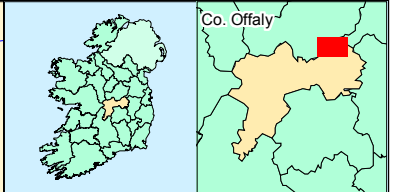
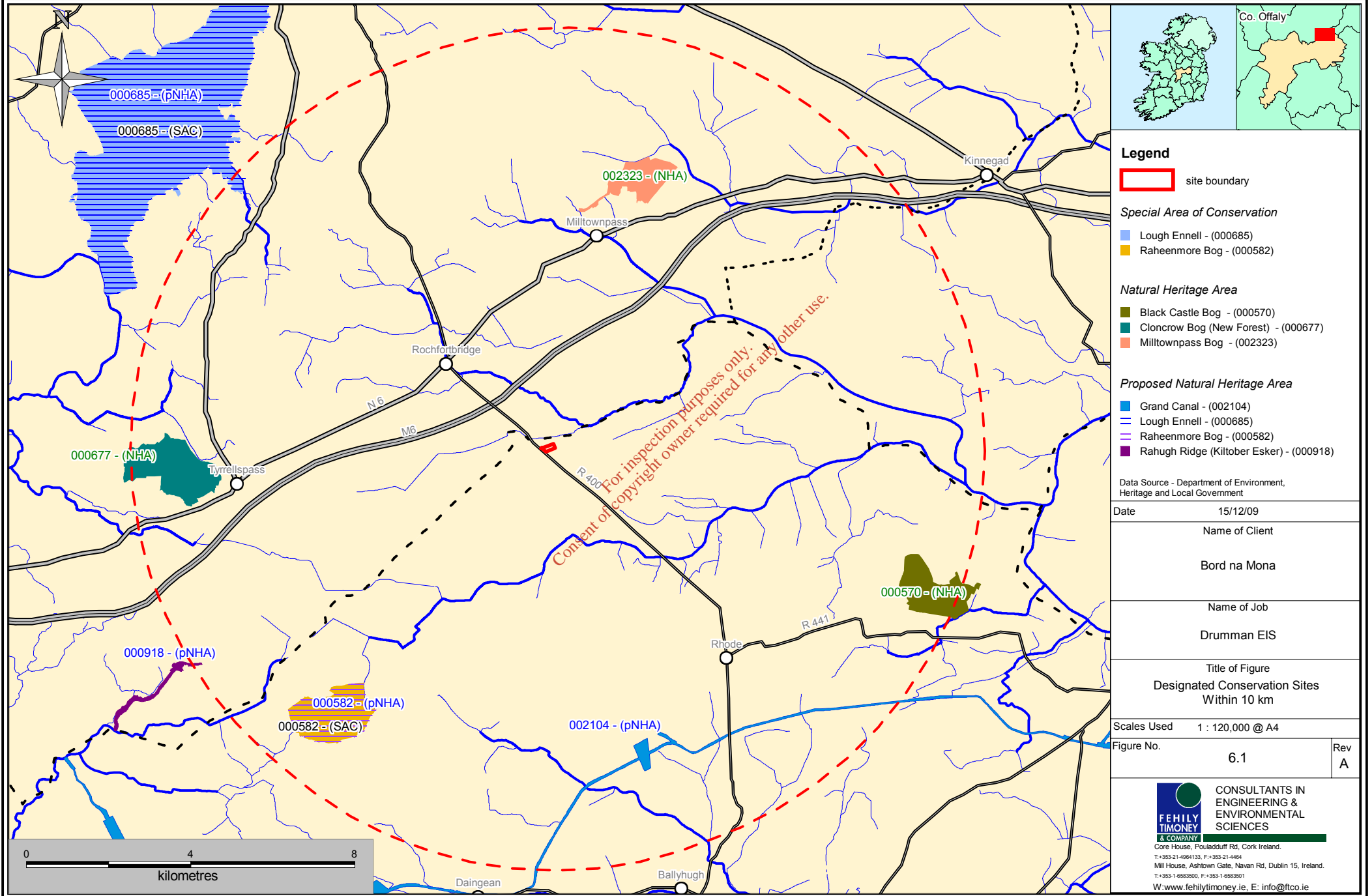


6.3 Ecology in the Existing Environment

6.3.1 Designated Sites within 10 km of the site

The proposed development is located within 10 km of nine designated sites. Table 6.2 summarises the characteristics of each site and Figure 6.1 shows the location of these designated sites in relation to the development site boundary. The full site synopses for these designated sites are provided in Appendix 6.

*For inspection purposes only.
Consent of copyright owner required for any other use.*



- Legend**
- site boundary
- Special Area of Conservation**
- Lough Ennell - (000685)
 - Raheenmore Bog - (000582)
- Natural Heritage Area**
- Black Castle Bog - (000570)
 - Cloncrow Bog (New Forest) - (000677)
 - Milltownpass Bog - (002323)
- Proposed Natural Heritage Area**
- Grand Canal - (002104)
 - Lough Ennell - (000685)
 - Raheenmore Bog - (000582)
 - Rahugh Ridge (Kiltober Esker) - (000918)

Data Source - Department of Environment, Heritage and Local Government

Date 15/12/09

Name of Client
Bord na Mona

Name of Job
Drumman EIS

Title of Figure
Designated Conservation Sites
Within 10 km

Scales Used 1 : 120,000 @ A4

Figure No. 6.1

Rev A

FEHILY TIMONEY CONSULTANTS IN ENGINEERING & ENVIRONMENTAL SCIENCES

Core House, Pouladuff Rd, Cork Ireland.
T: +353-21-4964133, F: +353-21-4464
Mill House, Ashstown Gate, Navan Rd, Dublin 15, Ireland.
T: +353-1-6583500, F: +353-1-6583501
W: www.fehilytimoney.ie, E: info@ftco.ie

A total of four proposed Natural Heritage Areas (pNHAs), three designated NHAs and two Special Areas of Conservation (SACs) occur within 10 km of the site.

The pNHAs are as follows:

- Lough Ennell
- Raheenmore Bog
- Grand Canal
- Rahugh Ridge (Kiltober Esker)

The NHAs are:

- Black Castle Bog
- Cloncrow Bog
- Milltownpass Bog

The SACs are:

- Lough Ennell
- Raheenmore Bog

Some sites have more than one designation. So, for example, Lough Ennell has been designated as a pNHA under the Irish Wildlife Acts and as an SAC under the E.U. Habitats Directive.

