X08	EU HD - IV, WA
<i>Rana temporaria</i>	Common Frog	Various locations	1973-1997	X07, X08, X17, X18	WA
<i>Sciurus vulgaris</i>	Red Squirrel	Near Youghal Bridge, Co. Waterford	1980-1991	X07, X08, X18	WA, RDB NT
<i>Sorex minutus</i>	Eurasian Pygmy Shrew	Near Youghal, Co. Cork	1982	X07	WA
<i>Zootoca vivipara</i>	Common Lizard	Various locations	1973	X07, X08, X17	WA

\* Latin and common names are as supplied by NPWS and therefore do not necessarily match plant nomenclature of the Checklist of the Flora of Britain & Ireland (BSBI, 2007) as used elsewhere in this report.

\*\* FPO: Plants listed on the Flora (Protection) Order (1999)

EU HD: Species listed on various annexes of the European Habitats Directive. Numerals refer to relevant annexes.

RDB: Species listed in Irish Red Data Books as follows:

Irish Red Data Book 1 Vascular Plants (Curtis & McGough, 1988): Ex = Extinct, E = Endangered, V = Vulnerable, I = Indeterminate, NT = Not rare and / or threatened.

Ireland Red List No. 3: Terrestrial Mammals (Marnell, F. et al. 2009): RE = Regionally Extinct, VU = Vulnerable, NT = Near Threatened, dd = data deficient, lc = least concern, na = not assessed.

Birds of Conservation Concern in Ireland (BOCCI, Lynas et al., 2007)

Although the majority of the proposed development site is built over, possible habitat (Recolonising Bare Ground) exists for some of the plant species (e.g. Round-leaved Cranesbill, Henbane, Wild Clary), although the habitats present would not be suitable for Killarney Fern, Greater Broomrape or Pennyroyal. None of these species were encountered during surveys.

Many of the above listed fauna species would be unlikely to occur on the site due to the lack of suitable habitats (e.g. Turtles, Lamprey), although Lamprey are known to occur within the Blackwater Estuary and Turtles may occasionally visit the estuary. Other fauna species are relatively common and may occasionally pass through the site, although none would be likely to

breed on site due to the lack of suitable habitat. No evidence of any of these species was found on site during field surveys.

### 12.3.4 Field survey results

#### 12.3.4.1 Habitats and Flora

The following habitat types were identified during the survey (categories taken from Fossitt 2000 are underlined) and Figure 12.1 Habitat Map illustrates the extent of all habitat types present within the study area.

- Buildings and Artificial Surfaces (BL3)
- Amenity Grassland (GA2)
- Exposed Gravel (ED1)
- Recolonising Bare Ground (ED3)
- Flower Beds and Borders (BC4)
- Hedgerows (WL1)

#### Buildings and Artificial Surfaces (BL3)

This habitat classification covers all buildings and hard-surfaces, of which the majority of the site is composed. All were constructed between 2005 and 2011, and little or no vegetation was found growing on them. These habitats are not considered to be of any ecological value.

#### Amenity Grassland (GA2)

Two small areas of Amenity Grassland were found in the north of the site in front of the administration building. They were dominated by Perennial Rye-grass *Lolium perenne*, with some Creeping Buttercup *Ranunculus repens*, Dandelion *Taraxacum officinale* ag., White Clover *Trifolium repens*, Red Clover *Trifolium pratense* and Common Ragwort *Senecio jacobaea*. Some unmowed areas at the base of a Hedgerow contained False Oat-grass *Arrhenatherum elatius*, Cock's-foot *Dactylis glomerata*, Carrot *Daucus carota*, Smooth Sow-thistle *Sonchus oleraceus* and a Willowherb *Epilobium* sp.

This habitat is considered to be of Local (low) ecological value.



**Figure 12.2** Amenity Grassland by the administration building

Exposed Gravel (ED1)

This habitat was found in the west of the site, in an area that was spread with gravel, but which has been colonised by some Ragwort, Creeping Soft grass *Holcus mollis*, Nipplewort *Lapsana communis*, False Oat-grass, a Willowherb, Bramble *Rubus fruticosus* agg., and Great Horsetail *Equisetum telmateia*.

This habitat is considered to be of Local (low) ecological value.



