Assessment of Proposed Replanting

Proposed Meenbog Wind Farm, Co. Donegal

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DOCUMENT DETAILS

Client:	Planree Ltd.
Project title:	Meenbog Wind Farm, Co. Donegal
Project Number:	160502
Document Title:	Assessment of Proposed Replanting
Doc. File Name:	160502 – Replanting – 2017.11.22 – F
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Document Issue:

Rev	Status	Issue Date	Document File Name	Author(s)	Approved By:
01	Draft	29.03.2017	160502 – Replanting – 2017.03.29 – D1	JOC/JS	MW
02	Draft	08.11.2017	160502 – Replanting – 2017.11.08 – D2	EM/JS	MW
03	Final	22.11.2017	160502 – Replanting – 2017.11.22 – F	EM	MW

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1 INTRODUCTION

1.1 Introduction

This report has been prepared by McCarthy Keville O'Sullivan Ltd. on behalf of Planree Ltd, who have applied to An Bord Pleanála for permission to construct a wind energy development and all associated infrastructure in the townlands of Croaghhonagh, Meenbog and Cashelnavean, Co. Donegal.

The total replanting requirement for the proposed Meenbog development is 46.1 hectares. Four potential replanting areas have been identified for assessment purposes, with a combined availability of 48.35 hectares. These lands have been granted Forest Service Technical Approval for afforestation and these or similarly approved will be used for replanting should the windfarm project receive planning permission. A description of the proposed replaning lands and an assessment of the potential impacts associated with afforestation at each location are provided in this document.

1.2 Report Structure

The main sections of this report are presented as follows:

- Section 2: Project Background and Description
- Section 3: Planning Policy and Planning History
- Section 4: Impact Assessment Methodology
- Section 5: Flora and Fauna
- Section 6: Soils and Geology
- Section 7: Hydrology and Hydrogeology
- Section 8: Landscape
- Section 9: Cultural Heritage
- Section 10: Air, Climate and Noise
- Section 11: Human Beings
- Section 12: Material Assets

2 PROJECT BACKGROUND AND DESCRIPTION

2.1 Background

2.1.1 Replanting Approval

Replanting or off-site afforestation is a requirement of the Forestry Act 1946 and its consent is regulated under *Statutory Instrument 558 of 2010, European Communities (Forest Consent and Assessment) Regulations 2010 as amended*. Approval for afforestation is not granted by the Forest Service on lands where there is the potential for significant environmental impacts.

The lands addressed in this document have been granted Technical Approval by the Forest Service for afforestation. Copies of the Technical Approval documents are presented in Appendix 1.

To afforest any land where the area involved is greater than 0.1 hectares requires the approval of the Minister under the 2010 Regulations. The application for approval is known as Pre-Planting Approval – Form 1 and is subject to the following procedures:

- The application is referred to the relevant Forest Service Inspector for assessment and recommendations;
- If there are any environmental considerations identified, the application is referred to the relevant external body, e.g. National Parks and Wildlife Services, National Monuments Service, Regional Fisheries Boards, Local Authorities, etc., for consideration;
- If the proposed development is greater than 25 hectares the application is referred to the relevant Local Authority;
- If the site is greater than 2.5 hectares the application is advertised on the Department's website;
- If the site is greater than 50 hectares an Environmental Impact Assessment and planning permission are required.

The Pre-Planting Approval – Form 1 requires a wide range of details in relation to the proposed area to be forested. Notwithstanding the size of the proposed application, the environmental considerations which must be answered/considered for the approval are listed in Table 2.1 below. The Pre-Planting Approval – Form 1 notes that, if present, all items listed may require the Department to consult with prescribed bodies, while those in bold type may require the Department to undertake public consultation.

Table 2.1 Environmental Considerations in Afforestation Applications for Approval – Form 1

	Environmental Considerations
1	Water Quality
1.1	Is the area designated potentially acid sensitive by this Department (DAFM)?
1.2	Is the area >5 ha and sensitive for fisheries?
1.3	Is the area non-sensitive for fisheries and >40 ha?
1.4	Is the area >10 ha and within a catchment area of a Local Authority designated water scheme?
2	Designated Habitats
2.1	**Is the area within a NHA, pNHA, SAC, SPA or National Park?**

	Environmental Considerations
2.2	If the area is within a NHA, is a completed notifiable Action Form/ Action Requiring Consent Form (consent from National Parks and Wildlife Service) included?
2.3	If the area within a Hen Harrier SPA, will operations occur between the 1st of April and the 15th August inclusive?
2.4	Is the area within a NPWS referral zone for NHA, pNHA, SAC or SPA?
2.5	Is the area within 3 km upstream of a NHA, pNHA, SAC, SPA or National Park?
2.6	Is the area within a Fresh Water Pearl Mussel 6 km zone? If yes the Forestry and Fresh Water Pearl Mussel Requirements Forms A and B should be included with the Application
2.7	Is the area within a Freshwater Pearl Mussel Catchment?
2.8	Does the area contain a current REPS plan habitat?
3	Archaeology
3.1	**Does the area contain an archaeological site or feature with intensive public usage?**
3.2	Does the area contain or adjoin a listed archaeological site or monument?
4	Landscape
4.1	**Is the area within a prime scenic area in the County Development Plan?**
4.2	Are there any other High Amenity Landscape considerations?
5	Size for Notification to Local Authority
5.1	Is the area greater than 25 ha?
6	Other Environmental Considerations
6.1	Specify

2.2 Proposed Replanting Lands

Five potential areas have been identified for assessment purposes, and any replanting associated with the Meenbog sites will take place at these lands or similarly Technically Approved lands. The list of Technically Approved lands assessed in this report is presented in Table 2.2.

Table 2.2 Proposed Replanting Lands

Location No.	Property Name	Location	Proposed Replanting Area (hectares)
1	Ballyduff Beg	Co. Clare	14.15
2	Mologha	Co. Clare	12.5
3	Claraghatlea North	Co. Cork	18.77
4	Glantane Beg	Co. Cork	2.93
Total Area			48.35

The lands listed in Table 2.2 have each been assessed as part of the Afforestation Approval – Form 1 process and obtained Technical Approval for Afforestation from the Forest Service. The combined approved area for replanting afforestation at the sites is 48.35 hectares, which is available to the applicant and would meet the total Meenbog replanting requirement of 46.1 hectares. Site location maps and further details on each site are provided in Sections 2.2.1 to 2.2.4 below.

2.2.1 Replanting Area 1: Ballyduff Beg, Co. Clare

This replanting area is in the townland of Ballyduff Beg, Co. Clare. The Ballyduff Beg property is located approximately 0.3 kilometres east of Inagh. The site location and arial view are presented in Figure 2.1 and 2.2. The property is accessed via a track directly off the N85 National Secondary road. The Technical Approval area for afforestation at Mologha measures 14.15 hectares in total. The current land use is agricultural for pastoral farming.

2.2.2 Replanting Area 2: Mologha, Co. Clare

This replanting area is in the townland of Molough, Co. Clare. The Mologha property is located approximately 4.7 kilometres east of Kilrush. The site location and arial view are presented in Figure 2.3 and 2.4. The property is accessed via local road. The Technical Approval area for afforestation at Mologha measures 12.5 hectares in total. The current land use is agricultural for mixed farming.

2.2.3 Replanting Area 3: Claraghatlea North, Co. Cork

This replanting area is in the townland of Claraghatlea North in Co. Cork. The site is approximately 1.5km from Millstreet which lies to the south-east. The site location and arial view are presented in figure 2.5 and 2.6. The Technical approval area for afforestation at this site is 18.77 hectares. The site is accessed via local roads which lead to the R582. Existing forestry sites lie to the east.

2.2.4 Replanting Area 4: Glantane Beg, Co. Cork

The Glantane Beg replanting replanting land is located in the townland of Glantane Beg, Co. Cork. The site location and arial view are presented in Figures 2.7 and 2.8. The Technical approval area for afforestation for this site is 2.93 hectares. The site is accessed via a local road which leads to the L1108. The site is approximately 3.6km from the village of Knocknagree and the current land use is for forestry.

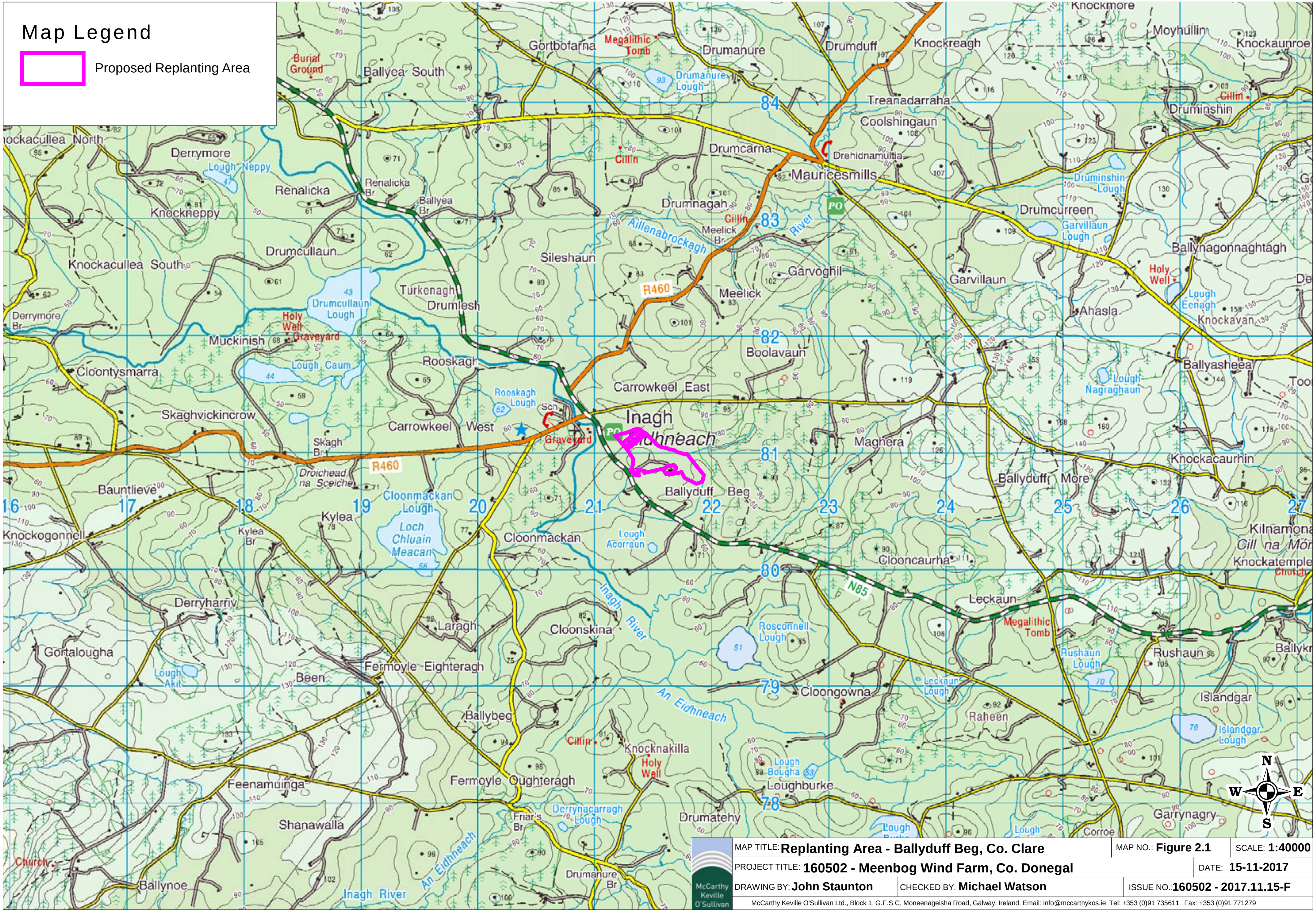
2.3 Proposed Afforestation Techniques

2.3.1 Forest Service Best Practice

Afforestation and subsequent harvesting will conform to current best practice Forest Service regulations, policies and strategic guidance documents as well as Coillte produced guidance documents, including the specific guidelines listed below, to ensure that newly planted trees remain viable and afforestation provide minimal potential impacts to the receiving environment.

- *'Forestry and Water Quality Guidelines'* (2000)
- *'Forestry and the Landscape Guidelines'* (2000)
- *'Forestry and Archeology Guidelines'* (2000)
- *'Forestry Biodiversity Guidelines'* (2000)
- *'Forestry Protection Guidelines'* (2002)
- *'Forestry Harvesting and Environmental Guidelines'* (2000)
- *'Forest Operations & Water Protection Guidelines' (2009)*
- *'Methodology for Clear Felling Harvesting Operations'* (2009)
- *Land Types for Afforestation'* [2016]
- *'Environmental Requirements for Afforestation''* [2016]

Planting will be carried out in accordance with the *'Forestry Schemes Manual'* (Forest Service, 2011), which provides guidance in relation to ground cultivation, stocking and spacing, plant handling, planting dates, fertiliser application, fencing, fire, and weed



Map Legend

Proposed Replanting Area

MAP TITLE: **Replanting Area - Ballyduff Beg, Co. Clare**

MAP NO.: **Figure 2.1**

SCALE: **1:40000**

PROJECT TITLE: **160502 - Meenbog Wind Farm, Co. Donegal**

DATE: **15-11-2017**

DRAWING BY: **John Staunton**

CHECKED BY: **Michael Watson**

ISSUE NO.: **160502 - 2017.11.15-F**

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MAP TITLE: **Replanting Area - Ballyduff Beg - Aerial**		MAP NO.: **Figure 2.2**	SCALE: **1:5,000**
PROJECT TITLE: **160502 - Meenbog Wind Farm, Co. Donegal**			DATE: **15-11-2017**
DRAWING BY: **John Staunton**	CHECKED BY: **Michael Watson**	ISSUE NO.: **160502-2017.11.15-F**	