The proposed development site does not lie within or adjacent to any site that has been designated for nature conservation. There are no designated sites within 5 km of the development site, with the nearest designated site being Milltownpass Bog NHA, some 5.51 km to the north. The Grand Canal NHA and Raheenmore Bog SAC/pNHA both lie to the south of the development and are 7.09 and 7.12 km from the site respectively. Cloncrow Bog (New Forest) NHA lies directly to the west, beyond Tyrrellspass, 7.79 km from the site. Black Castle Bog NHA is some 8.43 km to the southeast of the site with Lough Ennell SAC/pNHA 9.56 km to the northwest. At 9.75 km, Rahugh Ridge (Kiltober Esker) pNHA is the furthest designated site that lies within 10 km of the proposed development.

6.3.2 Habitats, Botanical Species & Water Quality in the Existing Environment

Habitats

The wider Drumman site is a relatively uniform site, being an area of bog that has been cutover in the recent past. There are areas of bare peat, patches of Birch woodland and small areas of standing water. The development site boundary is confined to an area dominated by Birch in the western portion of the wider Drumman site. The surrounding landscape is largely cutover bog with the Mongagh river lying just north of the site. The R400 road lies to the southwest of the site and is bordered by a high treeline that comprises of mostly Monterey Pines (*Pinus radiata*) with some Poplars (*Populus* sp).

A total of three habitat types were identified within the Drumman site boundary. The habitat types and their habitat codes (after Fossitt, 2000) are given below. The extent of the habitats is shown in Figure 6.2 and described further below. The habitats recorded are:

- Cutover Bog (PB4)
- Bog Woodland (WN7)
- Recolonising Bare Ground (ED3)

Cutover Bog (PB4)

The Drumman site is situated within a cutaway bog area that has been commercially harvested for its peat resource in the recent past and this habitat type is the dominant one present on the site. Much of the area consists of bare peat that has a uniform surface consistent with mechanical harvesting of the peat. Other sections are being re-colonised by vegetation and even some scrub development.

Table 6-1 Summary of Designated Sites within 10 km of the proposed development

Designated Site	Site Code	Reason for designation	Distance from site (km)
Milltownpass Bog NHA	002323	Milltownpass Bog NHA is a site of considerable conservation significance comprising as it does a 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 hummocks and pools and due to its easterly location, is of biogeographical importance.	5.51
Grand Canal pNHA	002104	The Grand Canal is a man-made waterway linking the River Liffey at Dublin with the Shannon at Shannon Harbour and the Barrow at Athy Otter spraints are found along the towpath, particularly where the canal passes over a river or stream. The Common Newt breeds in the ponds on the bank at Gollierstown in Co. Dublin. The Rare and legally protected Opposite-leaved Pondweed (<i>Groenlandia densa</i>) (Flora Protection Order 1987) is present at a number of sites in the eastern section of the Main Line. The ecological value of the canal lies more in the diversity of species it supports along its linear habitats than in the presence of rare species	7.09
Raheenmore Bog SAC & pNHA	000582	This raised bog developed in a small basin in the catchment of two major river systems i.e. the Brosna and the Boyne. The bog has a well-developed hummock and hollow system. Raheenmore Bog is within the breeding territory of a pair of Merlin, a scarce species in Ireland and one that is listed on Annex I of the EU Birds Directive. Other typical bogland birds which breed include Red Grouse and Snipe. Raheenmore Bog is a classical example of a Midland Raised Bog and the deepest remaining in Ireland. The site is remarkably intact and is one of the few raised bogs where restoration of the lagg zone is feasible	7.12
Cloncrow Bog (New Forest) NHA	000677	The bog has good hummock/hollow microtopography, pools, quaking areas, a swallow hole, a small flush and forestry on high bog. The cutover supports humid grassland, improved grassland, small areas of Downy Birch (<i>Betula pubescens</i>) woodland and scrub, and forestry. The site supports a good diversity of raised bog microhabitats, as well as a number of scarce plant species.	7.79
Black Castle Bog NHA	000570	The site comprises a raised bog that includes both areas of high bog and cutover bog. Irish Hare, a Red Data Book species, has been recorded at the site. Black Castle Bog NHA is a site of considerable conservation significance, comprising as it does, a raised bog, a rare habitat in the E.U.	8.43

Designated Site	Site Code	Reason for designation	Distance from site (km)
Lough Ennell SAC & pNHA	000685	Lough Ennell supports a diverse aquatic flora; seven Stonewort species have been identified including two Red Data Book species, <i>Chara denudata</i> and <i>C. tomentosa</i> . Scharff's Char (<i>Salvelinus scharffi</i>), a distinct race of char which was once found only in Lough Owel and Lough Ennell, is now thought to be extinct. Notable aquatic invertebrates recorded from the lake include <i>Tinodes maculicornis</i> , <i>Metalype fragilis</i> , <i>Limnephilus nigriceps</i> (Trichoptera); <i>Picromerus bidens</i> , <i>Monarthia humili</i> (Hemiptera) and <i>Donacia obscura</i> (Coleoptera). This site shares an internationally important Greenland White-fronted Goose flock with Loughs Iron, Glen and Owel. Nationally important bird populations have been recorded on Lough Ennell. Lough Ennell is of significance as a highly productive lake which supports a rich variety of lower plant and invertebrate species. Its lakeshore habitats, which include alkaline fen, a habitat listed on Annex I of the EU Habitats Directive, support a diverse flora. These habitats also provide important refuges for wildfowl	9.56
Rahugh Ridge (Kiltober Esker) pNHA	000918	It is a particularly fine esker ridge covered for almost its entire length in woodland. The dominant species are ash and hazel. The wood is exceptionally rich in species with several uncommon or rare species: Dogwood (<i>Cornus sanguineus</i>), Columbine (<i>Aquilegia vulgaris</i>), Purging Buckthorn (<i>Rhamnus catharticus</i>), Stone Bramble (<i>Rubus saxatilis</i>), Whitebeam (<i>Sorbus hibernica</i>), Wood Melick (<i>Melica uniflora</i>). The small existing gravel pits that have been allowed to become recolonised, the southernmost now has a colony of a nationally rare and protected Hemp nettle (<i>Galeopsis agustifolia</i>)	9.75

The topography of the area is generally flat but with some higher and lower areas. The higher areas that have vegetation cover are dominated by Common Cotton-grass (*Eriophorum angustifolium*) and large patches of Fork-moss (*Dicranum* sp). Other commonly occurring species include Rosebay Willowherb (*Chamerion angustifolium*), Soft Rush (*Juncus effusus*), Bulbous Rush (*Juncus bulbosus*) and Velvet Bent (*Agrostis canina*). Some scrub development has taken place with seedlings of Grey Willow (*Salix cinerea*), Lodgepole Pine (*Pinus contorta*) and Downy Birch (*Betula pubescens*) present along with Bramble (*Rubus fruticosus* agg). These areas of scrub development are scattered over the wider area but some of this scrub has developed into woodland, see Bog Woodland (WN7) below.