**Figure 12.3** Exposed Gravel with some recolonising plants



### Recolonising Bare Ground (ED3)

This habitat was found at two locations, one in the northeast (on gravel) and one in the southwest (on mounds of sand). Species included Great Horsetail, Great Willowherb *Epilobium hirsutum*, Common Fleabane *Pulicaria dysenterica*, Hoary Willowherb *Epilobium parviflorum*, Nipplewort, Gorse *Ulex europaeus*, a Willow *Salix* sp., Common Ragwort, Greater Plantain *Plantago major*, Smooth Sow-thistle, Spear Thistle *Cirsium vulgare*, Scarlet Pimpernel *Anagallis arvensis* subsp. *arvensis*, Turnip *Brassica rapa*, Creeping Thistle *Cirsium arvense*, Hedge Bindweed *Calystegia sepium*, White Clover, Rosebay Willowherb *Chamerion angustifolium*, Dandelion, Red Clover, Hogweed *Heracleum sphondylium*, Carrot, Creeping Bent *Agrostis stolonifera* and Rough Meadow-grass *Poa trivialis*.

This habitat is considered to be of Local (high) ecological value due to its diversity of species.



**Figure 12.4** Recolonising Bare Ground in the north of the site



**Figure 12.5** Recolonising Bare Ground in the south of the site

#### Flower Beds & Borders (BC4)

Some small planted flowerbeds were found in the north of the site beside the administrative building. Most plants were non-native, but some Nipplewort, False Oat-grass, Whiter Clover, Dandelion and Heath Pearlwort *Sagina subulata* were also present. This habitat is considered to be of Local (low) ecological value.

#### Hedgerows (WL1)

One Laurel *Prunus* sp. hedgerow was planted in front of the administrative building, and a well-spaced line of young trees was planted along the southern boundary of the site. The trees included Hawthorn *Crataegus monogyna*, Cherry *Prunus* sp., Ash *Fraxinus excelsior* and Alder *Alnus glutinosa*. The ground flora was similar to Amenity Grassland and Recolonising Bare Ground and also included Buddleja *Buddleia davidii*, and Common Fleabane.

This habitat is considered to be of Local (low) ecological value.





**Figure 12.6** Hedgerow in the southern part of the site.

#### 12.3.4.2 Fauna

##### Badgers *Meles meles*

There were no signs of Badgers within or in the vicinity of the proposed development site, although it is possible that Badgers (if present in the area) may use the site for feeding or commuting purposes.

##### Bats

No signs of bats (e.g. droppings) were observed around the exterior of any of the buildings on site, and the modern industrial buildings would not be suitable for most species. All buildings on site are lit throughout the night for security reasons. This is likely to exclude most bats from the proposed development site.

It is expected that bats would not roost within the buildings on the proposed development site, and that foraging / commuting opportunities within the immediate surroundings would be extremely limited. Therefore it is expected that the proposed development site is not of importance for bats, and consequently no internal bat inspections or external bat-detecting surveys were undertaken.

##### Winter Waterfowl

Treated wastewater from the ERAS-ECO development is currently discharged into a tidal creek that is linked to the adjacent Blackwater Estuary SPA. The area surrounding the discharge point includes large mudflats and saltmarshes, which are important for wintering waterfowl. IWEBS

data was acquired for the entire estuary, and for the 'Tourig River' subsite, which includes areas of mudflat close to the ERAS-ECO site, in addition to some other mudflat / saltmarsh areas in the estuarine sections of the Tourig River.

The SPA has been designated for an Internationally Important population of Black-tailed Godwit (934), and at the time of designation also supported Nationally Important populations of: Shelduck (151), Wigeon (1,232), Golden Plover (2,947), Lapwing (3,988), Dunlin (2,016), Curlew (1,194), Redshank (634) and Greenshank (30). A population of Bar-tailed Godwit (172) was very close to the threshold for national importance at the time of designation. These population counts were based upon average peaks for the five winters between 1995/96 and 1999/2000.

Based upon the latest four seasons of IWEBS counts for the estuary (2006/2007 to 2009/2010), the average mean peak count for Black-tailed Godwit was 746, which is still of International Importance. The estuary also now contains an Internationally Important population of Lesser Black-backed Gull (6,381), which are likely to be associated with the landfill adjacent to the ERAS-ECO site. Nationally important populations of Curlew (622), Redshank (439) and Greenshank (27) were also recorded. Counts of Shelduck (115), Wigeon (390), Golden Plover (753), Lapwing (1,519) and Dunlin (467) did not reach thresholds of National Importance during the four-year period.