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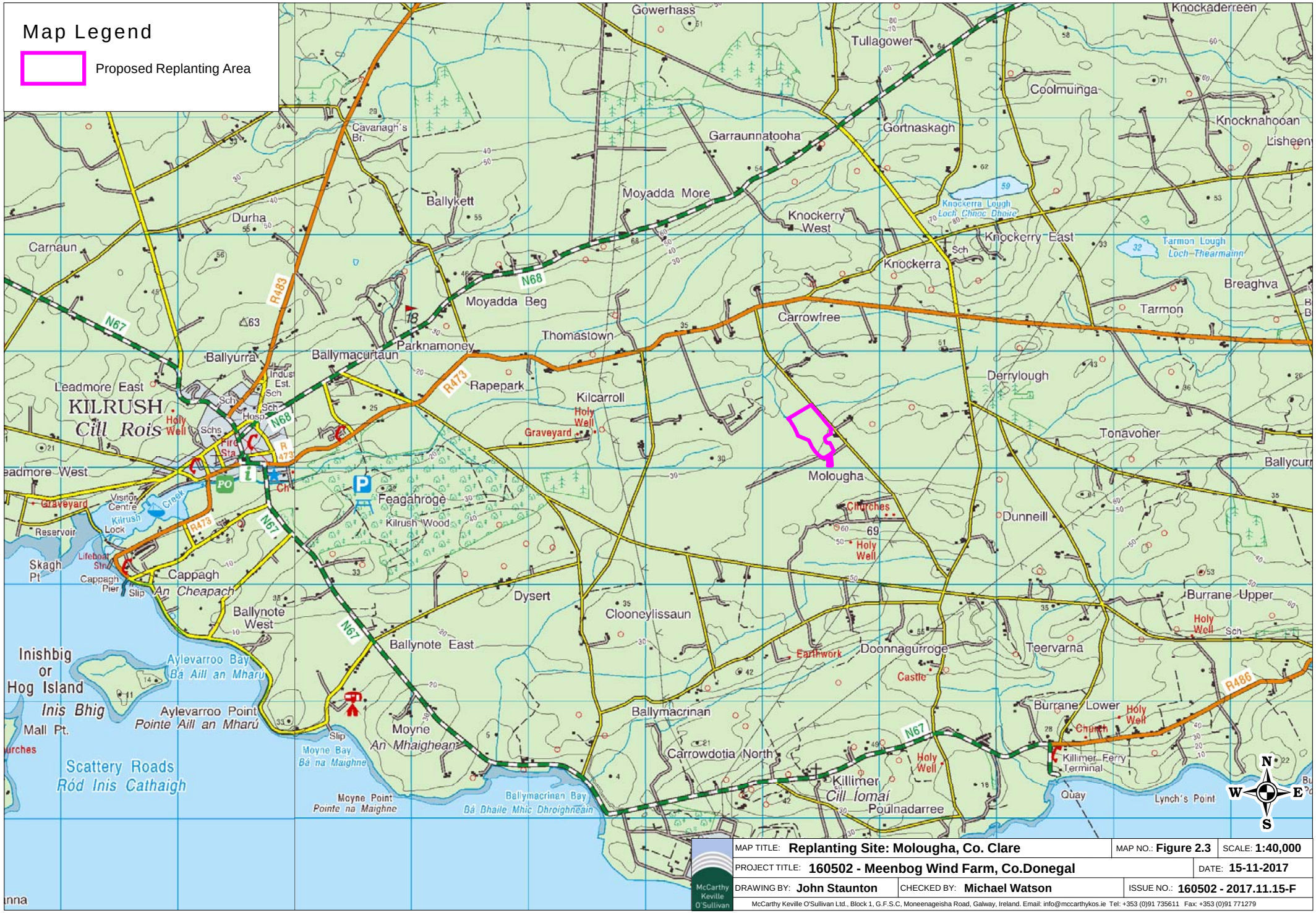

MAP TITLE: **Replanting Site: Mologha, Co. Clare**		MAP NO.: **Figure 2.3**	SCALE: **1:40,000**
PROJECT TITLE: **160502 - Meenbog Wind Farm, Co.Donegal**			DATE: **15-11-2017**
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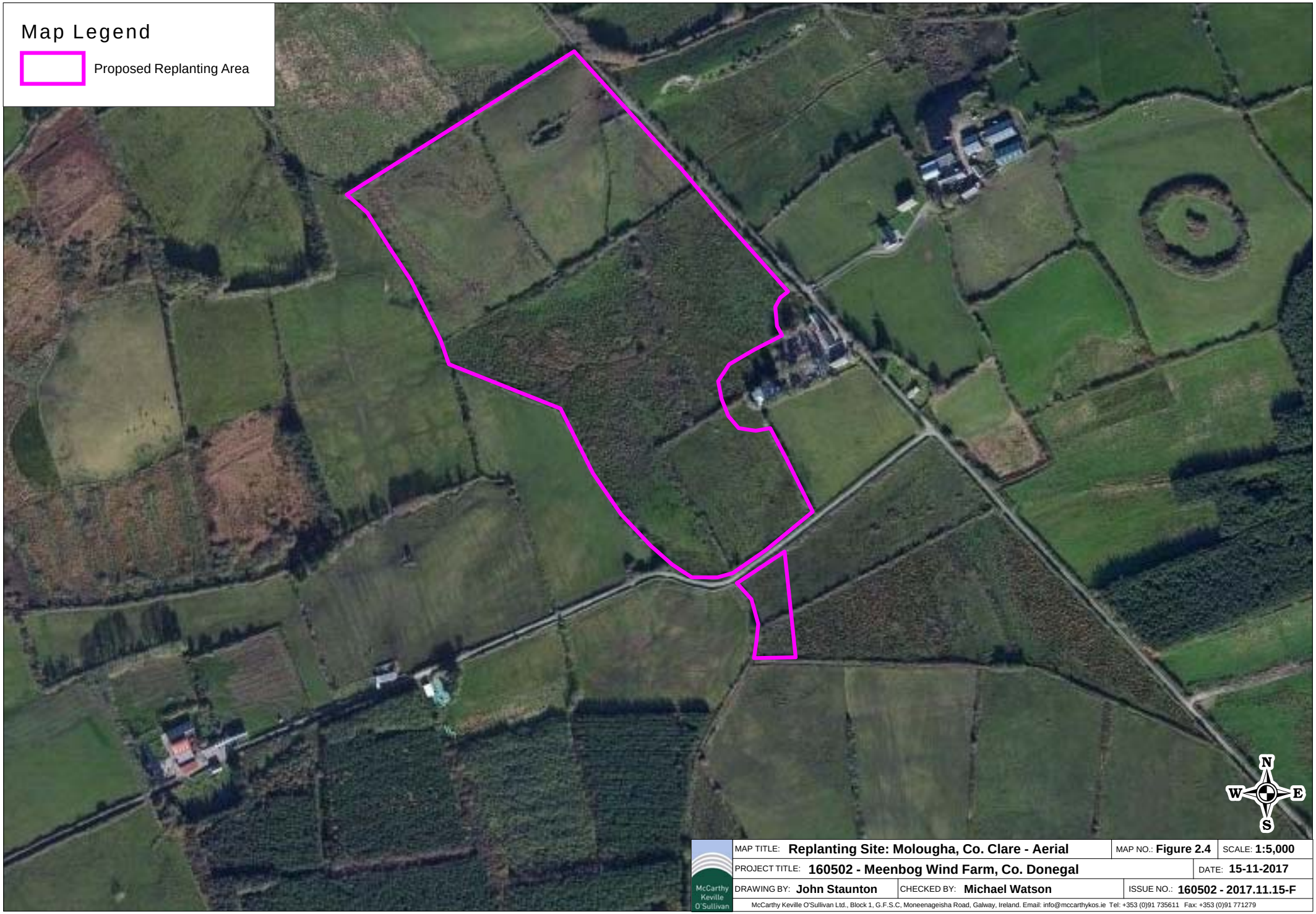

MAP TITLE: **Replanting Site: Mologha, Co. Clare - Aerial**		MAP NO.: **Figure 2.4**	SCALE: **1:5,000**
PROJECT TITLE: **160502 - Meenbog Wind Farm, Co. Donegal**			DATE: **15-11-2017**
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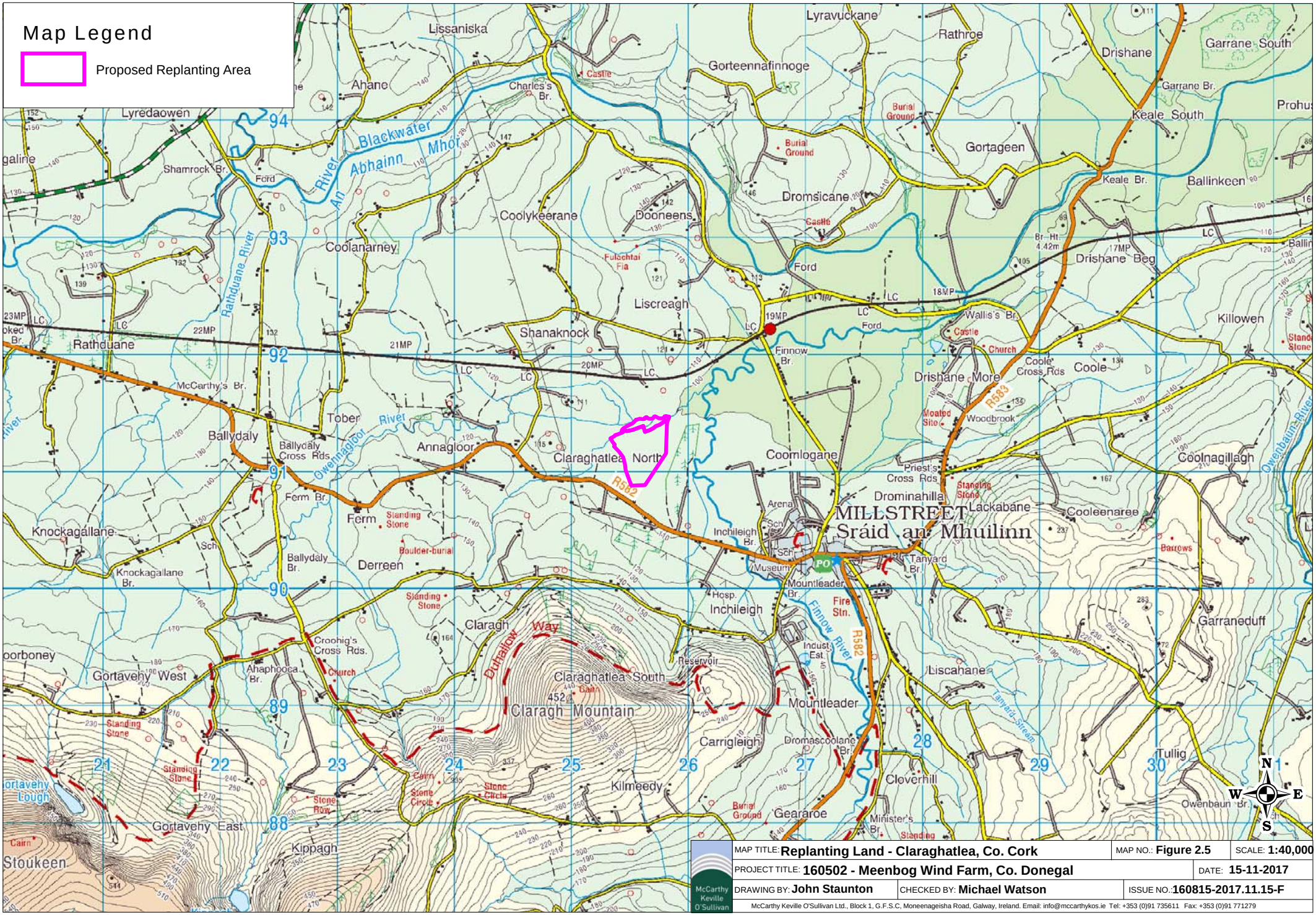