Bog Woodland (WN7)

Figure 6-2 shows that there are three areas within the site that have been classified as this habitat type. The largest of the three lies in the western section of the site and within the development site boundary. There are two smaller areas of this habitat in the eastern section of the site.

These areas are all dominated by Downy Birch, much of which has reached more than 4 m in height. Other tree species present include Grey willow and Lodgepole Pine. The ground flora shows little evidence of the original bog vegetation as there was no sign of Sphagnum mosses. The ground flora is dominated by Purple Moor-grass (*Molinia caerulea*) and Bramble. Small amounts of Heather (*Calluna vulgaris*) and Carnation Sedge (*Carex panicea*) are present indicating that the area was originally bog but has been subsequently modified. Bracken (*Pteridium aquilinum*) and Gorse (*Ulex europaeus*) form locally dominant patches in the understorey which is otherwise relatively species poor.

Recolonising Bare Ground (ED3)

This habitat type is confined to a narrow strip along the northern edge of the main patch of Bog woodland and also to a track way that extends part way into the Cutover Bog habitat. It is an area that has been cleared in the past that has been subsequently re-colonised by vegetation with very little bare ground showing through. The dominant species are typical colonising plant species such as Annual Meadow grass (*Poa annua*), Creeping Thistle (*Cirsium arvense*), Ribwort plantain (*Plantago lanceolata*) and Nipplewort (*Lapsana communis*) along with commonly occurring weed species such as Bramble and Rosebay Willowherb. Some scrub species occur along the boundary with the adjacent habitats such as Grey Willow, Downy Birch and Hawthorn (*Crataegus monogyna*).

Botanical species

A total of 41 plant species were recorded during the field surveys. This is not an exhaustive list of the plant species that occur on the site as the survey did not take place at an optimal time of the year for a botanical survey.

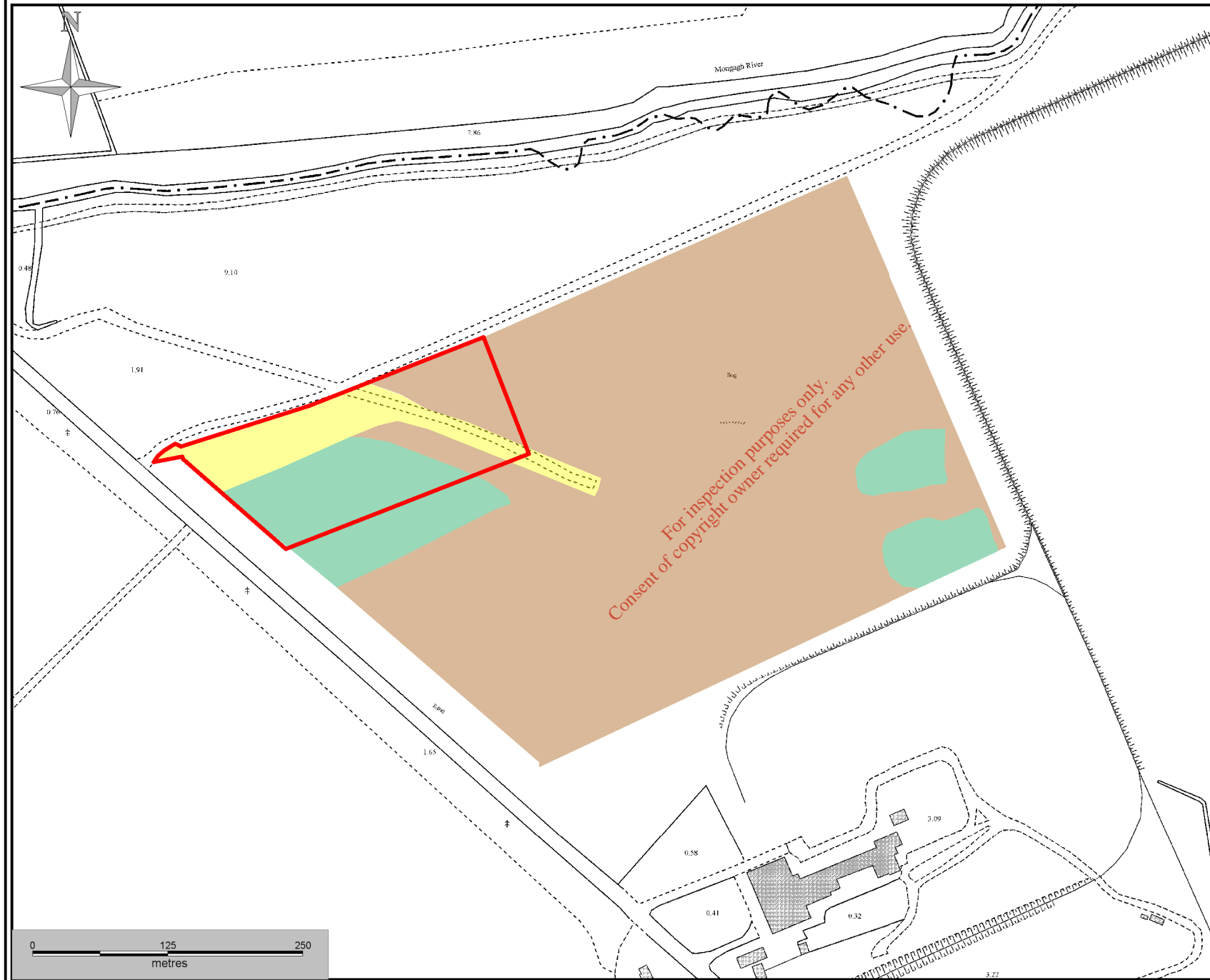
Plant species recorded at the main habitats found within the site are outlined in Table 6-3 below.