Within the Tourig River subsite, the Black-tailed Godwit mean-peak counts were 502, which are also of International Importance, and amount to 67% of the total population inhabiting the estuary. The subsite also supports a population of 6,282 Lesser Black-backed Gull, which is of International Importance and includes 98% of the population of this species within the estuary. The populations of Curlew (171), Redshank (223) and Greenshank (5) are not of National Importance, and amount to 27%, 51% and 19% respectively of their total estuary populations.

It should be noted that the Tourig River subsite includes areas of mudflat immediately adjacent to the proposed development site, in addition to the estuarine sections of the Tourig River (further to the north of the site) and the landfill adjacent to the ERAS-ECO site. It should also be noted that these areas are outside the proposed development site boundary, but that they are located near the existing discharge point of the facility.

### Other Bird Groups

Some common species were observed on the proposed development site, including Jackdaw *Corvus monedula*, Rook *Corvus frugilegus*, Magpie *Pica pica*, Wren *Troglodytes troglodytes* and Blackbird *Turdus merula*. No bird species of conservation importance were observed on the proposed development site.

The trees on site are generally very small and would not be large or dense enough for nesting birds.

### Other species

The proposed development site may be used by a range of small mammals including Hedgehogs *Erinaceus europaeus* and Pygmy Shrew *Sorex minutus*. A short tunnel of 0.5m had been dug in a pile of sand in the southwest of the site, probably by a Rabbit *Oryctolagus cuniculus*. No other mammal burrows were observed.

Common Lizards *Zootoca vivipara*, Smooth Newt *Lissotriton vulgaris* and Common Frogs *Rana temporaria* may forage in parts of the proposed development site, although there are no wet areas in which amphibians might breed.

#### 12.4 CHARACTERISTICS OF THE PROPOSED EXTENSION

The proposed development will involve the installation of some new waste management and treatment procedures on the site including:

- The handling of sludge within existing buildings which also includes *inter alia* the upgrading of the existing sludge drying process through the introduction of new Aqua Critox technology.
- The facilitation of an onsite holding area / storage of solvents in dedicated bays while sample testing of hazardous waste materials are being undertaken prior to dispatching for treatment on-site or off-site.
- The introduction of a new anaerobic digestion process through the erection/construction of two digesters and combined heat and power unit.

These measures will operate 24 hours daily throughout the year. Noise, emissions and odour are controlled in order to avoid disturbance of neighbouring residential areas.

Wastewater resulting from the sludge-drying process is currently treated on-site in a substantial wastewater treatment plant, and discharged directly into the Blackwater Estuary. This is subject to a waste permit licence and EPA discharge limits. Domestic foul effluent is initially treated by means of a Puraflo system and discharged through the same system. This treatment of waste waters will continue for the proposed development.

Stormwater from roofs and non-waste storage hardstanding areas is currently passed through silt / oil interceptors and collected in a stormwater retention tank. It is then discharged into the Blackwater Estuary to the north of the site via a pH controlled non-return valve. This treatment of surface waters will continue for the proposed development.

No additional landscape planting work is directly proposed as part of the upgrade works, but may be incorporated in the future as part of a programme of noise prevention measures.

#### 12.5 SUMMARY OF ECOLOGICAL EVALUATION

Table 12.5 provides an ecological evaluation of all identified Sensitive Ecological Receptors. Sensitive Ecological Receptors (those features classified as Local (high) or above) are defined

as per the criteria set out in Appendix 12-A, which takes into consideration legal protection, conservation status and local abundance of ecological features.