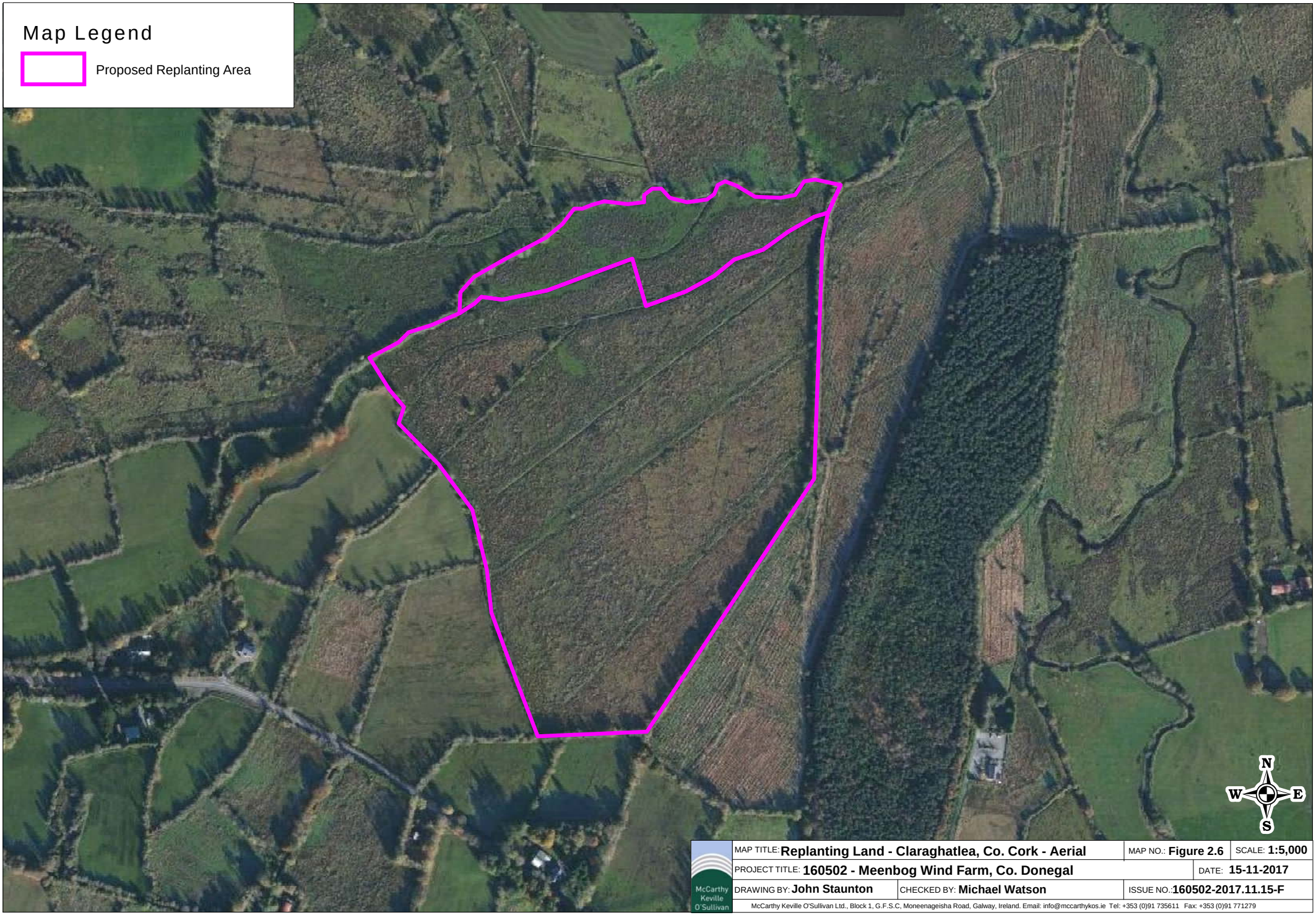

MAP TITLE: **Replanting Land - Claraghatlea, Co. Cork - Aerial**		MAP NO.: **Figure 2.6**	SCALE: **1:5,000**
PROJECT TITLE: **160502 - Meenbog Wind Farm, Co. Donegal**			DATE: **15-11-2017**
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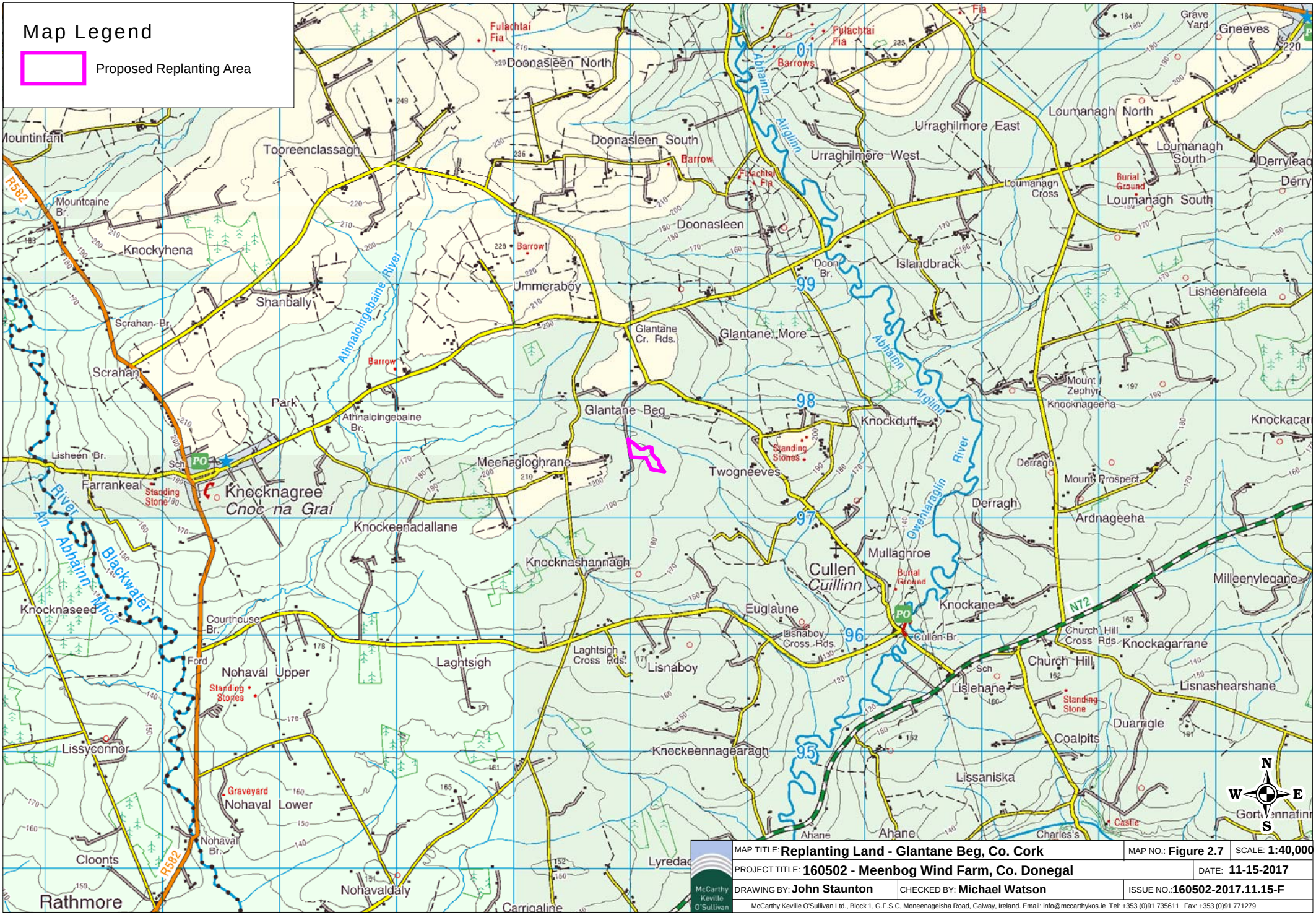

MAP TITLE: **Replanting Land - Glantane Beg, Co. Cork**		MAP NO.: **Figure 2.7**	SCALE: **1:40,000**
PROJECT TITLE: **160502 - Meenbog Wind Farm, Co. Donegal**			DATE: **11-15-2017**
DRAWING BY: **John Staunton**	CHECKED BY: **Michael Watson**	ISSUE NO.: **160502-2017.11.15-F**	

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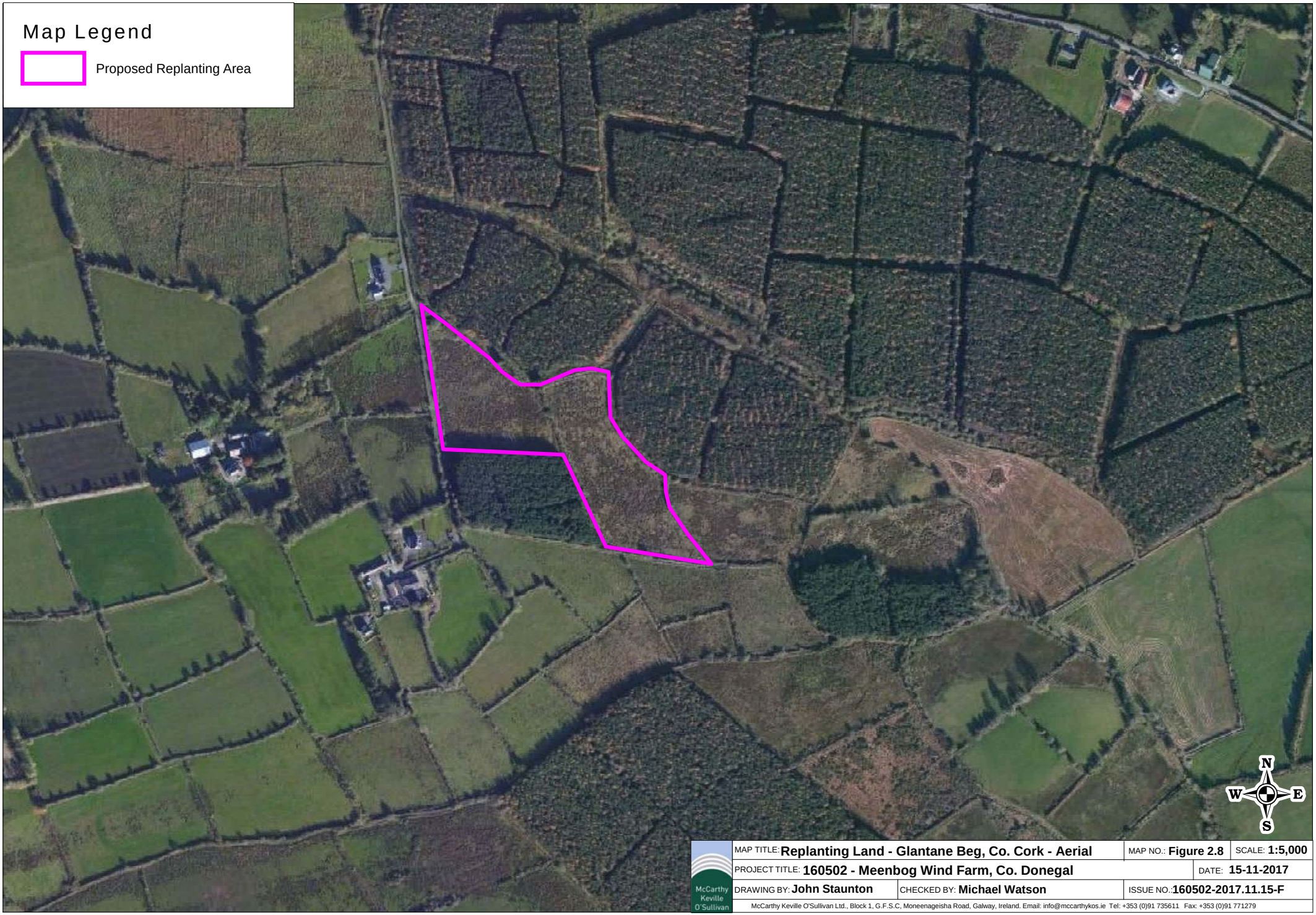

MAP TITLE: **Replanting Land - Glantane Beg, Co. Cork - Aerial**		MAP NO.: **Figure 2.8**	SCALE: **1:5,000**
PROJECT TITLE: **160502 - Meenbog Wind Farm, Co. Donegal**			DATE: **15-11-2017**
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control. Certain specific silvicultural and environmental conditions are also set out in the Forest Service Technical Approvals for each site, which will be adhered to.

2.3.2 Planting

Planting will be by hand. The main forms of planting, as described in the Forestry Schemes Manual, are set out as follows.

Slit Planting
A spade is used to make a vertical slit in the ground. The trees roots are carefully positioned in the slit to ensure that roots are equally spaced in the vertical slit created. The slit is closed and firmed up ensuring the tree is vertical and upright. It is important to ensure that roots are not bent over which can lead to poor development, e.g. J root. This form of planting can be suitable for ribbons, mounds and ripped ground.

Angle Notch
A spade is used to cut a T or L-shaped slit in the ground. The spade is used to lift the slit and the trees roots placed underneath to ensure good root distribution without causing damage. The slit is closed and firmed up to ensure that stem is left vertical and upright.

Pit Planting
A spade is used to dig a hole and the trees roots placed in the centre. Soil is placed around the tree and firmed in, ensuring that it is upright and straight. This form of planting can be used in sensitive sites where no ground preparation has taken place. It may also be appropriate for steep slopes where other types of preparation may lead to sediment run off.

The Technical Approvals for the proposed replanting lands include the species approved for afforestation.

2.3.3 Drainage

Drainage and sediment control at each site will conform to Forest Service best practice. Appropriate drainage designs will include collector drains, interceptor drains and cut-off drains. A description of each drain type, as per the Forestry Schemes Manual, is set out below. Figure 2.9 presents a schematic diagram of each drain type.

Collector Drains
Collector drains collect water from mound drains, plough furrows, mole drains, etc., and discharge via sediment traps and/or an interceptor drain. Collector drains are excavated to a depth not greater than 10-15 cm below the depth of mound drains. Where collector drains have to be extended into erodible material, 'mini' silt traps are placed appropriately by deepening the drains in places.

Interceptor Drains
Interceptor drains are constructed along the edges of aquatic buffer zones, i.e. areas where forest operations are curtailed and which are managed for environmental protection and enhancement. Interceptor drains collect the discharge from the drainage sub-catchment and allow it to overflow into the buffer zone. In most cases, slope will allow for drainage channels to taper out or be connected to an interceptor drain rather than enter a buffer zone. However on flat sites, or those with low slopes, it will be necessary to connect drains into the aquatic zone. This may be done only where it will not result in sediment or any pollutants entering the aquatic zone.

Cut off Drains

Cut off drains are constructed immediately up slope of a site and are designed to direct water away from the site.

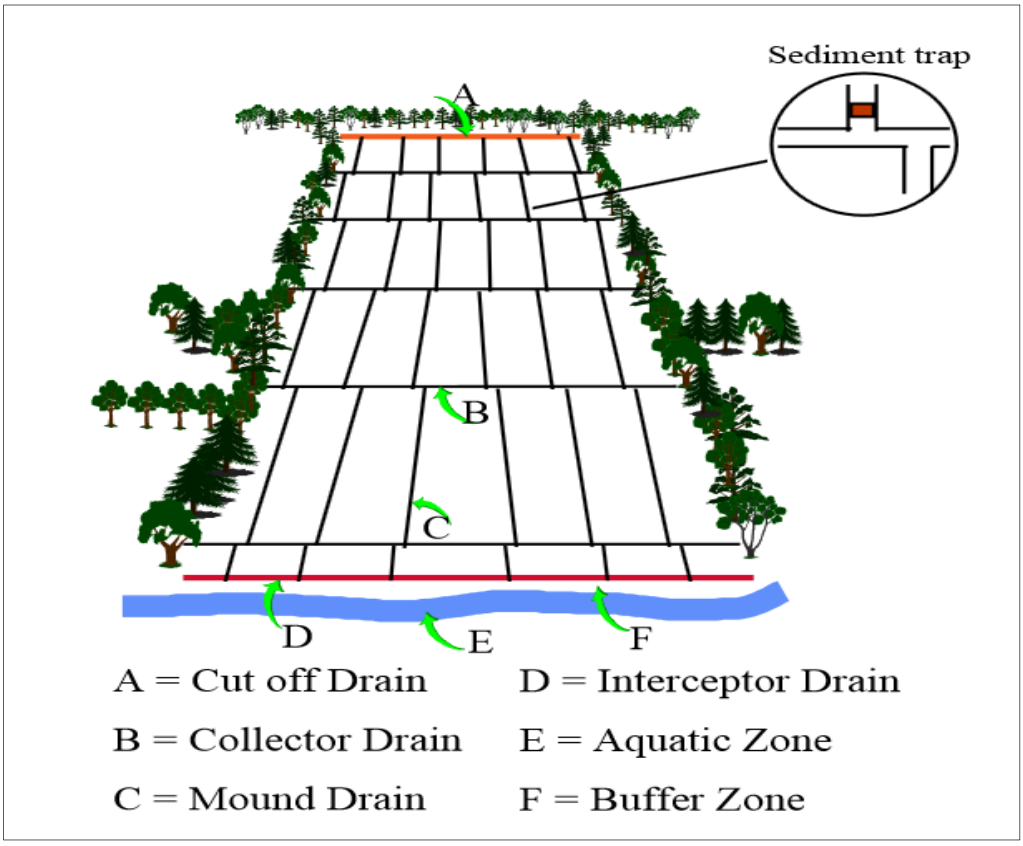


Figure 2.9 Standard Forestry Drainage (*Forestry Schemes Manual*, Forest Service, 2011)

Designs similar to the one above may be suitable for steeper erodible sites.

3 PLANNING POLICY AND PLANNING HISTORY

This section contains relevant National and Local policies regarding forestry. This includes reference to several National forestry policy documents, the National Climate Change Strategy, as well as County Development Plans for Cork and Clare.

This section of the report also addresses the planning history within and in the vicinity of the proposed replanting lands.

3.1 Planning Policy

3.1.1 National Policy

National Policy includes Forest Policy as well as policy on climate change. Forestry policy in Ireland is overseen by the Forest Policy Section of the Department of Agriculture, Food and the Marine (DAFM). At a European and International level, the Forest Policy Section is responsible for the transposition of EU Directives and Regulations into Irish Law as well as representing the Forest Service at a European Level. On a National Level, the policy Section deals with issues relating to climate change, carbon sequestration, wood energy, forestry and the environment, legislative framework and liaison with stakeholders which includes other Government agencies.

National Policy is aimed towards increasing Ireland's forest cover in a sustainable manner. As part of the Department's policy to ensure compatibility between forestry development and the protection of the environment, the Forest Service is implementing Sustainable Forest Management (SFM) with a view to ensuring that all timber produced in Ireland is derived from sustainably managed forests. This work is in accordance with Ireland's commitment to the six pan-European criteria for SFM adopted at the Third Ministerial Conference on the Protection of Forests in Europe, Lisbon, 1998. The implementation of SFM within Ireland is supported by the Irish National Forest Standard, the Code of Best Forest Practice and a suite of environmental guidelines (relating to water quality, landscape, archaeology, biodiversity and harvesting) as well as the work of the Forestry Inspectorate and the ongoing review of Irish forest legislation. These environmental guidelines are referred to in Section 3.1.3 below.

3.1.1.1 Forests, Products and People: Ireland's Forest Policy – A Renewed Vision

This document, published in 2014, contains strategic goals and recommendations of the Forest Policy Review Group. The Strategic goal is to

> *"Develop an internationally competitive and sustainable forest sector that provides a full range of economic, environmental and social benefits to society and which accords with the Forest Europe definition of sustainable development."*

The report notes the increasing economic, environmental social role of forestry in Ireland, stating that forestry accounts for 10.8% of the land area of the country, which is low in comparison with other European countries. The strong forest growth rates found in Ireland when compared to other European countries is also noted. The role of forestry in rural development and diversification as well as rural employment is also recognised.

The document notes also the contribution of forests to mitigation of climate change through carbon sequestration which is referred to in the National Climate Change Strategy (see Section 3.1.1.3 below) and notes that Irish forests will sequester approximately 4.8 million tonnes of CO_2 in 2020. This document's afforestation policy therefore supports Ireland's efforts to reach the greenhouse gas emission reduction targets as well as reducing dependence on fossil fuels.

The role of the forest resource in contributing to the renewable energy policy goals such as achieving a percentage of power generation by co-firing with biomass, as well as biomass in power generation is also noted. The report notes that the contribution of forestry to achieving renewable energy targets is dependent on the scale and accessibility of the resource, and that a continuation of afforestation in order to maintain a sustainable level supply of small roundwood would result in confidence for investment in Combined Heat and Power and other wood energy mechanisms.