Four protected floral species have previously been recorded from within the same 10 km grid square as the development site (N53). These species are:

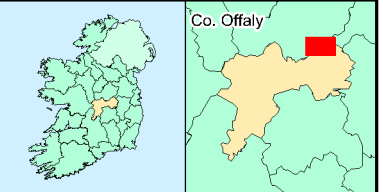
- Blue Fleabane, *Erigeron acer*
- Red Hemp-nettle, *Galeopsis angustifolia*
- Bog-rosemary, *Andromeda polifolia*
- Cowslip, *Primula veris*

None of these species were recorded during the botanical survey of the site. Bog-rosemary is a plant found on wet bogs, often in association with Sphagnum. As the site is largely cutover bog, it is considered that conditions are not suitable for this species within the site boundary. Red Hemp-nettle, Cowslip and Blue Fleabane are plants that favour calcareous or basic soils; again conditions on site are not thought to be suitable for these plant species. There are no records of protected flora species occurring in the vicinity of the site in historical data held by the NPWS.

All the species found by this botanical survey are distributed in the general area (Blamey *et al.*, 2003). In addition, no rare or protected species of high conservation concern were recorded during this survey (Curtis & McGough, 1988).



For inspection purposes only.
Consent of copyright owner required for any other use



Legend

site boundary

Habitat Classification

- ED3 - re-colonising bare ground
- PB4 - cutover bog
- WN7 - bog woodland

Date	20/01/2010	
Name of Client	Bord na Mona	
Name of Job	Drumman EIS	
Title of Figure	Habitats Map	
Scales Used	1 : 5,000 @ A4	
Figure No.	6.2	Rev A

FEHILY TIMONEY & COMPANY
CONSULTANTS IN ENGINEERING & ENVIRONMENTAL SCIENCES

Core House, Pouladuff Rd, Cork Ireland.
T:+353-21-4864133, F:+353-21-4864133
Mill House, Ashtown Gate, Navan Rd, Dublin 15, Ireland.
T:+353-1-8583500, F:+353-1-8583501
W:www.fehilytimoney.ie, E:info@ftco.ie

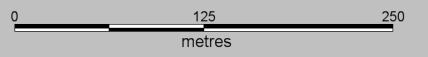


Table 6-2 Botanical Species Recorded on the site and their Habitats of Occurrence

Common Name	Scientific Name	Habitat Type		
		ED3	PB4	WN7
Annual Meadow Grass	<i>Poa annua</i>	x		
Bramble	<i>Rubus fruticosus agg.</i>	x	x	x
Bulbous Rush	<i>Juncus bulbosus</i>		x	
Bulrush	<i>Typha latifolia</i>		x	
Carnation Sedge	<i>Carex panicea</i>	x		x
Common Cotton Grass	<i>Eriophorum angustifolium</i>		x	
Common Water-plantain	<i>Alisma plantago-aquatica</i>		x	
Creeping Bent	<i>Agrostis stolonifera</i>			x
Creeping Buttercup	<i>Ranunculus repens</i>			x
Creeping Thistle	<i>Cirsium arvense</i>	x		
Cross-leaved Heath	<i>Erica tetralix</i>		x	
Downy Birch	<i>Betula pubescens</i>	x	x	x
Gorse	<i>Ulex europaeus</i>		x	x
Grey Willow	<i>Salix cinerea</i>	x	x	
Hawthorn	<i>Crataegus monogyna</i>	x		x
Heather	<i>Calluna vulgaris</i>		x	x
Holly	<i>Ilex aquifolium</i>		x	
Jointed Rush	<i>Juncus articulatus</i>		x	
Knapweed	<i>Centaurea nigra</i>	x		
Lodgepole Pine	<i>Pinus contorta</i>	x	x	x
Nipplewort	<i>Lapsana communis</i>	x		
Purple Moor Grass	<i>Molinia caerulea</i>		x	x
Ribwort Plantain	<i>Plantago lanceolata</i>	x		
Rosebay Willowherb	<i>Chamerion angustifolium</i>	x	x	
Saxifrage sp	<i>Saxifraga sp</i>	x		
Silverweed	<i>Potentilla anserina</i>	x		
Sitka Spruce	<i>Picea sitchensis</i>		x	x
Soft Rush	<i>Juncus effusus</i>	x	x	
Sow-thistle sp	<i>Sonchus sp</i>	x		
St John's Wort	<i>Hypericum sp</i>		x	x
Toad Rush	<i>Juncus bufonius</i>		x	
Tufted Hair Grass	<i>Deschampsia cespitosa</i>	x		
Velvet Bent	<i>Agrostis canina</i>		x	
Wild Strawberry	<i>Fragaria vesca</i>	x		
Yorkshire Fog	<i>Holcus lanatus</i>	x		
Ferns				
Bracken	<i>Pteridium aquilinum</i>	x		x
Broad Buckler Fern	<i>Dryopteris dilatata</i>			x
Lichens				
Bearded Lichen	<i>Cladonia sp.</i>		x	
Mealie Pixie Cup	<i>Cladonia chlorophaea</i>		x	
Mosses				
Common Haircap moss	<i>Polytrichum commune</i>		x	x
Fork moss sp	<i>Dicranum sp</i>		x	

Habitats are given as Fossitt codes where: ED3 – Recolonising Bare Ground, PB4 – Cutover Bog, WN7 – Bog Woodland

Water Quality & Fisheries

The site is drained by the Mongagh River, which flows adjacent to the site in a north easterly direction. The Mongagh River rises near Tyrrellspass and Rochfortbridge and flows for 12 miles through Co. Westmeath before joining with the Yellow River near Castlejordan several kilometres to the east of the site. This river holds a good stock of small wild Brown Trout, *Salmo trutta* (Eastern Regional Fisheries Board, www.fishingireland.net/fishing/salmonandtrout/meath/mongaghyellow.htm). Several drainage ditches have been cut into the site.

The River Mongagh in the vicinity of site was not found to be suitable for kick-sampling (i.e. no riffle areas were present). A visual inspection of the river was made and it was apparent that the river channel has been modified through dredging in the past. The river bank profile is steep and water flow is restricted through a small culvert just upstream of the site. The riverbed is composed of fine sediment and contains large quantities of in-stream vegetation (e.g. Floating Sweet-Grass, *Glyceria fluitans*) which may indicate nutrient enrichment.