<b>Table 12.5 Ecological Evaluation of Sensitive Ecological Receptors</b>		
<b>Habitat / Species</b>	<b>Highest Ecological Valuation Level</b>	<b>Ecologically Sensitive Receptor?</b>
<b>Designated Sites</b>		
See accompanying <i>Natura Impact Statement</i>		
<b>Habitats</b>		
Buildings and Artificial Surfaces (BL3)	None	No
Amenity Grassland (GA2)	Local (low)	No
Exposed Gravel (ED1)	Local (low)	No
Recolonising Bare Ground (ED3)	Local (high)	Yes
Flower Beds & Borders (BC4)	None	No
Hedgerows	Local (low)	No
<b>Fauna</b>		
Birds in protected areas	See accompanying <i>Natura Impact Statement</i> .	
Other birds	Local (low)	No
Other fauna	None	No

## 12.6 POTENTIAL IMPACTS OF THE PROPOSED EXTENSION

As per relevant guidelines, likely significant impacts have been assessed for Sensitive Ecological Receptors only, as listed in Table 12.5 above. An impact is considered to be ecologically significant if it is predicted to affect the integrity or conservation status of a Sensitive Ecological Receptor at a specified geographical scale.

### 12.6.1 Construction Phase

#### 12.6.1.1 Designated sites

Potential impacts upon Natura 2000 sites have been addressed in the accompanying *Natura Impact Statement*.

#### 12.6.1.2 Habitats and Flora

The new waste management and treatment processes will be accommodated within the existing four buildings on site, and the two digesters and additional plant and equipment will be installed outside on existing hard-surfaced areas. All work take place in existing buildings or on existing hard surfaces and will not require the removal of any other habitat types. Therefore the removal or disturbance of built land will not result in any significant negative impacts in terms of habitat loss.

The proposed extension will not result in any disturbance of the Recolonising Bare Ground, which has been classified as a Sensitive Ecological Receptor.

The site is currently entirely composed of hard-standing, and is bunded on all sides by kerbing. Stormwater from roofs and non-waste storage hardstanding areas is currently passed through silt/ oil interceptors and collected in a stormwater retention tank. It is then discharged into the Blackwater Estuary to the north of the site via a pH controlled non-return valve.

However, in the event of spills or leaks during the construction process, surface water run-off may be collected in the stormwater tank and discharged into the adjacent estuary. This may cause impacts upon habitats within the development site or in the surrounding area. This is unlikely to be significant unless it would enter the designated sites in the Blackwater Estuary and these impacts are assessed separately in the accompanying *Natura Impact Statement*.

#### 12.6.1.3 Fauna

Due to the nature of the habitats that will be removed, it is not expected that the development would result in significant impacts upon mammals, birds, reptiles or amphibians.

No bird nests were observed in any of the structures, and therefore no impacts would be expected upon birds.

### 12.6.2 Operation Phase

#### 12.6.2.1 Designated sites

Potential indirect impacts upon Natura 2000 sites have been addressed in the accompanying *Natura Impact Statement*.

#### 12.6.2.2 Habitats and Flora

It is proposed that the hardstanding areas of the site may be used to store tankers containing hazardous materials during the testing process. Any accidental spillages would have potential to cause impacts upon habitats within the development site or in the surrounding area. This is unlikely to be significant unless it would enter the designated sites in the Blackwater Estuary and these impacts are separately assessed in the accompanying *Natura Impact Statement*.

As noted above, in section 12.6.1.2, it is possible that surface water run-off from hard standing areas may carry pollutants from the proposed development site into the Blackwater Estuary. This is particularly important because hazardous materials may be stored on the site during testing. Potential impacts are separately assessed in the accompanying *Natura Impact Statement*.

The operation of sludge-drying, lime-stabilisation etc will result in the production of a range of dry and liquid end-products. The handling and disposal of these may have impacts on habitats, flora and fauna either on-site or in the surrounding areas. The main impacts associated with this relate to impacts on Natura 2000 sites and therefore these are fully addressed separately in the accompanying *Natura Impact Statement*.



### 12.6.2.3 Fauna

The main impacts on fauna arising from the operation of the proposed development relate to impacts on fauna within Natura 2000 sites and therefore these are fully addressed separately in the accompanying *Natura Impact Statement*.

## 12.7 MITIGATION MEASURES

### Designated Sites

Mitigation measures relating to the protection of designated sites during construction and operation works are set out in the accompanying *Natura Impact Statement*.

### Protection of Habitats

All construction works will be limited to the footprint of the construction works or in existing hardstanding areas. No works (including excavation, material storage or site compounds) will take place within or adjacent to any other habitat types.