Some recommended relevant policies and actions include:

- *Expansion of the Forest Resource: To increase the forest area, in accordance with sustainable forest management (SFM) principles, in order to support a long term sustainable roundwood supply of 7 to 8 million cubic metres per annum.* This policy aims to increase afforestation to 15.000 hectares annually.

- *Management of the Resource: To ensure that the sustainable management of the forest resource in accordance with best practice thereby ensuring its capacity to provide the full range of timber and other benefits.*

- *Environment and Public Goods: To ensure that afforestation, management of existing forests and development of the forest sector are undertaken in a manner that enhances their contribution to the environment and the capacity to provide public goods and services.*

3.1.1.2 Forestry Programme 2014-2020

This document was submitted in accordance with EU Guidelines on State aid for agriculture and forestry in rural areas 2014-2020 and represents Ireland's proposals for 100% State aid funding for a new forestry programme 2014-2020. These measures are consistent with the document *'Forests, products and people; Ireland's forest policy – a renewed vision*' as referred to in Section 3.1.1 above.

This document contains a number of responses to the actions and policies identified in the above document, and these include an Afforestation scheme - this is the main response to the policy entitled *'Expansion the forest resource'*.

An identification of needs was carried out by the Department of Agriculture, Food and the Marine (DAFM) in relation to forestry, and these needs are as follows:

- *Increase, on a permanent basis, Ireland's forest cover to capture carbon, produce wood and help mitigation;*
- *Increase and sustain the production of forest-based biomass to meet renewable energy targets;*
- *Support forest holders to actively manage their plantations;*
- *Optimise the environmental and social benefits of new and existing forests.*

A number of measures are proposed to meet these needs, and the most relevant of these refers to the first measure, which is aimed at increasing Ireland's forest cover

(at approximately 10.7% which is well below the EU average of 38%. The aim is to increase forest cover to 18% by the mid-century. The second need, that to increase forest-based biomass in order to meet the stated targets for renewable energy by 2020.

3.1.1.3 National Climate Change Strategy 2007-2020

The National Climate Change Strategy notes that forest residues and thinnings are recognised as a major biomass resource alongside dedicated energy crops and farm wastes. It also notes that the Department of Agriculture run several schemes to encourage afforestation (Afforestation Grant Scheme) and early harvesting (Forest Roading Scheme), as well as schemes aimed at encouraging the growth of biomass crops such as miscanthus and willow. Such schemes are complimented by the RETROFIT 3 scheme, which aims to create a demand for the biomass by encouraging the bioenergy industry.

3.1.2 Local Policy

3.1.2.1 Cork County Development Plan 2014

Cork County Development Plan 2014 contains some information and objectives relating to forestry, in terms of promoting and controlling afforestation, as well as tourism. The Cork Landscape Character Assessment is also a source of information and is referred to in further detail in Section 8 of this document.

3.1.2.1.1 Economy and Employment Objectives

At the time of writing the plan, approximately 10.5% of Cork was covered in forestry. The plan acknowledges that forestry is an important economic activity in rural areas, particularly as a way for farmers to diversify their income, and will also play an important role in the future of the bio-energy sector. The Cork County Development Plan (CDP) includes Objective EE 10-1, which is to:

> *"Generally, to support sustainable forestry development throughout the County, it is important to protect sensitive areas, water supplies and fisheries and to ensure that the development is compatible with the protection of the environment and nature conservation areas."*

3.1.2.1.2 Tourism

The plan states that tourism in Cork is based on the natural and built heritage. The plan describes the county's tourism product features as including forest/woodland areas alongside rivers and lakes, mountains and uplands, agricultural lands, peatlands, the rugged coastline, peninsulas and beaches. The Cork County Development Plan (CDP) includes Objective TO 1-2, which is to:

> *"Facilitate the development of the tourism sector and provide for the delivery of a unique combination of tourism opportunities drawing on the network of attractions in Cork County and potential future attractions."*

3.1.2.2 Clare County Development Plan 2011-2017

The Clare County Development Plan 2011-2017 contains a number of policies and objectives relating to Natural Resources and forestry. The County Clare Landscape Character Assessment and general policies on landscape are also referred to in Section 8 of this report.

Section 6 of the Clare County Development Plan contains objectives regarding Natural Resources, and notes that Clare is the fourth most afforested County and recognises

the potential for job creation within the forestry sector and related industries. The Plan states that the Council will support the diversification and sustainable development of appropriate lands to forestry and associated enterprises subject to normal landscape and ecological considerations. Objective 6.11 is:

> *"To facilitate, encourage and appropriately manage the development of natural resources of the county and to ensure that this is done in a sensitive way, eliminating any significant adverse effects on the natural environment."*

Section 13 of the Clare County Development Plan (Rural Development and Natural Resources) deals with policies and objectives relating to forestry. The Plan refers to the forestry sector as the largest and most readily available biomass resource and also refers to the scope for wood to replace dependence on fossil fuels, as well as potential economic and social gains. The Plan notes that approximately 14% of the land area of Clare is under afforestation, which is above the National average, and also notes the role of forestry as a carbon sink. The Plan states that the Council will seek to actively encourage and facilitate where appropriate the sustainable development of the forestry sector in a scale and manner which maximizes its contribution to the local rural economy. The Plan also notes the role of forestry in Bioenergy. Objective 13.8 states it is an objective of Clare County Council:

a) *To encourage the development of forestry and ancillary enterprise throughout the Countryside as a means of promoting rural diversity and strengthening the rural economy;*

b) *To encourage the sustainable development of native woodlands as a means of enhancing biodiversity, climate and flood mitigation, landscape enhancement, recreational amenity, educational resource.*

3.1.3 Forest Service Guidelines

The Forest Service have produced a number of guidelines which are referred to in detail throughout this document. These are listed below;

- *'Forestry and Water Quality Guidelines'* (2000)
- *'Forestry and the Landscape Guidelines'* (2000)
- *'Forestry and Archeology Guidelines'* (2000)
- *'Forestry Biodiversity Guidelines'* (2000)
- *'Forestry Protection Guidelines'* (2002)
- *'Forestry Harvesting and Environmental Guidelines'* (2000)
- *'Forest Operations & Water Protection Guidelines' (2009)*
- *'Methodology for Clear Felling Harvesting Operations'* (2009)

Afforestation at the proposed replanting lands will be carried out in accordance with all Forest Service guidelines, as stated in the conditions attached to each Technical Approval.

3.2 Planning History

A planning history search was carried out for the proposed replanting lands and the lands in their immediate vicinity. This entailed reference to the Planning Application search facility and maps on the website of each relevant Planning Authority, i.e. Cork County Council and Clare County Council. The planning history searches found that planning applications in the vicinity of the proposed replanting lands comprise one-off houses. No projects or plans were identified that would be incompatible with the proposed replanting or give rise to significant cumulative impacts.

4 IMPACT ASSESSMENT METHODOLOGY

The impacts of afforestation at the potential replanting lands described in Section 2.2 of this report have been assessed under the following key environmental headings:

- Flora and Fauna
- Soils and Geology
- Hydrology and Hydrogeology
- Landscape
- Cultural Heritage
- Air, Climate and Noise
- Human Beings
- Material Assets

Each site is addressed separately under the key environmental headings, and described in terms of Baseline Environment, Impact Assessment, Proposed Mitigation Measures and Residual Impacts and Significance of Effects. The findings of the assessment are presented in Sections 5 to 12 of this report.

Impacts are described in terms of quality, significance, duration and type, where possible. The classification of impacts in this report uses the standard best-practice terms provided in the Environmental Protection Agency document, *'Guidelines on the Information to be contained in Environmental Impact Statements'* (EPA, 2002). Table 1.1 (page 1-6) of the EIAR submitted as part of the Meenbog wind farm planning application presents a copy of the EPA glossary of terms.

Appropriate mitigation measures are presented where relevant to reduce, remedy or eliminate potential impacts. Residual impacts are also presented following any impact for which mitigation measures are prescribed.

5 FLORA AND FAUNA

This report provides a description of the proposed replanting land and an assessment of the potential ecological impacts including cumulative impacts associated with afforestation at the following locations:

- Ballyduff Beg, Co. Clare
- Molougha, Co. Clare
- Claraghtlea North, Co. Cork
- Glantane Beg, Co. Cork

5.1 Methodology and Limitations

The flora and habitats of the proposed afforestation sites were assessed by means of a desk study of information and literature pertinent to the site and surrounding area, information pertaining to legislation/designations and other notable ecological records. In addition, a field survey of the site, including a general habitat and mammal survey, was carried out by a suitably qualified ecologist.

A field visit was made to the sites in March 2017. Habitats within and adjacent to the proposed afforestation sites were classified according to the guidelines set out in *'A Guide to Habitats in Ireland'* (Fossitt, 2000), which classifies habitats based on the vegetation present and management history. The sites were walked systematically and habitats were assessed and classified. The walkover survey was designed to detect the presence, or likely presence, of a range of protected habitats and species. All bird species observed or heard within the site were recorded and the presence or signs of mammals, amphibians and reptiles were noted during the visit.

Seasonal factors that affect distribution patterns and habits of species were taken into account when conducting the surveys. The potential of the sites to support certain populations (in particular those of conservation importance that may not have been recorded during the field survey due to their seasonal absence or nocturnal/cryptic habits) was assessed. It is concluded that the habitats and species that could potentially be impacted by the proposed afforestation were readily identified and assessed during the field surveys conducted in March and a thorough and comprehensive ecological assessment was achieved.

Features within the sites were visually assessed for potential as bat roosting habitat using a protocol set out in BCT *Bat Surveys for Professional Ecologists: good practice Guidelines (3rd edn)* (Collins , J (ed.), 2016). Table 4.1 of the 2016 Guidelines identifies a grading protocol for assessing structures, trees and commuting/foraging habitat for bats. The protocol is divided into four Suitability Categories: High, Moderate, Low and Negligible.

5.1.1 Identification of Designated Sites Within the Zone of Influence

5.1.1.1 Background to Designated Sites

European Sites

The Habitats Directive (together with the Birds Directive) forms the cornerstone of Europe's nature conservation policy. It is built around two pillars: the Natura 2000 network of protected sites and the strict system of species protection. All in all the directive protects over 1,000 animal and plant species and over 200 "habitat types" (e.g. special types of forests, meadows, wetlands, etc.), which are of European importance.

With the introduction of the EU Habitats Directive (92/43/EEC) and Birds Directive (79/409/EEC) which were transposed into Irish law as S.I. No. 94/1997 *European Communities (Birds and Natural Habitats) Regulations* 1997, the European Union formally recognised the significance of protecting rare and endangered species of flora and fauna, and also, more importantly, their habitats. The 1997 Regulations and their amendments were subsequently revised and consolidated in S.I. No. 477/2011- *European Communities (Birds and Natural Habitats) Regulations* 2011. This legislation requires the establishment and conservation of a network of sites of particular conservation value that are to be termed 'European Sites'.

Potential impacts on European Sites are not discussed in this report but are assessed in an Appropriate Assessment Screening Report for each of the afforestation sites (Appendix 2).

Nationally Designated Sites

Natural Heritage Areas (NHAs) and Proposed Natural Heritage Areas (pNHAs) are heritage sites that were designated for the protection of flora, fauna, habitats and geological sites under the Wildlife (Amendment) Act 2000. These sites do not form part of the Natura 2000 network and the AA process, or screening for same, does not apply to NHAs or pNHAs. Potential for impact on these Nationally designated sites is addressed below for each of the afforestation sites.

5.1.1.2 Identification of the Designated Sites Likely Zone of Influence of the Project

Using the GIS software, MapInfo (Version 10.0), designated sites a within a radius of 15 kilometres of the proposed development were identified (as per the DoEHLG Guidance (2010)). In addition, using the precautionary principle, designated Sites located outside the 15km buffer zone were also taken into account and assessed.

5.1.2 Methodology for Assessment of Effects

5.1.2.1 Geographical Framework

Guidance on Ecological Impact Assessment (CIEEM 2016) recommends categories of ornithological or nature conservation value that relate to a geographical framework (e.g. international, through to local). This assessment utilises the geographical framework described in *Guidelines for Assessment of Ecological Impact of National Road Schemes* (NRA 2009). The guidelines provide a basis for determination of whether any particular site is of importance on the following scales:

- International
- National
- County
- Local Importance (Higher Value)

- Local Importance (Lower Value)

Locally Important (lower value) receptors contain habitats and species that are widespread and of low ecological significant and of any importance only in the local area. Internationally Important sites are designated for conservation as part of the Natura 2000 Network (SAC or SPA) or provide the best examples of habitats or internationally important populations of protected flora and fauna.

5.1.2.2 Impact Assessment –EPA Criteria (2002)

Effects identified as per the Percival 2003 criteria have been equated with EPA impact assessment criteria described below (Table 5.1 &Table 5.2).

The following terms were utilised when quantifying duration:

- Temporary – up to 1 year
- Short-term – 1 to 7 years
- Medium term – 7 to 15 years
- Long term – 15 to 60 years
- Permanent – over 60 years

Table 5.1 Criteria for assessing impact significance based on (EPA, 2002)

Impact Magnitude	Definition
No change	No discernible change in the ecology of the affected feature
Imperceptible Impact	An impact capable of measurement but without noticeable consequences
Slight Impact	An impact which causes noticeable changes in the character of the environment without affecting its sensitivities
Moderate Impact	An impact that alters the character of the environment that is consistent with existing and emerging trends
Significant Impact	An impact which, by its character, its magnitude, duration or intensity alters a sensitive aspect of the environment
Profound Impact	An impact which obliterates sensitive characteristics

Table 5.2 Criteria for assessing impact quality based on (EPA, 2002)

Impact Type	Criteria
Positive	A change which improves the quality of the environment e.g. increasing species diversity, improving reproductive capacity of an ecosystem or removing nuisances
Neutral	A change which does not affect the quality of the environment
Negative	A change which reduces the quality of the environment e.g. lessening species diversity or reducing the reproductive capacity of an ecosystem

5.2 Replanting Site 1: Ballyduff Beg, Co. Clare

The proposed replanting land at Ballyduff Beg, Co. Clare (the 'Ballyduff Beg site') has been assessed as part of the Afforestation Approval – Form 1 process described above, and has obtained Technical Approval for Afforestation from the Forest Service. The replanting site is located in the townland of Ballyduff Beg, approximately 300m kilometres west of Inagh, at its nearest point. The site location is presented in Figure 2.1.

5.2.1 Desk Study

The following sections detail the results of the searches of published material that were consulted as part of the desk study for the Ballyduff beg site.