Available data on biological water quality for the Mongagh River shows that this river is moderately polluted (www.epa.ie). There is one EPA sampling station on the Mongagh River (07C040100) downstream of the development site. Biological water quality at the EPA station was found to have a Q-Rating of Q3 in 2003. No recent biological water quality data was available for the Mongagh River, however it is considered unlikely that water quality would have improved here since 2003. There are two other EPA stations located in the vicinity of the development but they are located downstream of the facility on the Castlejordan River (07C040060 – Q3 in 2000) and the Rochfortbridge Stream (07R040300 – Q3 in 2003).

River quality in the Yellow River, which flows to the south of the site is moderate (Q3-4, www.epa.ie).

Further details on the Hydrology of the area are available in Section 5 of this EIS.

6.3.3 Fauna in the Existing Environment

Bird Species in the Existing Environment

A species list of all birds recorded on site was compiled. In total, 17 bird species were recorded on or within the vicinity of the site. No formal bird surveys were undertaken as the field visit was carried out outside of the normal bird breeding season. The full species list recorded is given in Table 6-3 below. The conservation status of each bird species recorded is also shown in this table.

One *Red-listed* species of high conservation concern (Golden Plover) and 4 *Amber-listed* species of medium conservation concern (Snipe, Teal, Whooper Swan and Woodcock) were recorded during the site walkover (Lynas *et al.*, 2007). The Golden Plover and Whooper Swan are also listed as an Annex I species of the E.U. Birds Directive. Golden Plover were heard calling off-site whilst the Whooper Swans were seen in a field lying to the north of the River Mongagh.

The site in general has limited value for birds with the areas of bog woodland providing some nesting and feeding sites. The areas of recolonising bare ground will provide seed producing plants that will be used by small birds such as finches for late summer and winter feeding. The cutover bog area provides only limited feeding sites for birds such as Snipe that would use these areas in the winter.

Table 6-3 Birds recorded on and in the vicinity of the site in January 2010.

Common Name	Scientific Name	Conservation Status
Blue Tit	<i>Cyanistes caeruleus</i>	Green List
Chaffinch	<i>Fringilla coelebs</i>	Green List
Crossbill	<i>Loxia curvirostra</i>	Green List
Dunnock	<i>Prunella modularis</i>	Green List
Goldcrest	<i>Regulus regulus</i>	Green List
Golden Plover	<i>Pluvialis apricaria</i>	Red List*
Great Tit	<i>Parus major</i>	Green List
Greenfinch	<i>Carduelis chloris</i>	Green List
Mistle Thrush	<i>Turdus viscivorus</i>	Green List
Moorhen	<i>Gallinula chloropus</i>	Green List
Raven	<i>Corvus corax</i>	Green List
Robin	<i>Erithacus rubecula</i>	Green List
Snipe	<i>Gallinago gallinago</i>	Amber List
Teal	<i>Anas crecca</i>	Amber List
Whooper swan	<i>Cygnus cygnus</i>	Amber List*
Woodcock	<i>Scolopax rusticola</i>	Amber List
Wren	<i>Troglodytes troglodytes</i>	Green List

* Annex I species, E.U. Birds Directive.

Species highlighted in amber are of Medium Conservation Concern (*Amber-listed*) and birds highlighted in red are of High Conservation Concern (*Red-listed*) according to the Birds of Conservation Concern in Ireland list (BOCCI, Lynas *et al.*, 2007). All other species are not currently of special conservation concern in Ireland (*Green-listed*).

Mammal Species in the Existing Environment

A total of three mammal species were recorded on, or in the vicinity of, the site during the site walkover in January 2010 (Table 6.4). Rabbit, *Oryctolagus cuniculus*, burrows were found in the roadside bank with numerous mammal tracks, thought to be Rabbit, found along the river bank and entering banks of gorse bushes. Irish Hare, *Lepus timidus hibernicus*, was thought to be common within the site boundaries with numerous sightings of individual hares and plenty of droppings. Plants such as Soft Rush and some of the tree seedlings also showed signs of being grazed by hares. The only sign of Fox *Vulpes vulpes* was the presence of a Fox scent along the northern site boundary but it is highly likely that Foxes will forage across the site.

No evidence of Otter, *Lutra lutra*, was found on the site or along the nearby Mongagh River. It is not considered likely that the Mongagh River is regularly used by Otter due to the almost stagnant water flow, apparent high levels of siltation and steep highly modified river banks in the vicinity of the site. It is also highly unlikely that Badgers, *Meles meles*, use the site due to the extensive water-logging on the site and limited availability of food.

A bat survey was not undertaken and no signs of bats were recorded during the site walkover. The wet habitats present on site do provide foraging habitats for bats but there is a lack of suitable roosting sites within the site. Some of the mature trees present in the treeline along the adjacent road may provide roost sites for bats.

Table 6-4 Mammal Species Recorded at/near the site

Common Name	Scientific Name	Occurrence	Note	Red List Status in Ireland 2009
Fox	<i>Vulpes vulpes</i>	Common	Fox scent along northern boundary near river	Least Concern
Irish Hare	<i>Lepus timidus hibernicus</i>	Abundant	Numerous tracks and sightings, droppings	Least Concern
Rabbit	<i>Oryctolagus cuniculus</i>	Present	Burrows in road-side bank, mammal paths in gorse near river	Least Concern

Other Fauna in the Existing Environment

No other species were recorded on the site. It is likely that the Common Frog, *Rana temporaria* occurs on the site due to the abundance of wet habitats. The wet habitats are also likely to support damsel and dragonfly species. Viviparous Lizard *Zootoca vivipara*, is also likely to occur on the site given the conditions present.

The Common Frog and Viviparous Lizard are protected by the Wildlife Act (1976 and Amendment 2000). Common Frog is also listed as a species of International Importance in the Irish Red Data Book (Whilde 1993) and as species of community interest under Annex V of the EU Habitats Directive.

6.3.4 Overall Ecological Value

Using the NRA (2006) guidelines for site evaluation, this site is given an E Rating – Low value, locally important. Appendix 6 shows the NRA criteria for rating sites and it can be seen that an E Rated site consists of artificial or highly modified habitats with low species diversity and low wildlife value.

6.4 Potential Ecological Impacts

6.4.1 Potential Impacts on Designated Areas

There are no designated sites within 5 km of the Drumman site. The nearest designated site is Milltownpass Bog NHA, some 5.51 km away from the development site. The Drumman site lies adjacent to the River Mongagh. This river is not designated and does not flow directly into any designated site.