The appointed contractor will have regard to the following guidelines to ensure that surrounding watercourses and water bodies are adequately protected during construction work:

- *Requirements for the protection of fisheries and habitats during construction and development works at river sites*. Eastern Regional Fisheries Board (2006).
- *Construction Industry Research and Information Association CIRIA C649: Control of water pollution from linear construction projects: Technical guidance* (Murnane et al. 2006)
- *CIRIA C649: Control of water pollution from linear construction projects: Site guide* (Murnane et al. 2006)
- *DMRB HD33/06: Surface and sub-surface drainage systems for highways. Design Manual for Roads and Bridges. Volume 4: 2, (2006).*

Tables 7.8.1 and 7.8.2 in Chapter 7: Water of this EIS include mitigation measures for construction and operation to prevent pollutants from reaching the adjacent estuary or seeping to groundwater. This will primarily be achieved by the use of plastic spill trays under any storage of chemicals or fuel. Other measures include the reinforcement of the concrete hardstanding area; the construction of a 2m wall around the hazardous waste storage area (with ramps at the entry point); the use of non-corrosive stainless-steel pipes, and regularly monitoring of equipment and groundwater.

The *Impact and Mitigation Measures* section of Chapter 11: Noise includes measures to reduce the effects of noise during the operation of the development, including maintenance of internal roads, speed limits, limits to hours of vehicle movements, and additional screen planting, etc.

Any additional planting required for noise barrier purposes will contain only native Irish species of plant. No invasive non-native species will be used.

## 12.8 RESIDUAL IMPACTS OF THE PROPOSED SCHEME

Due to the low ecological value of the sensitive ecological receptors within the proposed development site and the range of mitigation measures which have been proposed the proposed development will not lead to any significant impacts upon habitats, flora or fauna. It should be noted that the potentially significant impacts off-site to designated areas (Natura 2000 sites) have been fully addressed with appropriate mitigation measures recommended in the accompanying *Natura Impact Statement*.

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## Appendix 12-A

### Criteria for Ecological Evaluation

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## Ecological Valuation Criteria

### International Importance:

- 'European Site' including Special Area of Conservation (SAC), Site of Community Importance (SCI), Special Protection Area (SPA) or proposed Special Area of Conservation.
- Proposed Special Protection Area (pSPA).
- Site that fulfils the criteria for designation as a 'European Site' (see Annex III of the Habitats Directive, as amended).
- Features essential to maintaining the coherence of the Natura 2000 Network.<sup>2</sup>
- Site containing 'best examples' of the habitat types listed in Annex I of the Habitats Directive.
- Resident or regularly occurring populations (assessed to be important at the national level)<sup>3</sup> of the following:
  - Species of bird, listed in Annex I and/or referred to in Article 4(2) of the Birds Directive; and / or
  - Species of animal and plants listed in Annex II and/or IV of the Habitats Directive.
- Ramsar Site (Convention on Wetlands of International Importance Especially Waterfowl Habitat 1971).
- World Heritage Site (Convention for the Protection of World Cultural & Natural Heritage, 1972).
- Biosphere Reserve (UNESCO Man & The Biosphere Programme).
- Site hosting significant species populations under the Bonn Convention (Convention on the Conservation of Migratory Species of Wild Animals, 1979).
- Site hosting significant populations under the Berne Convention (Convention on the Conservation of European Wildlife and Natural Habitats, 1979).
- Biogenetic Reserve under the Council of Europe.
- European Diploma Site under the Council of Europe.
- Salmonid water designated pursuant to the European Communities (Quality of Salmonid Waters) Regulations, 1988, (S.I. No. 293 of 1988).<sup>4</sup>

### National Importance:

- Site designated or proposed as a Natural Heritage Area (NHA).
- Statutory Nature Reserve.
- Refuge for Fauna and Flora protected under the Wildlife Acts.
- National Park.
- Undesignated site fulfilling the criteria for designation as a Natural Heritage Area (NHA); Statutory Nature Reserve; Refuge for Fauna and Flora protected under the Wildlife Act; and/or a National Park.
- Resident or regularly occurring populations (assessed to be important at the national level)<sup>5</sup> of the following:
  - Species protected under the Wildlife Acts; and/or
  - Species listed on the relevant Red Data list.
- Site containing 'viable areas'<sup>6</sup> of the habitat types listed in Annex I of the Habitats Directive.

<sup>2</sup> See Articles 3 and 10 of the Habitats Directive.