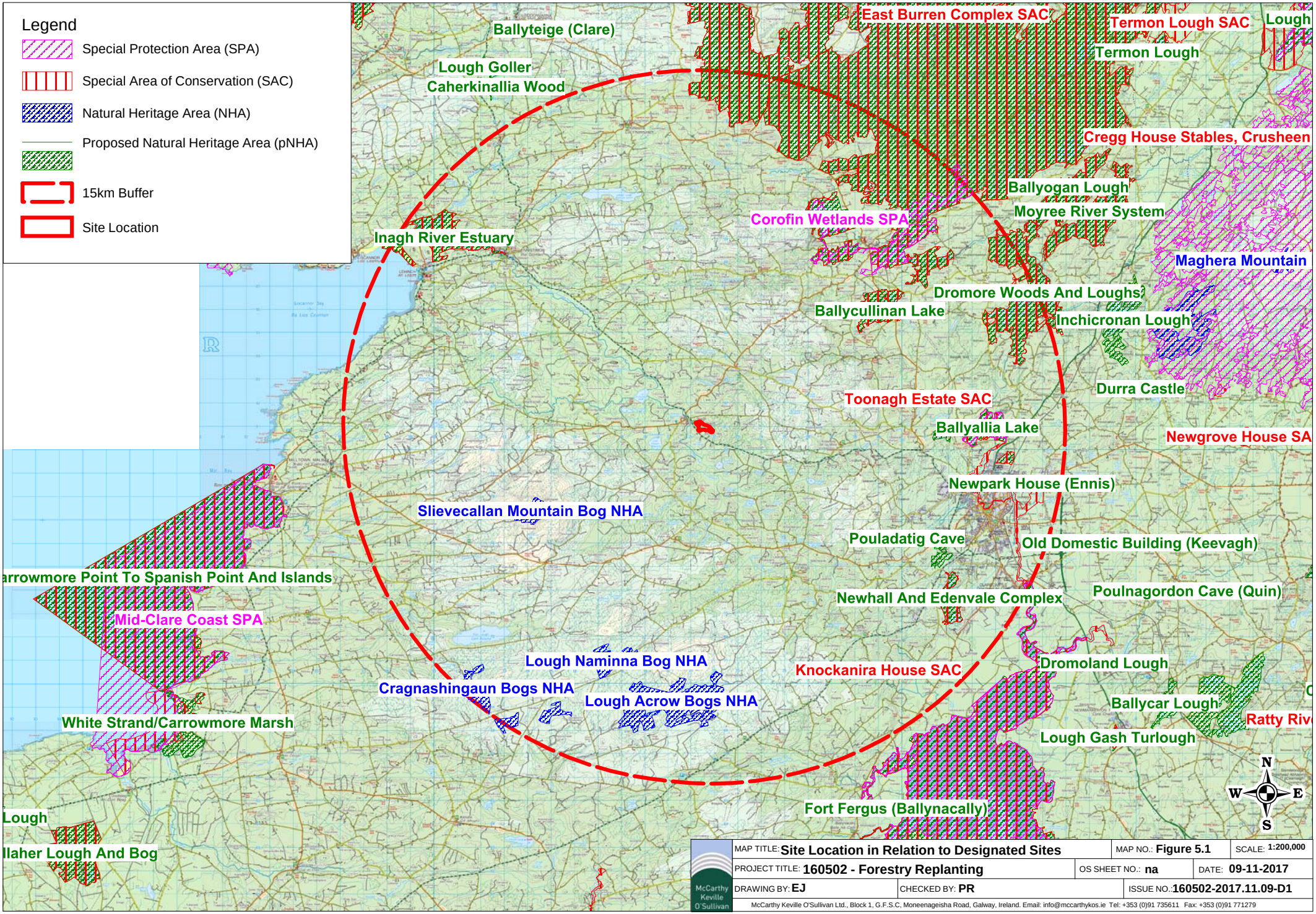
5.2.2 Identification of the Designated Sites Likely Zone of Influence of the Project

Using GIS software MapInfo (Version 10.0), sites designated for nature conservation within the potential zone of influence (ZOI) of the proposed development were identified. The ZOI was derived utilising a precautionary approach.

The designated sites are listed below in Table 5.3 and displayed on Figure 5.1.

Table 5.3: Designated sites within 15 kilometres of the study area

Designated Site	Distance from Proposed Afforestation (km)
Special Areas of Conservation (SAC)	
Ballycullinan Lake SAC (000016)	7.5km
East Burren Complex SAC (001926)	8.2km
Toonagh Estate SAC (002247)	8.6km
Ballycullinan, Old Domestic Building SAC (002246)	9.1km
Pouladatig Cave SAC (000037)	9.3km
Ballyallia Lake SAC (000014)	10.6km
Inagh River Estuary SAC (000036)	10.8km
Lower River Shannon SAC (002165)	11.1km
Newhall and Edenvale Complex SAC (002091)	11.6km
Old Farm Buildings, Ballymacrogan SAC (002245)	12.0km
Dromore Woods and Loughs SAC (000032)	12.3km
Knockanira House SAC (002318)	12.4km
Moneen Mountain SAC (000054)	12.6km
Special Protection Area (SPA)	
Corofin Wetlands SPA (004220)	8.2km
Ballyallia Lough SPA (004041)	10.6km
River Shannon and River Fergus Estuaries SPA (004077)	14.8km
Natural Heritage Areas (NHA)	
Slievecallan Mountain Bog NHA (002397)	7.2km
Lough Naminna Bog NHA (002367)	9.7km
Lough Acrow Bogs NHA (002421)	10.2km
Cragnashingaun Bogs NHA (002400)	13.0km
Proposed Natural Heritage Areas (pNHA)	
Ballycullinan Lake (000016)	7.5km
East Burren Complex (001926)	8.2km
Pouladatig Cave (000037)	9.3km
Lough Cleggan (001331)	9.4km
Ballyallia Lake (000014)	10.6km
Cahircalla Wood (001001)	10.7kmk
Inagh River Estuary (000036)	10.8km
Newhall And Edenvale Complex (002091)	11.6km
Dromore Woods And Loughs (000032)	12.3km
Moneen Mountain (000054)	12.6km
Newpark House (Ennis) (000061)	13.8km
Fergus Estuary And Inner Shannon, North Shore (002048)	14.8km



MAP TITLE: **Site Location in Relation to Designated Sites**	MAP NO.: **Figure 5.1**	SCALE: **1:200,000**	
PROJECT TITLE: **160502 - Forestry Replanting**	OS SHEET NO.: **na**	DATE: **09-11-2017**	
DRAWING BY: **EJ**	CHECKED BY: **PR**	ISSUE NO.: **160502-2017.11.09-D1**	

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5.2.3 New Flora Atlas

A search was made in the New Atlas of the British & Irish Flora (Preston et al, 2002) to investigate whether any rare or unusual plant species listed under Annex I of the EU Habitats Directive had been recorded in the relevant 10km square in which the study site is situated (R28), during the 1987-1999 atlas survey. No species protected under the Flora (Protection) Order, 1999 (as amended 2015) have been previously recorded within the hectad.

5.2.4 National Biodiversity Data Centre Notable Records

A search of the National Biodiversity Data Centre (NBDC) website was conducted with a focus on records of protected fauna recorded from hectad M36. The results of the database search are provided below in Table 5.4. Table 5.5 includes records of non-native invasive species listed under the Third Schedule of the European Communities Regulations 2011 (S.I. 477 of 2015).

Table 5.4 Notable species that occur within 10km Grid Square M36
HD = EU Habitats Directive; BD = EU Birds Directive; WA = Wildlife Acts (1979-2012)

Common Name	Scientific Name	Designation
Smooth Newt	*Lissotriton vulgaris*	WA
Common Frog	*Rana temporaria*	HD, WA
Common Kingfisher	*Alcedo atthis*	BD, WA
Greater White-fronted Goose	*Anser albifrons*	BD, WA
Canada Goose	*Branta canadensis*	BD, WA
Dunlin	*Calidris alpina*	BD, WA
Black Tern	*Chlidonias niger*	BD, WA
Hen Harrier	*Circus cyaneus*	BD, WA
Corn Crake	*Crex crex*	BD, WA
Bewick's Swan	*Cygnus columbianus subsp. bewickii*	BD, WA
Whooper Swan	*Cygnus cygnus*	BD, WA
Little Egret	*Egretta garzetta*	BD, WA
Merlin	*Falco columbarius*	BD, WA
Peregrine Falcon	*Falco peregrinus*	BD, WA
Great Northern Diver	*Gavia immer*	BD, WA
Ruff	*Philomachus pugnax*	BD, WA
European Golden Plover	*Pluvialis apricaria*	BD, WA
Wood Sandpiper	*Tringa glareola*	BD, WA
Marsh Fritillary	*Euphydryas aurinia*	HD
European Otter	*Lutra lutra*	HD, WA
Pine Marten	*Martes martes*	HD, WA
Eurasian Badger	*Meles meles*	WA
Daubenton's Bat	*Myotis daubentonii*	HD, WA
Whiskered Bat	*Myotis mystacinus*	HD, WA
Natterer's Bat	*Myotis nattereri*	HD, WA
Lesser Noctule	*Nyctalus leisleri*	HD, WA
Pipistrelle	*Pipistrellus pipistrellus sensu lato*	HD, WA
Soprano Pipistrelle	*Pipistrellus pygmaeus*	HD, WA
Brown Long-eared Bat	*Plecotus auritus*	HD, WA
Lesser Horseshoe Bat	*Rhinolophus hipposideros*	HD, WA
Eurasian Red Squirrel	*Sciurus vulgaris*	WA

Table 5.5. NBDC records for invasive species in hectad M36

Common Name	Scientific Name
Canadian Waterweed	*Elodea canadensis*
Japanese Knotweed	*Fallopia japonica*
Zebra Mussel	*Dreissena (Dreissena) polymorpha*
Fallow Deer	*Dama dama*
American Mink	*Mustela vison*
Canada Goose	*Branta canadensis*

5.2.5 Water Quality

The proposed afforestation site is located within the Mal Bay Catchment. The Carrowkeal East Stream runs along a section of the eastern border the site, flowing into the river Inagh draining in a north westerly direction.

There is no EPA water quality monitoring station down stream from the Carrowkeal East Stream at the Inagh Bridge to provide a River Water Quality assessment score. The Water Framework Directive (WFD) river waterbody risk score for the Carrowkeal East Stream has been assessed as 'At Risk of Not Achieving a Good Status' for the river. The WFD River Waterbody status for the Carrowkeal East Stream classifies the stream's waterbody status as 'Good'.

5.2.6 Freshwater Pearl Mussel Sensitive Areas

The site is not located within a Pearl Mussel (*Margaritifera margaritifera*) sensitive area. The site has no connectivity to any pearl mussel sensitive areas.

5.2.7 Conclusions of the Desktop Study

The afforestation site is not located within any site designated for nature conservation.. The mammal species recorded within the relevant hectad have widespread range and distributions and are likely to be recorded frequently throughout Ireland. A number of rare and protected habitats, flora and fauna have been recorded from the hectad in which the proposed development is located. The field surveys will identify if any of the identified habitats, flora or fauna or additional ecological receptors occur within the study area.

5.2.8 Habitats present

The site consisted of agricultural fields subject to ongoing drainage and land management, containing semi-improved Wet Grassland (GS4). Field boundaries consisted of Hedgerows (WL1), narrow strips of Scrub (WS1) and Treelines (WL2).

The southern portion of the site consisted of Wet Grassland (GS4) (Plate 5.1) Species recorded within this section included Knapweed (*Centaurea nigra*), Greater Plantain (*Plantago major*), Self-Heal (*Prunella vulgaris*), Red Clover (*Trifolium pratense*), Creeping Buttercup (*Ranunculus repens*), Meadow Buttercup (*Ranunculus acris*), Mouse-Eared Chickweed (*Cerastium vulgatum*), Glaucous Sedge (*Carex flacca*) and Rushes (*Juncus sp.*).
The remainder of the site is comprised of Wet Grassland (GS4) (Plate 5.2) which is dominated extensively by rushes (*Juncus* spp.). Grass species recorded throughout the site included Creeping Bent (*Agrostis stolonifera*), Yorkshire Fog (*Holcus lanatus*), and Purple Moor grass (*Molinia caerulea*). Other species recorded in this area included Creeping Buttercup (*Ranunculus repens*), Meadow buttercup (*Ranunculus acris*), Meadow Sweet (*Filipendula ulmaria*), Silverweed (*Potentilla anserine*), Marsh Bedstraw (*Galium palustre*), Ragwort (*Senecio jacobaea*), Brambles (*Rubus fructicosus*), and Common Sorrell (*Rumex acetosa*).

Plate 5.1 Wet Grassland (GS4) on the study site.

Plate 5.2 Wet Grassland (GS4) on the study site.

The field boundaries within the site are composed of Hedgerows (WL1), narrow strips of Scrub (WS1) and Treelines (WL2). Species recorded within these habitats included Gorse (*Ulex europaeus*), Willow (*Salix spp.*), Hawthorn (*Crataegus monogyna*), Blackthorn (*Prunus spinosa*), Hazel (*Corylus avellana*), Cotoneaster (*Cotoneaster spp.*), Laurel (*Prunus laurocerasus*), and Pine (*Pinus spp.*). Other species included Bramble, Ivy (*Hedera helix*), Bracken (*Pteridium aquilinum*), Hard Fern (*Blechnum spicant*).

5.2.9 Invasive Species

No invasive species listed on the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations, 2011 were identified within the site boundaries during field survey.

5.2.10 Significance of Habitats

Ecological evaluation within this section follows a methodology that is set out in Chapter 3 of the *'Guidelines for Assessment of Ecological Impacts of National Roads Schemes'* (NRA, 2009).

No habitats which correspond to those that are listed in the EU Habitats Directive were identified during the site visit. The wet grassland, given its managed state, is considered to be of ***Local Importance (Lower Value):***. The hedgerows, treelines, and scrub is considered to be of ***Local Importance (Higher Value)*** as these habitats have a higher level of biodiversity within the context of the local environment.

5.2.11 Fauna in the existing environment

Birds

Snipe (*Gallinago gallinago*), and Rook (*Corvus frugilegus*) were recorded incidentally within the site. No birds listed on Annex I of the EU Birds Directive were recorded during the field survey.

Terrestrial Mammals

A number of mammal trails through the wet grassland were observed. These were likely created by fox (*Vulpes Vulpes*) in the area. No evidence of protected mammal species were recorded within the site boundaries.

Bats

There are no structures within the site which may provide suitable roosting habitat for bats. A large open landscape structure dominates the site and though linear features may be used by foraging and commuting bats, overall the site is considered to have low suitability for bat species. In addition, the replanting is highly unlikely to result in impacts on bat species as all linear features within the site will be retained.

5.2.12 Significance of Fauna

No evidence of Annex listed species, or other species of conservation concern were recorded within the site boundaries. In addition, no suitable habitat for species of conservation concern including Marsh Fritillary was identified within the proposed afforestation site.

Bird species recorded within the site boundaries are common generally and assigned a value of ***Local Importance (Lower Value):*** The site of the proposed development provides some limited foraging, commuting and nesting habitats for these and other common bird species in general. Similar habitat is widespread in the locality and so a significant impact as a result of a loss of suitable habitat.

5.2.13 Impact Assessment and Associated Mitigation Measures

5.2.13.1 Do Nothing' Impact

Were the site to remain unplanted the management on site would likely remain as it is presently i.e. grazed by livestock and drained. However, given that the site has received Technical Approval from the Forest Service as described above it will likely be afforested per the provisions of the approval at a later date.

5.2.13.2 Loss of Floral Habitat

Long-Term Neutral Impact

The loss of habitat is likely to be restricted to wet agricultural grassland. The impacted habitats are not considered to be of ecological sensitivity and their loss will constitute a neutral impact when compared with the coniferous forestry to be planted.

Mitigation

All works will be carried out in accordance with the relevant Forest Service guidelines, including *'Forestry Biodiversity Guidelines'* (2000)'. The Technical Approval document specifies the area that should contain at suitable broadleaf and conifer species. This management would allow for the retention of the Local Value (Higher Importance) habitats.

Residual Impact

The replacement of Wet Grassland habitat with coniferous forestry is considered to be a **Long Term Neutral Impact**.

5.2.13.3 Loss of Faunal Habitat

Long Term Neutral Impact

The proposed planting site is not of high value or importance as a faunal habitat, being an open expanse of degraded Wet Grassland with little to no cover or shelter for faunal species. It is likely that the proposed planting of forestry will result in some loss of faunal habitat for common species such as Fox (*Vulpes vulpes*) and other small mammals, along with local bird species. This habitat is widespread in the local area and this loss is considered to be negligible. The afforestation, in particular that of broadleaf species will result in the recreation of cover and shelter for a range of species. This will, overall, result in a **Long Term Neutral Impact.**

5.2.13.4 Water Pollution

Short-Term Minor Negative Impact

There is potential for water pollution to occur through discharge to the adjacent river as a result of the proposed works in the form of acidification, siltation or erosion.