There are no predicted potential impacts (direct or indirect) on any site designated for nature conservation arising as a result of the proposed development.

6.4.2 Potential Impacts on Habitats, Botanical & Water Quality

Construction of the development will lead to some permanent loss of habitat. The footprint of the proposed development, once constructed, will be confined to within the development site boundary. Construction will involve the removal of the trees within a large area of the Bog Woodland habitat. Peat spoil arising during construction will be used to create a berm on the cutover bog habitat within the wider Drumman site boundary. This will lead to some temporary loss of vegetation but the areas of bare spoil will be re-colonised with similar vegetation as already exists on site and this impact will be of a temporary nature. Potential temporary impacts may also occur during construction through temporary storage of spoil, construction materials etc.

Removal of areas of habitat will inevitably lead to removal of vegetation. The plant species that were recorded during the field surveys are all locally common and no rare or protected species of plant were noted. Mitigation measures include a pre-construction botanical survey at an appropriate time of year to determine whether any protected plants are present on the site.

The construction, operational and decommissioning phases of the project all give rise to potential impacts on the water quality of the Mongagh River through contamination by silts, suspended solids and other contaminants (e.g. fuels, oil). Mitigation measures are proposed to prevent any impacts on the water quality within the Mongagh River. These potential impacts and mitigation measures are dealt with in greater in Section 5 – Hydrology and Water Quality of this EIS.

6.4.3 Potential Impacts on Fauna

Potential impacts on Birds

Removal of areas of Bog woodland will lead to the loss of nesting and foraging habitat for birds. Removal of the trees outside the birds breeding season will reduce any direct impacts on nesting birds. Spreading of the construction spoil in the wider Drumman site will also lead to loss of foraging habitat, particularly if low-lying wet areas are infilled. Large areas of similar habitat are present in the surrounding wider countryside, consequently impacts on bird populations will be very localised.

Potential impacts on terrestrial mammals

The diversity and abundance of mammals on the site appears to be relatively low. Irish Hare was the most commonly observed mammal species and is likely to be widespread throughout the wider landscape. Removal of the Bog Woodland habitat will remove areas of cover that Irish Hares would use. The Bog Woodland and low-lying wet areas also provide potential foraging areas for bats and loss of these habitats could have local impacts on bat populations.

During the construction phase of the development there may be a certain amount of disturbance to mammalian fauna occurring on the site, however this will be temporary in duration and given the habitats present in the wider environment, affected mammals will be able to move to other locations in the wider area. It is highly unlikely that there will be any residual long term impacts on the mammal communities occurring at the site.

6.4.4 Overall Impact Significance

As mentioned above, this site has been given a Rating of E – low value, locally important, using the NRA (2006) guidelines for site evaluation (Appendix 6). The proposed development will have a permanent impact on a large part of the site. Therefore, using the NRA (2006) recommended criteria for assessing impact significance, the proposed development will have a Minor Negative impact on the site (Appendix 6).

6.5 Mitigation Measures

The following mitigation measures are proposed.

- Where possible, the destruction or removal of any mature vegetative cover should be conducted outside of the avian breeding season (March-August). This will be offset against the benefits of conducting this work in months that are dry enough to allow movement of heavy machinery without excessive habitat damage. Tree felling may require a licence from the Forestry Service, depending on their maturity.
- The area of Bog Woodland that is to be removed is to be confined to the area of the development site boundary. The area of Bog Woodland immediately south of the development site boundary together with the two areas of Bog Woodland in the eastern section of the wider Drumman site are to be retained in order to continue to provide areas of this habitat type in the locality. No deposition of construction spoil is to take place within 10 m of the remaining areas of Bog Woodland in order to allow these areas to naturally develop and spread to mitigate for the loss of Bog Woodland habitat within the development site boundary.

- Plans for the deposition of the peat spoil created during the construction of the facility are to be drawn in conjunction with a qualified ecologist. The plans for deposition should allow for the retention of some of the low-lying wet areas within the wider Drumman site and the areas of Bog Woodland as mentioned above.
- A pre-construction botanical and mammal survey is to be undertaken at an appropriate time of the year (May to July). The mammal survey will determine whether any mammal breeding sites have become established in the Bog Woodland in the period following the studies for this EIS and immediately prior to construction.

The botanical survey will look for any rare or protected species of flora not detected during the studies for this EIS. Appropriate mitigation measures may be required dependent on the results of these surveys.

- Good working practices will prevail throughout construction and operation of the development to prevent contamination of nearby watercourses, notably the Mongagh River with silt, fuels and other contaminants. All fuels are to be kept in bunded areas. All surface water run-off is to pass through petrol interceptors and an attenuation pond prior to discharge to the river. Silt fencing is to be employed during construction and operation phases as appropriate. Further details of these mitigation measures are given in Section 5 – Hydrology and Water Quality.
- Construction operations will take place during the hours of daylight to minimise disturbances to nocturnal mammal species, roosting birds or active nocturnal bird species.
- Excessive additional lighting around the site will be avoided. Lighting should be kept to minimum safe levels to reduce disturbance to nocturnal mammals and birds. Directional lighting will be used to prevent light disturbance in the surrounding area.
- Prior to decommissioning of the facility, a restoration plan is to be drawn up in conjunction with an ecologist.

With the application of the above mitigation measures there will be no significant residual impacts of this development.