<sup>3</sup> It is suggested that, in general, 1% of the national population of such species qualifies as an internationally important population. However, a smaller population may qualify as internationally important where the population forms a critical part of a wider population or the species is at a critical phase of its life cycle.

<sup>4</sup> Note that such waters are designated based on these waters' capabilities of supporting salmon (*Salmo salar*), trout (*Salmo trutta*), char (*Salvelinus*) and whitefish (*Coregonus*).

<sup>5</sup> It is suggested that, in general, 1% of the national population of such species qualifies as a nationally important population. However, a smaller population may qualify as nationally important where the population forms a critical part of a wider population or the species is at a critical phase of its life cycle.

<sup>6</sup> A 'viable area' is defined as an area of a habitat that, given the particular characteristics of that habitat, was of a sufficient size and shape, such that its integrity (in terms of species composition, and ecological processes and function) would be maintained in the face of stochastic change (for example, as a result of climatic variation).

<b>Ecological Valuation Criteria</b>
<p><b>County Importance:</b></p> <ul style="list-style-type: none"> <li>• Area of Special Amenity.<sup>7</sup></li> <li>• Area subject to a Tree Preservation Order.</li> <li>• Area of High Amenity, or equivalent, designated under the County Development Plan.</li> <li>• Resident or regularly occurring populations (assessed to be important at the County level)<sup>8</sup> of the following: <ul style="list-style-type: none"> <li>○ Species of bird, listed in Annex I and/or referred to in Article 4(2) of the Birds Directive;</li> <li>○ Species of animal and plants listed in Annex II and/or IV of the Habitats Directive;</li> <li>○ Species protected under the Wildlife Acts; and/or</li> <li>○ Species listed on the relevant Red Data list.</li> </ul> </li> <li>• Site containing area or areas of the habitat types listed in Annex I of the Habitats Directive that do not fulfil the criteria for valuation as of International or National importance.</li> <li>• County important populations of species, or viable areas of semi-natural habitats or natural heritage features identified in the National or Local Biodiversity Action Plan (BAP) if this has been prepared.</li> <li>• Sites containing semi-natural habitat types with high biodiversity in a county context and a high degree of naturalness, or populations of species that are uncommon within the county.</li> <li>• Sites containing habitats and species that are rare or are undergoing a decline in quality or extent at a national level.</li> </ul>
<p><b>Local Importance (higher value):</b></p> <ul style="list-style-type: none"> <li>• Locally important populations of priority species or habitats or natural heritage features identified in the Local BAP, if this has been prepared;</li> <li>• Resident or regularly occurring populations (assessed to be important at the Local level)<sup>9</sup> of the following: <ul style="list-style-type: none"> <li>○ Species of bird, listed in Annex I and/or referred to in Article 4(2) of the Birds Directive;</li> <li>○ Species of animal and plants listed in Annex II and/or IV of the Habitats Directive;</li> <li>○ Species protected under the Wildlife Acts; and/or</li> <li>○ Species listed on the relevant Red Data list.</li> </ul> </li> <li>• Sites containing semi-natural habitat types with high biodiversity in a local context and a high degree of naturalness, or populations of species that are uncommon in the locality;</li> <li>• Sites or features containing common or lower value habitats, including naturalised species that are nevertheless essential in maintaining links and ecological corridors between features of higher ecological value.</li> </ul>
<p><b>Local Importance (lower value):</b></p> <ul style="list-style-type: none"> <li>• Sites containing small areas of semi-natural habitat that are of some local importance for wildlife;</li> <li>• Sites or features containing non-native species that are of some importance in maintaining habitat links.</li> </ul>

<sup>7</sup> It should be noted that whilst areas such as Areas of Special Amenity, areas subject to a Tree Preservation Order and Areas of High Amenity are often designated on the basis of their ecological value, they may also be designated for other reasons, such as their amenity or recreational value. Therefore, it should not be automatically assumed that such sites are of County importance from an ecological perspective.

<sup>8</sup> It is suggested that, in general, 1% of the County population of such species qualifies as a County important population. However, a smaller population may qualify as County importance where the population forms a critical part of a wider population or the species is at a critical phase of its life cycle.

<sup>9</sup> It is suggested that, in general, 1% of the local population of such species qualifies as a locally important population. However, a smaller population may qualify as locally important where the population forms a critical part of a wider population or the species is at a critical phase of its life cycle.