Mitigation

The works associated with planting, maintenance, thinning and harvesting will be carried out in accordance with the *'Forestry and Water Quality Guidelines'* (2000) and buffer zone widths for the water courses applied accordingly.

Residual Impact

No impacts on water quality are anticipated as a result of any element of the proposed afforestation.

5.2.13.5 Cumulative Impacts

The proposed afforestation has Technical Approval from the Forest Service and will be undertaken accordingly. This approval is conditional to all associated works being

undertaken in accordance with Forest Service guidelines. The impacts associated with this afforestation have been classified overall as a neutral impact. As such, when considered in combination with the other land uses in the area, and considering that the forestry guidelines are designed to minimise and prevent impacts to habitats that are outside the site, cumulative impacts on sensitive ecological receptors are not anticipated.

5.2.14 Significance of the Effects

Based on the above, there will be no significant effects on flora and fauna, associated with afforestation, at this site.

5.3 Replanting Site 2: Mologha, Co. Clare

The proposed replanting land at Mologha, Co. Clare (the 'Mologha site') has been assessed as part of the Afforestation Approval - Form 1 process described above, and has obtained Technical Approval for Afforestation from the Forest Service. The replanting site is in the townland of Mologha, approximately 5 kilometres east of Kilrush at its nearest point. The site location and is presented in Figure 2.3.

5.3.1 Desk Study

The following sections detail the results of the searches of published material that were consulted as part of the desk study for the Mologha site.

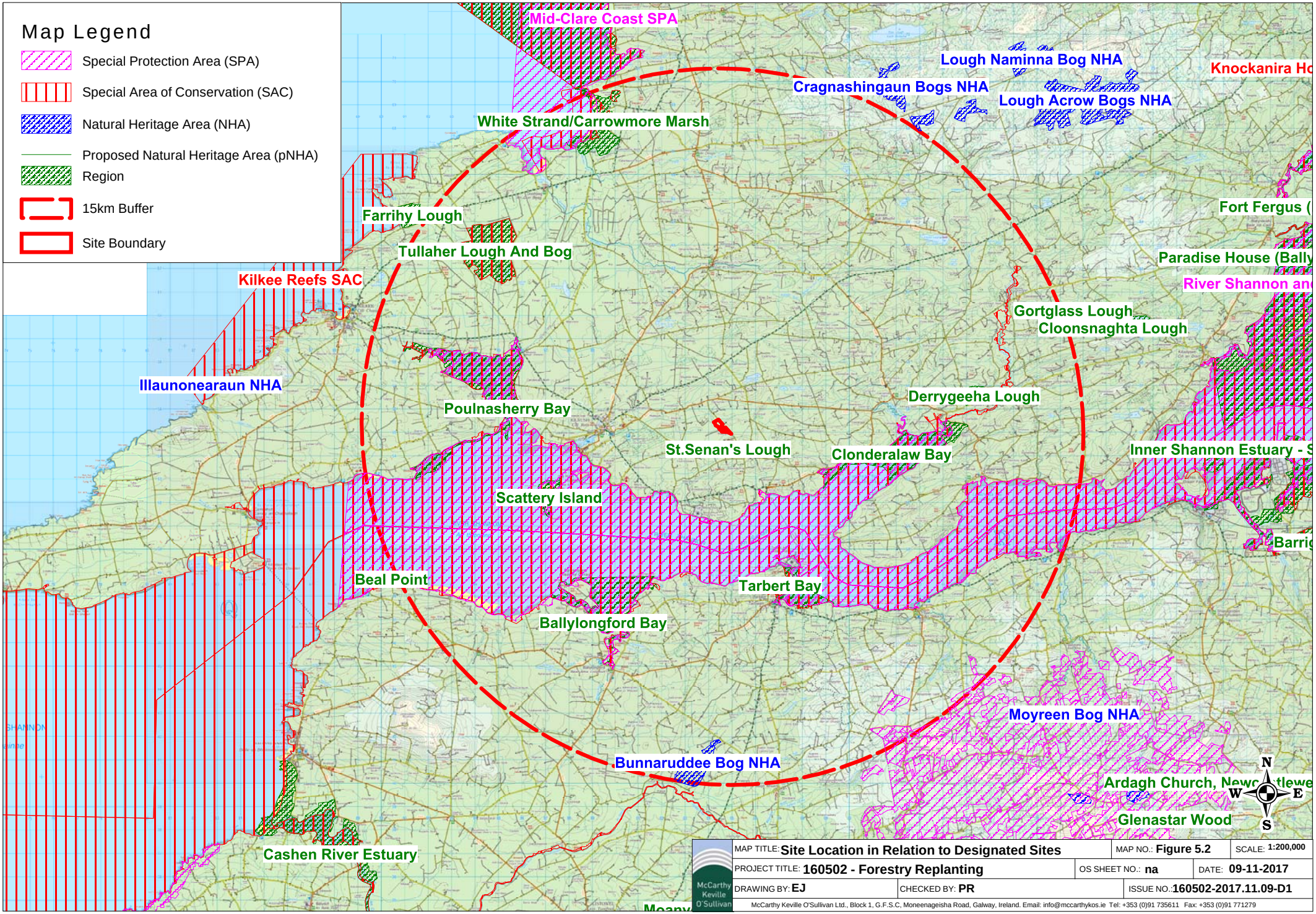
5.3.2 Identification of the Designated Sites Likely Zone of Influence of the Project

Using GIS software MapInfo (Version 10.0), sites designated for nature conservation within the potential zone of influence (ZOI) of the proposed development were identified. The ZOI was derived utilising a precautionary approach.

The designated sites are listed below in Table 5.5 and displayed on Figure 5.2.

Table 5.5: Designated sites within 15 kilometres of the study area

Designated Site	Distance from Proposed Afforestation (km)
Special Protection Area (SPA)	
River Shannon and River Fergus Estuaries SPA (004077)	2.7km
Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA (004161)	12.9km
Mid-Clare Coast SPA (004182)	13.0km
Special Area of Conservation (SAC)	
Lower River Shannon SAC (002165)	2.7km
Tullaher Lough and Bog SAC (002343)	10.5km
Carrowmore Dunes SAC (002250)	13.0km
Natural Heritage Areas (NHA)	
Bunnaruddee Bog NHA (001352)	13.1km
Cragnashingaun Bogs NHA (002400)	15.0km
Proposed Natural Heritage Areas (pNHA)	
St.Senan's Lough (001025)	0.5km
Clonderalaw Bay (000027)	4.0km
Tarbert Bay (001386)	6.1km
Tarbert Bay (001386)	6.8km
Ballylongford Bay (001332)	6.8km



MAP TITLE: **Site Location in Relation to Designated Sites**		MAP NO.: **Figure 5.2**	SCALE: **1:200,000**
PROJECT TITLE: **160502 - Forestry Replanting**		OS SHEET NO.: **na**	DATE: **09-11-2017**
DRAWING BY: **EJ**	CHECKED BY: **PR**	ISSUE NO.: **160502-2017.11.09-D1**	

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Scattery Island (001911)	6.9km
Poulnasherry Bay (000065)	8.3km
Derrygeeha Lough (000050)	10.1km
Tullaher Lough and Bog (000070)	10.5km
White Strand/Carrowmore Marsh (001007)	12.3km
Farrihy Lough (000200)	14.7km
Beal Point (001335)	14.8km

5.3.3 New Flora Atlas

A search was made in the New Atlas of the British & Irish Flora (Preston et al, 2002) to investigate whether any rare or unusual plant species listed under Annex I of the EU Habitats Directive had been recorded in the relevant 10km square in which the study site is situated (R05), during the 1987-1999 atlas survey. No species protected under the Flora (Protection) Order, 1999 (as amended 2015) have been previously recorded within the hectad.

5.3.4 National Biodiversity Data Centre Notable Records

A search of the National Biodiversity Data Centre (NBDC) website was conducted with a focus on records of protected fauna recorded from hectads R05. The results of the database search are provided below in Table 5.6. Table 5.7 includes records of non-native invasive species listed under the Third Schedule of the European Communities Regulations 2011 (S.I. 477 of 2015).

Table 5.6 Notable species that occur within 10km Grid Square R05

Common Name	Scientific Name	Designation
Common Frog	*Rana temporaria*	BD, WA
Common Kingfisher	*Alcedo atthis*	BD, WA
Dunlin	*Calidris alpina*	BD, WA
Hen Harrier	*Circus cyaneus*	BD, WA
Corn Crake	*Crex crex*	BD, WA
Whooper Swan	*Cygnus cygnus*	BD, WA
Little Egret	*Egretta garzetta*	BD, WA
Merlin	*Falco columbarius*	BD, WA
Peregrine Falcon	*Falco peregrinus*	BD, WA
Red-throated Diver	*Gavia stellata*	BD, WA
Mediterranean Gull	*Larus melanocephalus*	BD, WA
Bar-tailed Godwit	*Limosa lapponica*	BD, WA
European Golden Plover	*Pluvialis apricaria*	BD, WA
Common Tern	*Sterna hirundo*	BD, WA
Sandwich Tern	*Sterna sandvicensis*	BD, WA
Common Dolphin	*Delphinus delphis*	HD, WA
Grey Seal	*Halichoerus grypus*	HD, WA
Bottle-nosed Dolphin	*Tursiops truncatus*	HD, WA
European Otter	*Lutra lutra*	HD, WA
Pine Marten	*Martes martes*	HD, WA
Eurasian Badger	*Meles meles*	WA
Daubenton's Bat	*Myotis daubentonii*	HD, WA
Lesser Noctule	*Nyctalus leisleri*	HD, WA
Pipistrelle	*Pipistrellus pipistrellus sensu lato*	HD, WA
Soprano Pipistrelle	*Pipistrellus pygmaeus*	HD, WA
Brown Long-eared Bat	*Plecotus auritus*	HD, WA

HD = EU Habitats Directive; BD = EU Birds Directive; WA = Wildlife Acts (1979-2012)

Table 5.7. NBDC records for invasive species in hectad R05

Common Name	Scientific Name
Japanese Knotweed	*Fallopia japonica*
Cherry Laurel	*Prunus laurocerasus*
Rhododendron	*Rhododendron ponticum*
Fallow Deer	*Dama dama*

5.3.5 Water Quality

The proposed afforestation site is located within the Shannon Estuary North Catchment. The Kilcarroll Stream and Knockerry East Stream run along the northern and north eastern boundaries of the site. These streams join the River Wood, eventually flowing into the Lower River Shannon SAC (002165) and River Shannon and River Fergus Estuaries SPA (004077) approximately 4km downstream (Straight line) from the proposed afforestation site.

There are no EPA water quality monitoring stations on the Knockerry East stream, however one is located on the Kilcarroll stream at "North East Kilcarroll Bridge" downstream of the study site. This station provides a River Water Quality assessment score of "Q2-3, Q3 – Poor". The Water Framework Directive (WFD) river waterbody risk score for the River wood down stream of the study site has been assessed as 'At Risk

of Not Achieving a Good Status'. The WFD River Waterbody status for both the Kilcarroll Stream and Knockerry East Stream classify the river's waterbody status as 'Poor'.

5.3.6 Freshwater Pearl Mussel Sensitive Areas

The NPWS Margaritifera sensitive areas dataset V6 was reviewed. The development is not within and has no connectivity with any FPM catchment.

5.3.7 Conclusions of the Desktop Study

The afforestation site is not located within any site designated for nature conservation. No protected floral species have been recorded from the area. Given that this hectad includes a large area outside of the study site, including coastal areas, several species which are recorded within the hectad (eg Common Dolphin) will not be found within the study site due to its inland and terrestrial nature. The remaining mammal species recorded within the relevant hectad have widespread range and distributions and are likely to be recorded frequently throughout Ireland.

A number of rare and protected habitats, flora and fauna have been recorded from the hectad in which the proposed development is located. The field surveys will identify if any of the identified habitats, flora or fauna or additional ecological receptors occur within the study area.

5.3.8 Flora in the Existing Environment

5.3.9 Habitats Present at the Site

The site is divided into two portions by a road (BL3). Both sections are composed of Wet Grassland (GS4) (Plate 5.3 & 5.4), heavily grazed in places at the time of visiting. The grassland was dominated by rushes (*Juncus* spp.). Grass species recorded including Perennial Ryegrass (*Lolium perenne*), Creeping Bent (*Agrostis stolonifera*), and Yorkshire Fog (*Holcus lanatus*). Other species recorded in this habitat include Creeping Buttercup (*Ranunculus repens*), Meadow buttercup (*Ranunculus acris*), Ragwort (*Senecio jacobaea*), Common Sorrell (*Rumex acetosa*), Broad Dock (*Rumex obtusifolius*) and Bramble (*Rubus fruticosus*)

The field boundaries (Plate 5.5) within the site are comprised of Hedgerows (WL1), and Treelines (WL2). These boundaries were associated with drainage ditches. Species recorded within these habitats include Willow (*Salix spp.*), Ash (*Fraxinus excelsior*), Hazel (*Corylus avellana*) and Hawthorn (*Crataegus monogyna*), along with Brambles. Drainage ditches (FW4) were typically filled with standing water and overgrown with brambles and rushes.

Plate 5.3 Typical Wet Grassland (GS4) found throughout on the study site.

Plate 5.4 Grazed and Poached Wet Grassland with Hedgerows (WL1) to the left and treeline (WL2) in the distance

Plate 5.5 Hedgerow Field boundaries (WL1) and Road (BL3) which splits the two sections of the study site

5.3.10 Invasive Species

No invasive species listed on the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations, 2011 were identified within the site boundaries during field survey.

5.3.11 Significance of Habitats

Ecological evaluation within this section follows a methodology that is set out in Chapter 3 of the *'Guidelines for Assessment of Ecological Impacts of National Roads Schemes'* (NRA, 2009).

No habitats which correspond to those that are listed in the EU Habitats Directive were identified during the site visit. The wet grassland is considered to be of Local Importance (Lower Value). The hedgerow,, treelines, and drainage ditches are considered to be of Local Importance (Higher Value) as they have a higher level of biodiversity within the context of the local environment, or provide connectivity to areas of higher sensitivity.

5.3.12 Fauna in the existing environment

Birds

Records of birds seen and heard on the site of the proposed development were taken. More detailed and extensive bird surveys were not considered necessary due to the limited extent of the proposed development site which occurs within habitat which is widespread in the locality.

Common bird species were recorded during field survey including Snipe (*Gallinago gallinago*, and Meadow Pipit (*Anthus pratensis*). No birds listed on Annex I of the EU Birds Directive were recorded during the field survey.

Terrestrial Mammals
No evidence of protected faunal species were recorded within the site boundaries. No evidence of other faunal species were recorded within the site boundaries.

Bats
There are no structures within the site which may provide suitable roosting habitat for bats. A large open landscape structure dominates the site and though linear features may be used by foraging and commuting bats, overall the site is considered to have low suitability for bat species. A dedicated bat survey was therefore not required

5.3.13 Significance of Fauna

No evidence of Annex listed species, or other species of conservation concern were recorded within the site boundaries. In addition, no suitable habitat for species of conservation concern including Marsh Fritillary was identified within the proposed afforestation site. Bird species recorded within the site boundaries are common and assigned evaluated as Local Importance (Lower Value).