6.6 Conclusion on Ecology

The area of the proposed development is not of conservation concern. Furthermore, there are no nearby designated sites. The habitats and flora found on the site are of low ecological value and much of the species diversity can be maintained by retaining a certain amount of existing vegetation within the wider Drumman site. With the careful application of the mitigation measures, there will be no significant impacts on the local surrounding flora and fauna community as a result of the proposed development.¹⁹

¹⁹ References

- Bang, P. & Dahlstrom, P. 2004. *Animal Tracks and Signs*. Oxford University Press, Oxford.
- Blamey M, Fitter R. & Fitter A. 2003. *Wild Flowers of Britain & Ireland*. A & C Black, UK.
- Clark, M. 1988. *Badgers*. Whittet Books, London.
- Curtis T.G.F. & McGough H.N. 1988. *The Irish Red Data Book 1 Vascular Plants*. Wildlife Service Ireland
- Fossitt J.A. 2000. *A Guide to Habitats in Ireland*. Heritage Council, Kilkenny.
- Institute of Environmental Assessment. 1995. *Guidelines for Baseline Ecological Assessment*. Chapman & Hall (E & F.N. Spon).
- JNCC 2004. *Common Standards Monitoring Guidance for Mammals*. JNCC, ISSN 1743-8160 (online).
- Lawrence, M.J. & Brown, R.W. 1973. *Mammals of Britain: Their tracks, trails and signs*. Blandford Press, Dorset.
- Lynas P., Newton S.F. and Robinson J.A. 2007. The Status of Birds in Ireland: An Analysis of conservation Concern 2008-2013. *Irish Birds*, 8: 149-167.
- Newton, S., Donaghy A., Allen, D. & Gibbons, D. 1999. Birds of Conservation Concern in Ireland. *Irish Birds*, 6: 333-342.
- NRA (2006). Guidelines for Assessment of Ecological Impacts of National Road Schemes. Environmental Impact Statement (Natural Environment Section). Environmental Assessment and Construction Guidelines, NRA Dublin.
- Sargent, G. & Morris, P. 2003. *How to find and identify mammals*. The Mammal Society, London.
- Smal, C. 1995. *The Badger and Habitat Survey of Ireland*. Government Publications Office, Dublin.
- Sutherland W.J (Ed.). 2006 (2nd Edition). *Ecological census techniques, a handbook*. Cambridge University Press, UK.
- The Heritage Council. 2005. *Habitat survey guidelines. A standard methodology for habitat survey and mapping in Ireland*. Draft No. 2. The Heritage Council, Kilkenny.
- Whilde A. 1993. *Threatened mammals, birds and fish in Ireland*. Irish Red Data Book 2: Vertebrates. Belfast: HMSO.

7 LANDSCAPE IMPACTS & VISUAL ASSESSMENT

7.1 Introduction

This section describes the existing landscape, the visual character of the existing facility and the potential visual impact of the proposed construction of a waste reception and processing building, a storage building and an administration building. Given the scale of the proposed power plant development at the Derrygreenagh Works, consideration is given to the potential cumulative impact of both the proposed power plant development and the proposed materials recycling & waste transfer facility.

The term 'landscape' refers primarily to the visual appearance of the area, including its shape, form and colour, and the interaction of these elements to create specific patterns that are distinctive to particular localities. However, the landscape is not purely a visual phenomenon. Its character relies closely on the local physical geography and environmental history. Besides any scenic and/or visual dimension, there are also a whole range of other constituents of significance. These include:

- topography
- ecology
- landscape history
- land use
- buildings and settlement
- architecture

This section deals with these factors only in so far as they impinge on the landscape and visual characteristics of the locality, setting out how the proposed development(s) interact with them and specifying any significant environmental effects.

7.2 Methodology

The baseline condition in relation to the landscape character of the area of the proposed development was assessed by means of a desk-based study to assess the available information in relation to the sensitive landscapes in the area of the proposed development, the current the presence of sensitive visual receptors in the area and the presence of sites of cultural significance in the vicinity of the proposed development.

Once the baseline assessment had been carried out, an assessment of both the positive and negative impacts of the proposed development on the surrounding area in terms of the visual impact was undertaken. These impacts are presented in this section, as well as the mitigation measures proposed, if appropriate, to mitigate the negative impacts.

The data and publications used to compile the baseline assessment are listed below:

- Offaly County Council, Offaly County Development Plan 2009-2015
- Westmeath County Council, Westmeath County Development Plan 2008 – 2014
- Meath County Council, Meath County Development 2007-2013
- Midlands Regional Authority, Regional Planning Guidelines, 2004

The proposed development site was visited by personnel from FTC in November 2009. A site walkover and windscreen survey of the surrounding area was undertaken. The purpose of the site walkover and the windscreen survey was to assist in the characterisation of the landscape in the local and broader context, in addition to identifying sensitive receptors.

A landscape and visual impact assessment was undertaken as part of the EIS for the proposed Derrygreenagh power plant, which is proposed to be sited adjacent to this proposed development. An accumulative assessment of the visual impact of the two developments was undertaken as part of this EIS in order to determine the impact on the surrounding landscape of the development of both facilities. The two facilities, located side by side, will have a combined effect on the landscape so an assessment of the visual impact of the materials recovery & and waste transfer facility in tandem with the proposed power plant was deemed prudent.

7.3 Existing Landscape

7.3.1 Immediate Area

The proposed development site is located in a rural area surrounded by peat bogs within the townland of Derrygreenagh, Co. Offaly, close to the border with Co. Westmeath. The site is adjacent to the Derrygreenagh Works site on the R400 Rochfortbridge to Rhode road. The proposed site is located approximately 17 km south east of Mullingar and 27 km north east of Tullamore. A significant treeline runs parallel with the R400 on the south western boundary of the proposed development with nature trees in excess of 10 metres in height.

The site is located within Co. Offaly and as part of the preparation of the Offaly County Development Plan 2009-2015, a landscape classification and sensitivity assessment was undertaken. As stated in the plan, Co. Offaly largely comprises a flat landscape, typified by the extent of its boglands. The landscape of the county is further typified by its ancient religious traditions, monastic settlements and by an esker landscape, shaped by the Ice Age. The proposed development is located in a cutaway Bog, which has been defined as a Moderate Sensitivity Area. Cutaway bogs cover a large proportion of the landscape of Co. Offaly - approximately 42,000 hectares. The Development Plan states that some of the areas of cutaway bogs "may be appropriate for [...] sensitively designed and located developments including [...] industrial use".

The site is located close to the border with Co. Westmeath, and the Westmeath County Development Plan 2008 – 2014 has characterised the landscape of the county. The county, whose landscape includes a diversity of types including rolling hills, peatlands, lakes, eskers, woodlands and wetlands, has been classified into eleven distinct Landscape Character Areas. The area immediately adjacent to the proposed development is Area 10: Lough Ennell and South Eastern Corridor.

The lowland areas of County Meath are within 10 km of the proposed site location. The Meath County Development Plan 2007 – 2013 identifies that 'the Lowlands have been developed quite extensively, relative to other landscape types, therefore it is critical that if further development is to be accommodated it must be carried out sensitively in order not to cause degradation of these landscape areas'.

7.3.2 Visual Envelope

The visual envelope is the extent of potential visibility of the site to or from a specific area or feature. The visual envelope for the proposed development will be defined by view from the M6 motorway to the south east and from the approach to the site from Rochfortbridge along the R400.

The visual envelope is reduced to the east by the existing Derrygreenagh Works and the south by the existing treeline along the R400.

7.3.3 Neighbouring Areas

Table 7-1 summarises the landscape character within a 10 km radius of the proposed development, which incorporates the landscapes of Co. Offaly, Co. Westmeath and Co. Meath.

Table 7-1 Landscape Character within 10 km of proposed development

County Council	Landscape Character	Landscape Sensitivity
Offaly	Peatlands (boglands)	Moderate
Offaly	Woodlands	Low
Offaly	Uplands (Croghan Hill)	High
Offaly	Waterways, Lakes and Wetlands (Grand Canal)	High
Westmeath	Lough Ennell and South Eastern Corridor	High
Westmeath	South Westmeath Eskers	Medium
Meath	South West Lowlands	High

7.3.4 Protected Views

The County Development Plans for Co. Offaly and for Co. Westmeath identify a number of protected views in the broad vicinity of the proposed development.

To the northwest of the site, within Co. Westmeath, there are a number of protected views in the area of Garrane High. This area is more than 5 km from the proposed development and the scenic views point towards Croghan Hill which is to the west of the proposed development. Within Co. Offaly, a number of protected views are present around the area of Croghan Hill, located to the south west of the proposed development. Only one of these views (V8 – Figure 16.10, Protected Views in the Offaly County Development Plan 2009 - 2015) points in a northerly direction but given Croghan Hill is between the viewpoint and the proposed development so it is unlikely to be visible from this point.

7.3.5 Viewpoint Location

To determine the visual impact on the facility, a number of viewpoints were selected for detailed assessment. The viewpoints are listed in Table 7.2 with an indication of their location, distance from the site, a description of their existing view and their sensitivity.

As discussed, the cumulative impact of the proposed development in conjunction with the proposed power plant at the Derrygreenagh Works is being assessed. In order to accurately determine this impact, the viewpoints chosen as part of this EIS are the same as those chosen when preparing the EIS in relation to the power plant development. Furthermore, given the scale of the proposed power plant, a series of photomontages in relation to the power plant development were prepared based on the visual envelope at these viewpoints. These photomontages were utilised when assessing the impact at these viewpoints and the impact from the proposed materials recycling & waste transfer facility is presented and described in terms of these photomontages.

Table 7-2 Viewpoint Location

Viewpoint Figure	Location	Grid Reference	Approximate Distance from Site	Existing View	Sensitivity
Figure 7.1	Bog Road near Derryarkin	48647E, 36717N	7.5 km	View from the west of the site of flat fields with trees on far horizon	Low - Medium
Figure 7.2	Minor road to Garr at base of Knockdrin Hill	50609E, 37645N	0.9 km	Views from south east of site of flat fields with trees on the horizon	Low - High
Figure 7.3	Croghan Hill	48469E, 34335N	3.8 km	Elevated view from the south east of site across flat bogland with quarry in the foreground and woodland in the background. This is a sensitive landscape receptor	High
Figure 7.4	Garrane High	43292E, 38787N	6.0 km	Elevated view from the north west of the site across flat fields with woodland on the horizon. A partial view of Croghan Hill is visible in the background.	High
Figure 7.5	View from M6	48297E, 40127N	2.1 km	View from the M6 motorway at 90 degrees to the direction of travel. View of flat agricultural land with dense woodland on the horizon.	Low



FIGURE 7.1 (from viewpoint 3)

NOT FOR CONSTRUCTION UNLESS SPECIFICALLY STATED OTHERWISE

No part of this document may be reproduced or transmitted in any form or stored in any retrieval system of any nature without the written permission of Fehily Timoney & Company as copyright holder except as agreed for use on the project for which the document was originally issued.
Do not scale. Use figured dimensions only. If in doubt - Ask!

Rev.	Drawn	Check	App'd	Rev Origin	Date	Description
A				Cork	25.02.10	ISSUE FOR EIS

Revision History	A								
------------------	---	--	--	--	--	--	--	--	--

Name of Client
Bord na Mona PLC

Name of Job
Drumman Project

Title of Drawing
FIGURE 7.1
Reproduced from Derrygreenagh Power Plant EIS
(www.derrygreenagh power.ie)

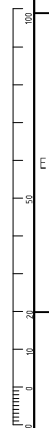
Scales Used
N/A

Dwg. No.
LW09-660-04-Figure 7.1

FEHILY TIMONEY & COMPANY
CONSULTANTS IN ENGINEERING & ENVIRONMENTAL SCIENCES

Core House, Pouladuff Rd, Cork, Ireland.
T: +353-21-4964133, F: +353-21-4964464
Mill House, Ashtown Gate, Navan Rd, Dublin 15, Ireland.
T: +353-1-4583500, F: +353-1-4583501
W: www.fehilytimoney.ie, E: info@fco.ie

SCALE - VERTICAL



For inspection purposes only.
Consent of copyright owner required for any other use.



FIGURE 7.2 (from viewpoint 5)

NOT FOR CONSTRUCTION UNLESS SPECIFICALLY STATED OTHERWISE

No part of this document may be reproduced or transmitted in any form or stored in any retrieval system of any nature without the written permission of Fehily Timoney & Company as copyright holder except as agreed for use on the project for which the document was originally issued.
Do not scale. Use figured dimensions only. If in doubt - Ask!

Rev. No.	Drawn	Checked	App'd	Rev Origin	Date	Description
A				Cork	25.02.10	ISSUE FOR EIS

Revision History						
A						

Name of Client
Bord na Mona PLC

Name of Job
Drumman Project

Title of Drawing
FIGURE 7.2
Reproduced from Derrygreenagh Power Plant EIS
(www.derrygreenagh power.ie)

Scales Used
N/A

This Drawing was printed to A3

Dwg. No. LW09-660-04-Figure 7.2

Rev. A

CONSULTANTS IN ENGINEERING & ENVIRONMENTAL SCIENCES

FEHILY TIMONEY & COMPANY
Core House, Pouladuff Rd, Cork, Ireland.
T: +353-21-4964133, F: +353-21-4964464
Mill House, Ashtown Gate, Navan Rd, Dublin 15, Ireland.
T: +353-1-4583500, F: +353-1-4583501
W: www.fehilytimoney.ie, E: info@fco.ie