5.3.14 Impact Assessment and Associated Mitigation Measures

5.3.14.1 Do Nothing' Scenario

Were the site to remain unplanted, the management onsite would likely remain as it is presently i.e. regularly grazed by livestock. However, given that the site has received Technical Approval from the Forest Service it will likely be afforested according to the provisions of the approval document.

5.3.14.2 Loss of Floral Habitat

Long-Term Neutral Impact
The loss of habitat is likely to be restricted to wet agricultural grassland. The impacted habitats are not considered to be of ecological sensitivity and their loss will constitute a neutral impact when compared with the coniferous forestry to be planted.

Mitigation
All works will be carried out in accordance with the relevant Forest Service guidelines, including *'Forestry Biodiversity Guidelines'* (2000)'. The Technical Approval document specifies the area that should contain at suitable broadleaf and conifer species. This management would allow for the retention of the Local Value (Higher Importance) habitats.

Residual Impact
The replacement of Wet Grassland habitat with coniferous forestry is considered to be a **Long Term Neutral Impact**.

5.3.14.3 Loss of Faunal Habitat

Long Term Neutral Impact
The proposed planting site is not of high value as a faunal habitat, being degraded Wet Grassland with little to no cover or shelter for faunal species. It is likely that the proposed planting of forestry will result in some loss of faunal habitat for species such as Fox (*Vulpes vulpes*) and other small mammals and bird species such as Meadow Pipit (*Anthus pratensis*), Snipe (*Gallinago gallinago*), and Lapwing (*Vanellus vanellus*).

This habitat is widespread in the local area and this loss is considered to be negligible. The afforestation, in particular that of broadleaf species will result in the recreation of cover and shelter for a range of species, resulting in an overall **Long Term Neutral Impact**

5.3.14.4 Water Pollution

Short-Term Minor Negative Impact
Whilst no watercourses were identified on the site with the exception of drainage ditches, there is potential for water pollution to occur through discharge to the adjacent river as a result of the proposed works in the form of acidification, siltation or erosion.

Mitigation
The works associated with planting, maintenance, thinning and harvesting will be carried out in accordance with the *'Forestry and Water Quality Guidelines'* (2000) and buffer zone widths for the water courses applied accordingly.

Residual Impact
No impacts on water quality are anticipated as a result of any element of the proposed afforestation.

5.3.14.5 Cumulative Impacts

The proposed afforestation has Technical Approval from the Forest Service and will be undertaken accordingly. This approval is conditional to all associated works being undertaken in accordance with Forest Service guidelines. The impacts associated with this afforestation have been classified overall as a neutral impact. As such, when considered in combination with the other land uses in the area, and considering that the forestry guidelines are designed to minimise and prevent impacts to habitats that are outside the site, cumulative impacts on sensitive ecological receptors are not anticipated.

5.3.15 Significance of the Effects

Based on the above, there will be no significant effects on flora and fauna, associated with afforestation, at this site.

5.4 Replanting Site 3: Claraghtlea North, Co. Cork

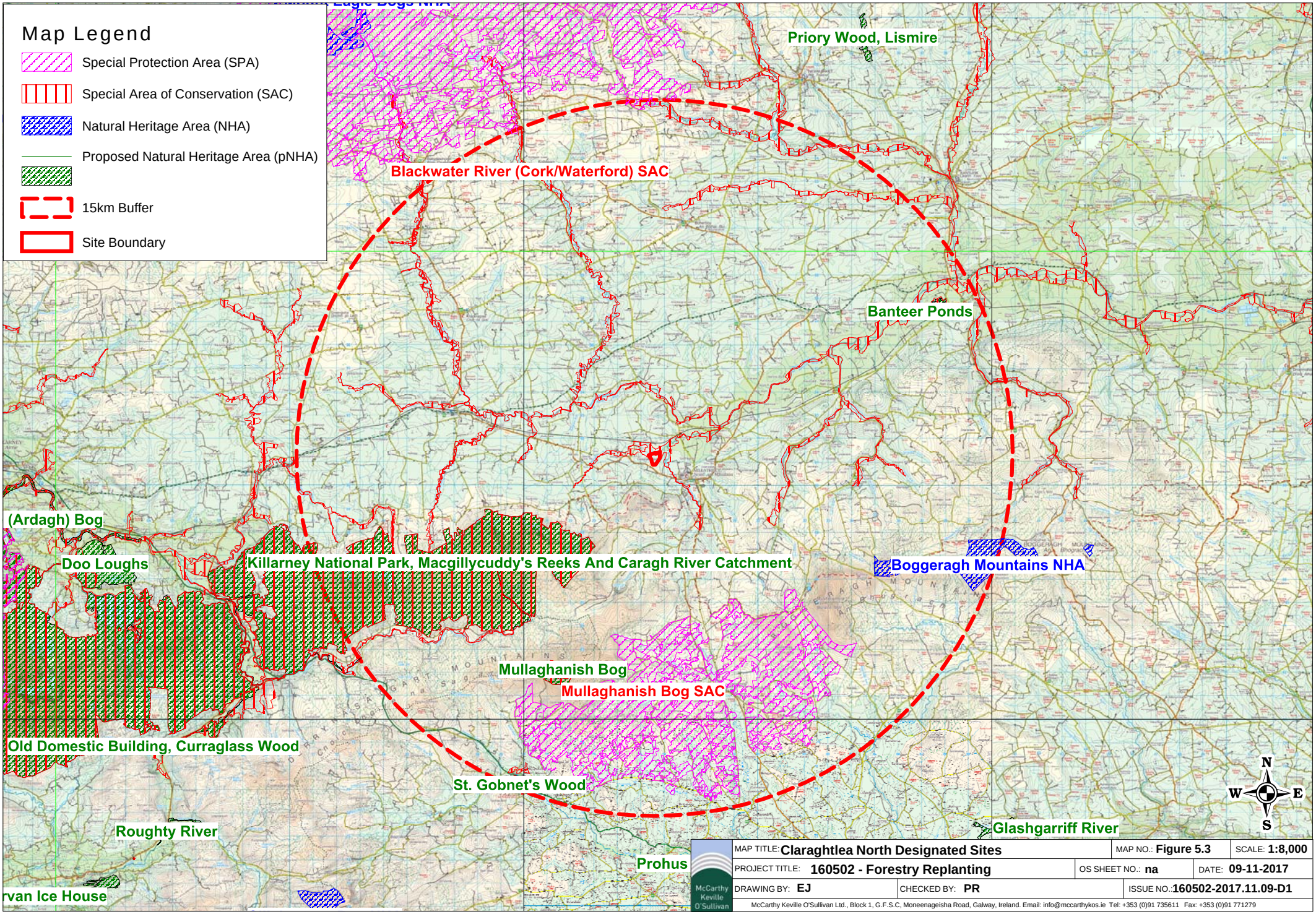
The proposed replanting land at Claraghtlea North, Co. Cork (the 'Claraghtlea site') has been assessed as part of the Afforestation Approval - Form 1 process described above, and has obtained Technical Approval for Afforestation from the Forest Service. This replanting site is located in the townland of Claraghtlea North, approximately 1.1 kilometres northwest of Millstreet, at its nearest point. The site location is presented in Figures 2.5.

5.4.1 Desk Study

The following sections detail the results of the searches of published material that were consulted as part of the desk study for the Claraghtlea site.

5.4.2 Identification of the Designated Sites Likely Zone of Influence of the Project

Using GIS software MapInfo (Version 10.0), sites designated for nature conservation within the potential zone of influence (ZOI) of the proposed development were identified. The ZOI was derived utilising a precautionary approach. The designated sites are listed below in Table 5.8 and displayed on Figure 5.3.



MAP TITLE: Claraghtlea North Designated Sites		MAP NO.: Figure 5.3	SCALE: 1:8,000
PROJECT TITLE: 160502 - Forestry Replanting		OS SHEET NO.: na	DATE: 09-11-2017
DRAWING BY: EJ	CHECKED BY: PR	ISSUE NO.: 160502-2017.11.09-D1	

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Table 5.8: Designated sites within 15 kilometres of the study area

Designated Site	Distance from Proposed Afforestation (km)
Special Protection Area (SPA)	
Mullaghanish to Musheramore Mountains SPA (004162)	6.6km
Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA (004161)	14.6km
Special Area of Conservation (SAC)	
Blackwater River (Cork/Waterford) SAC (002170)	0
Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC (000365)	4.1km
Mullaghanish Bog SAC (001890)	9.4km
Mullaghanish Bog SAC (001890)	9.7km
St. Gobnet's Wood SAC (000106)	13.8km
Natural Heritage Areas (NHA)	
Boggeragh Mountains NHA (002447)	10.0km
Proposed Natural Heritage Areas (pNHA)	
Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment (000365)	4.1km
Mullaghanish Bog (001890)	9.4km
Banteer Ponds (001036)	12.2km
St. Gobnet's Wood (000106)	14.5km

5.4.3 New Flora Atlas

A search was made in the New Atlas of the British & Irish Flora (Preston et al, 2002) to investigate whether any rare or unusual plant species listed under Annex I of the EU Habitats Directive had been recorded in the relevant 10km square in which the study site is situated (W29), during the 1987-1999 atlas survey. No species protected under the Flora (Protection) Order, 1999 (as amended 2015) have been previously recorded within the hectad.

5.4.4 National Biodiversity Data Centre Notable Records

A search of the National Biodiversity Data Centre (NBDC) website was conducted with a focus on records of protected fauna recorded from hectads W29. The results of the database search are provided below in Table 5.9.

Table 5.10 includes records of non-native invasive species listed under the Third Schedule of the European Communities Regulations 2011 (S.I. 477 of 2015).

Table 5.9 Notable species that occur within 10km Grid Square W29

Common Name	Scientific Name	Designation
Common Frog	*Rana temporaria*	BD, WA
Hen Harrier	*Circus cyaneus*	BD, WA
Little Egret	*Egretta garzetta*	BD, WA
Merlin	*Falco columbarius*	BD, WA
Freshwater Pearl Mussel	*Margaritifera (Margaritifera) margaritifera*	HD, WA
West European Hedgehog	*Erinaceus europaeus*	WA
European Otter	*Lutra lutra*	HD, WA
Eurasian Badger	*Meles meles*	WA
Daubenton's Bat	*Myotis daubentonii*	HD, WA

Lesser Noctule	*Nyctalus leisleri*	HD, WA
Pipistrelle	*Pipistrellus pipistrellus sensu lato*	HD, WA
Soprano Pipistrelle	*Pipistrellus pygmaeus*	HD, WA

HD = EU Habitats Directive; BD = EU Birds Directive; WA = Wildlife Acts (1979-2012)

Table 5.10. NBDC records for invasive species in hectad R05

Common Name	Scientific Name
Japanese Knotweed	*Fallopia japonica*
Giant-rhubarb	*Gunnera tinctoria*
Sika Deer	*Cervus nippon*
American Mink	*Mustela vison*

5.4.5 Water Quality

The proposed afforestation site is located within the Blackwater (Munster) Catchment. The Owenagloo stream runs along the northern boundary, and the Claraghtlea North Stream runs through the northern section of the site. The Owenagloo stream, and its riparian border form part of the Blackwater River (Cork/Waterford) SAC. The boundary of the SAC overlaps with the northern section of the proposed afforestation site.

The nearest EPA water quality monitoring station is titled "Bridge Upstream of the Finnow River Confluence" to the east of the study site. This station provides a River Water Quality assessment score of "Q4-5, Q5 – High". The Water Framework Directive (WFD) river waterbody risk score for the Owenagloo stream has been assessed as 'At Risk of Not Achieving a Good Status'. The WFD River Waterbody status has not been assigned for either of the streams.

5.4.6 Freshwater Pearl Mussel Sensitive Areas

The NPWS Margaritifera sensitive areas dataset V6 was reviewed. The site is located within the Munster Blackwater Pearl Mussel (*Margaritifera margaritifera*) sensitive area, which is a catchment for SAC populations of the species.

5.4.7 Conclusions of the Desktop Study

The afforestation site is not located within any site designated for nature conservation. No protected floral species have been recorded from the area. Given that this hectad includes a large area outside of the study site, including coastal areas, species which are recorded within the hectad will not be found within the study site due to its inland and terrestrial nature. The remaining mammal species recorded within the relevant hectad have widespread range and distributions and are likely to be recorded frequently throughout Ireland. The field surveys will identify if any of the identified habitats or additional ecological receptors occur within the study area.

5.4.8 Flora in the Existing Environment

5.4.9 Habitats Present at the Site

The site is comprised primarily of Wet Grassland (GS4) (Plate 5.6). At the time of the visit the grassland was overgrown and dominated in places almost entirely by rushes (*Juncus* spp.). Grass species recorded include Perennial Ryegrass (*Lolium perenne*), Creeping Bent (*Agrostis stolonifera*), and Yorkshire Fog (*Holcus lanatus*). Other species recorded in this habitat include Creeping Buttercup (*Ranunculus repens*), Meadow buttercup (*Ranunculus acris*), Ragwort (*Senecio jacobaea*), Common Sorrell (*Rumex*

acetosa). The boundaries of the site were comprised of treelines (WL2) and hedgerows (WL1). Species recorded within these habitats include Willow (*Salix spp.*), Ash (*Fraxinus excelsior*), Gorse (*Ulex europaeus*) Hawthorn (*Crataegus monogyna*), and Brambles (*Rubus fructicosus*).

A stream (FW1) (Plate 5.7) and an extensive network of drainage ditches (FW4) were found running through the site. Vegetation bordering the stream again contained rushes but included Lesser Celandine (*Ficaria verna*), Primrose (*Primula vulgaris*), Dandelion (Taraxacum vulgaria), Ragwort (Senecio jacobaea), Broadleaved Dock, and Common Sorrel. Drainage ditches were typically overgrown with rushes, and contained standing water.

Plate 5.6 Overgrown Wet Grassland (GS4) with drainage ditch (FW4) on the study site.

Plate 5.7 Wet Grassland (GA4) adjacent to stream (FW1) and SAC border with treeline (WL2) in the distance

5.4.10 Invasive Species

No invasive species listed on the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations, 2011 were identified within the site boundaries during field survey.

5.4.11 Significance of Habitats

Ecological evaluation within this section follows a methodology that is set out in Chapter 3 of the *'Guidelines for Assessment of Ecological Impacts of National Roads Schemes'* (NRA, 2009).

No habitats which correspond to those that are listed in the EU Habitats Directive were identified during the site visit. The wet grassland, and drainage ditches that are present within the site, given their highly modified nature, are considered to be of Local Importance (Lower Value). The hedgerows are considered to be of Local Importance (Higher Value) as it has a higher level of biodiversity within the context of the local environment.

5.4.12 Fauna in the existing environment

Birds

Records of birds seen and heard on the site of the proposed development were taken. More detailed and extensive bird surveys were not considered necessary due to the limited extent of the proposed development site which occurs within habitat which is widespread in the locality.

A number of bird species were recorded during field survey including Snipe (*Gallinago gallinago*), Rooks (*Corvus frugilegus*) and Wood Pigeon (*Columba palumbus*). No birds listed on Annex I of the EU Birds Directive were recorded during the field survey.

Terrestrial Mammals
No evidence of protected faunal species were recorded within the site boundaries. No evidence of other faunal species were recorded within the site boundaries.

Bats
There are no structures within the site which may provide suitable roosting habitat for bats. A large open landscape structure dominates the site and though linear features may be used by foraging and commuting bats, overall the site is considered to have low suitability for bat species. A dedicated bat survey was therefore not required

5.4.13 Significance of Fauna

No evidence of Annex listed species, or other species of conservation concern were recorded within the site boundaries. In addition, no suitable habitat for species of conservation concern including Marsh Fritillary was identified within the proposed afforestation site.

Bird species recorded within the site boundaries are common generally. The site of the proposed development provides some limited foraging, commuting and nesting habitats for these and other common bird species in general. Similar habitat is widespread in the locality and so a significant impact as a result of a loss of suitable habitat.

5.4.14 Impact Assessment

5.4.14.1 Do Nothing' Scenario

Were the site to remain unplanted, the management onsite would likely remain as it is presently i.e. regularly grazed by livestock. However, given that the site has received Technical Approval from the Forest Service it will likely be afforested according to the provisions of the approval document.

5.4.14.2 Loss of Floral Habitat

Long-Term Neutral Impact
The loss of habitat is likely to be restricted to wet agricultural grassland and drainage ditches. These impacted habitats are not considered to be of ecological sensitivity and their loss will constitute a neutral impact when compared with the coniferous forestry to be planted.

Mitigation
All works will be carried out in accordance with the relevant Forest Service guidelines, including *'Forestry Biodiversity Guidelines'* (2000)'. The Technical Approval document specifies the area that should contain at suitable broadleaf and conifer species. This management would allow for the retention of the Local Value (Higher Importance) habitats.

Residual Impact
The replacement of Wet Grassland habitat with coniferous forestry is considered to be a **Long Term Neutral Impact**.

5.4.14.3 Loss of Faunal Habitat

Long Term Neutral Impact

The proposed planting site is not of high value as a faunal habitat, being degraded Wet Grassland with little to no cover or shelter for faunal species. It is likely that the proposed planting of forestry will result in some loss of faunal habitat for mammal and bird species. This habitat is widespread in the local area and this loss is considered to be negligible. The afforestation, in particular that of broadleaf species will result in the recreation of cover and shelter for a range of species, resulting in an overall **Long Term Neutral Impact**

5.4.14.4 Water Pollution

Short-Term Minor Negative Impact

Whilst no watercourses were identified on the site with the exception of drainage ditches, there is potential for water pollution to occur through discharge to the adjacent river as a result of the proposed works in the form of acidification, siltation or erosion.

Mitigation

The works associated with planting, maintenance, thinning and harvesting will be carried out in accordance with the *'Forestry and Water Quality Guidelines'* (2000) and buffer zone widths for the water courses applied accordingly.

Residual Impact

No impacts on water quality are anticipated as a result of any element of the proposed afforestation.

5.4.14.5 Cumulative Impacts

The proposed afforestation has Technical Approval from the Forest Service and will be undertaken accordingly. This approval is conditional to all associated works being undertaken in accordance with Forest Service guidelines. The impacts associated with this afforestation have been classified overall as a neutral impact. As such, when considered in combination with the other land uses in the area, and considering that the forestry guidelines are designed to minimise and prevent impacts to habitats that are outside the site, cumulative impacts on sensitive ecological receptors are not anticipated

5.4.15 Significance of the Effects

Based on the above, there will be no significant effects on flora and fauna, associated with afforestation, at this site.

5.5 Replanting Site 4: Glantane Beg, Co. Cork

The proposed replanting land at Glantane beg, Co. Cork (the 'Claraghtlea site') has been assessed as part of the Afforestation Approval - Form 1 process described above, and has obtained Technical Approval for Afforestation from the Forest Service. This replanting site is located in the townland of Glantane Beg. The site location is presented in Figures 2.7.

5.5.1 Desk Study

The following sections detail the results of the searches of published material that were consulted as part of the desk study for the Claraghtlea site.

5.5.2 Identification of the Designated Sites Likely Zone of Influence of the Project

Using GIS software MapInfo (Version 10.0), sites designated for nature conservation within the potential zone of influence (ZOI) of the proposed development were identified. The ZOI was derived utilising a precautionary approach. The designated sites are listed below in Table 5.11 and displayed on Figure 5.4.

5.5.3 Identification of the Designated Sites within the Likely Zone of Influence of the Project

Table 5.11: Designated sites within 15 kilometres of the study area

Designated Site	Distance from Proposed Afforestation (km)
Special Protection Area (SPA)	
Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA (004161)	7.5km
Mullaghanish to Musheramore Mountains SPA (004162)	14.0km
Special Area of Conservation (SAC)	
Blackwater River (Cork/Waterford) SAC (002170)	2.1km
Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC (000365)	8.6km
Lower River Shannon SAC (002165)	14.0km
Mullaghanish Bog SAC (001890)	14.9km
Natural Heritage Areas (NHA)	
Mount Eagle Bogs NHA (002449)	13.5km
Proposed Natural Heritage Areas (pNHA)	
Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment (000365)	8.6km
Mullaghanish Bog (001890)	14.9km

5.5.4 New Flora Atlas

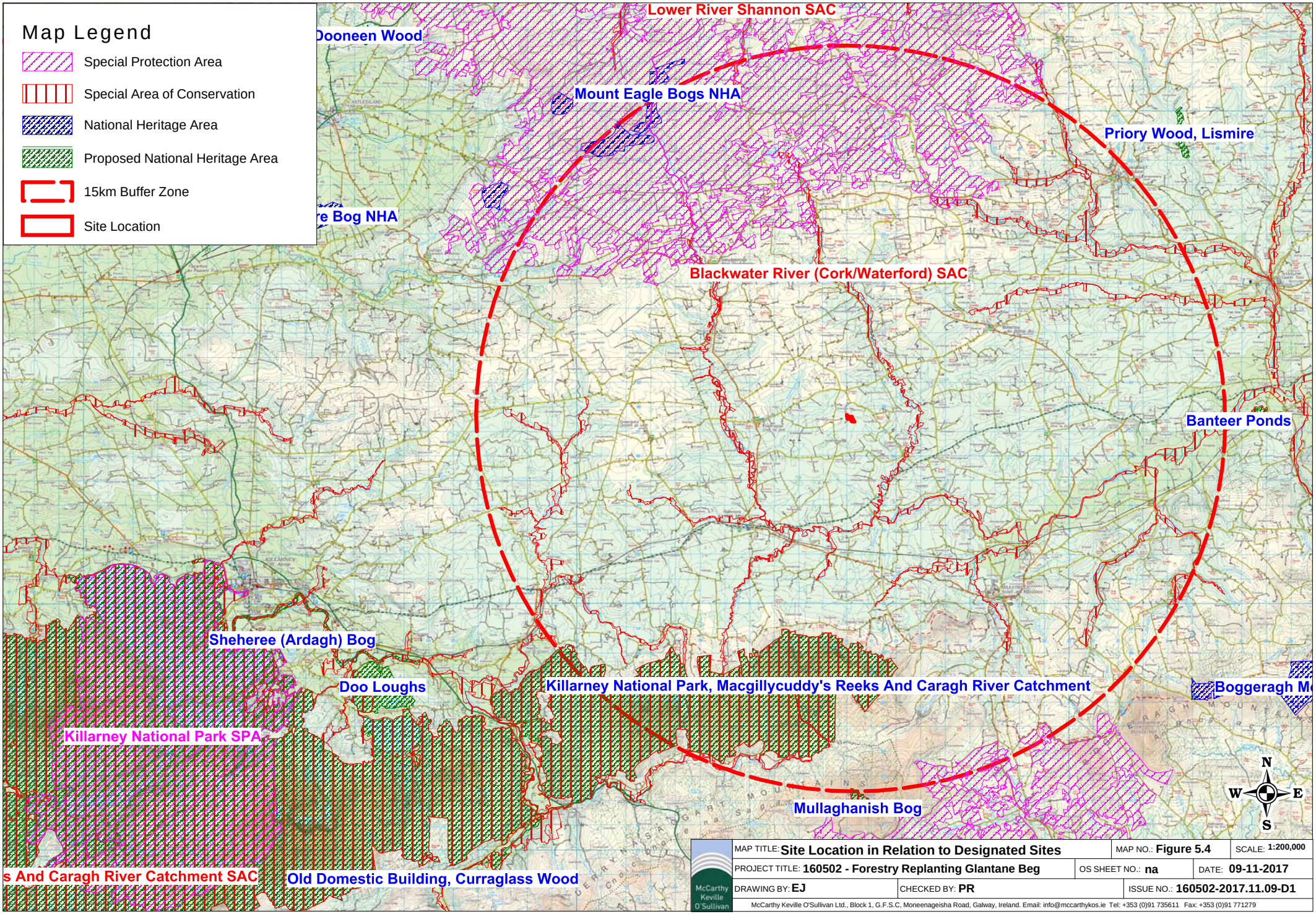
A search was made in the New Atlas of the British & Irish Flora (Preston et al, 2002) to investigate whether any rare or unusual plant species listed under Annex I of the EU Habitats Directive had been recorded in the relevant 10km square in which the study site is situated (W29), during the 1987-1999 atlas survey. No species protected under the Flora (Protection) Order, 1999 (as amended 2015) have been previously recorded within hectad W29.

5.5.5 National Biodiversity Data Centre Notable Records

According to the National Biodiversity Data centre online mapper there are records for a number of Annex I listed bird species and Annex II, IV and V species of fauna for the 10km grid square W29. These species are shown in Table 5.12.

Table 5.12 Notable species that occur within 10km Grid Square W29

Common Name	Scientific Name	Designation
Common Frog	*Rana temporaria*	BD, WA
Hen Harrier	*Circus cyaneus*	BD, WA
Little Egret	*Egretta garzetta*	BD, WA
Merlin	*Falco columbarius*	BD, WA
Freshwater Pearl Mussel	*Margaritifera (Margaritifera) margaritifera*	HD, WA



MAP TITLE: **Site Location in Relation to Designated Sites**		MAP NO.: **Figure 5.4**	SCALE: **1:200,000**
PROJECT TITLE: **160502 - Forestry Replanting Glantane Beg**		OS SHEET NO.: **na**	DATE: **09-11-2017**
DRAWING BY: **EJ**	CHECKED BY: **PR**	ISSUE NO.: **160502-2017.11.09-D1**	

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West European Hedgehog	*Erinaceus europaeus*	WA
European Otter	*Lutra lutra*	HD, WA
Eurasian Badger	*Meles meles*	WA
Daubenton's Bat	*Myotis daubentonii*	HD, WA
Lesser Noctule	*Nyctalus leisleri*	HD, WA
Pipistrelle	*Pipistrellus pipistrellus sensu lato*	HD, WA
Soprano Pipistrelle	*Pipistrellus pygmaeus*	HD, WA

D = EU Habitats Directive; BD = EU Birds Directive; WA = Wildlife Acts (Ireland)

5.5.6 Invasive Species

The NBDC database also contains records of invasive species identified within the relevant hectads. Records of 'high impact' invasive species for hectad W29 are provided in Table 5.13 below.

Table 5.13. NBDC records for invasive species in hectad W29

Common Name	Scientific Name
Japanese Knotweed	*Fallopia japonica*
Giant-rhubarb	*Gunnera tinctoria*
Sika Deer	*Cervus nippon*
American Mink	*Mustela vison*

5.5.7 Water Quality

The proposed afforestation site is located within the Blackwater (Munster) Catchment. The closest waterbody is the Euglaune Stream, which is located 800m north of the site. The Euglane drains into the Blackwater River SAC approximately 2.6km (straight line) south east if the study site. The site is located within the Munster Blackwater Pearl Mussel (Margaritifera margaritifera) sensitive area, which is a catchment for SAC populations of the species.

There is no EPA water quality monitoring station on the Euglaune Stream to provide a River Water Quality assessment score. The Water Framework Directive (WFD) river waterbody quality (2010-'12) has been not assessed for the stream. The WFD River Waterbody status for the Euglaune Stream classifies the stream as 'High'.

5.5.8 Conclusions of the Desktop Study

The desktop study has provided good information about the existing environment in hectad W29, within which the proposed afforestation site is located. No protected floral species within the relevant hectad were identified during the desk study. The mammal species recorded within the relevant hectad have widespread range and distributions in Ireland and are likely to be recorded frequently throughout Ireland. The review of water quality documents provided have highlighted that the site is located within the Munster Blackwater Pearl Mussel (*Margaritifera margaritifera*) sensitive catchment area.

5.5.9 Flora in the Existing Environment

5.5.9.1 Habitats Present at the Site

The site is comprised almost entirely of overgrown, Wet Grassland (GS4) (Plate 5.8). The grassland is extensively dominated by rushes (*Juncus* spp.). Grass species recorded include Creeping Bent (*Agrostis stolonifera*), and Yorkshire Fog (*Holcus lanatus*). There was very little in terms of species recorded within the grassland, with the species recorded in this habitat include Creeping Buttercup (*Ranunculus repens*, Common Sorrell (*Rumex acetosa*), and Water Dock (*Rumex hydrolapathum*). The boundaries of the site were comprised of hedgerows (WL1) and thin strips of scrub (WS1) and conifer plantation (WD4). Species recorded within these habitats include Willow (*Salix spp.*), Gorse (*Ulex europaeus*) Hawthorn (*Crataegus monogyna*), and Brambles (*Rubus fructicosus*). Drainage ditches were recorded along the borders of the site, with one running through the centre of the site. Drainage ditches were typically overgrown with rushes, brambles and in some cases gorse (Plate 5.7). Vegetation bordering the stream included rushes, Lesser Celandine (*Ficaria verna*), Primrose (*Primula vulgaris*), Herb Robert (*Geranium robertianum*), Dandelion (*Taraxacum vulgaria*), Bracken (*Pteridium aquilinum*), and Hard Fern (*Blechnum spicant*).

Plate 5.8 Wet Grassland (GS4) on the study site with bordering Conifer Plantation (WD4)

Plate 5.8 Drainage ditch (FW4) bordering the site

5.5.10 Invasive Species

No invasive species listed on the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations, 2011 were identified within the site boundaries during field survey.

5.5.11 Fauna in the existing environment

Birds

Records of birds seen and heard on the site of the proposed development were taken. More detailed and extensive bird surveys were not considered necessary due to the limited ecological value of the habitat which is widespread in the locality.

Bird species recorded during field survey included Snipe (*Gallinago gallinago*), and Meadow Pipit (*Anthus pratensis*). No birds listed on Annex I of the EU Birds Directive were recorded during the field survey.

Terrestrial Mammals

No evidence of any protected faunal species were recorded within the site boundaries. Other common mammals including Pygmy Shrew (*Sorex minutus*) may make use of the site, however evidence of these species was not recorded during the field survey.

Bats

There are no structures within the site which may provide suitable roosting habitat for bats. While an open landscape structure dominates the site generally, the hedgerows and linear features within the site may provide suitable habitat for commuting or foraging bat species. A dedicated bat survey was not completed as the overall site is dominated by open habitat which has poor suitability for bat species.

5.5.12 Character of Habitats

The site at Glantane Beg has the character of an agricultural farmland that has been highly modified from its natural state through grazing and drainage of the site.

5.5.13 Significance of Habitats

No habitats which correspond to those that are listed in the EU Habitats Directive were identified during the site visit. The wet grassland and drainage ditches that are present within the site, given their highly modified nature, are of Local Importance (Lower Value) as they contain areas which are of some local importance for wildlife. The hedgerows and scrub are of Local Importance (Higher Value) as these habitats have a higher level of biodiversity within the context of the local environment, and provide links between habitats of higher ecological value.

5.5.14 Significance of Fauna

No evidence of Annex II faunal species or other species of conservation concern were recorded within the site boundaries. In addition, no suitable habitat for species of conservation concern including Marsh Fritillary was identified within the proposed afforestation site.

Bird species recorded within the site boundaries are common generally. The site of the proposed development provides some limited foraging, commuting and nesting habitats for these and other common bird species in general. Similar habitat is widespread in the locality and so a significant impact because of a loss of suitable habitat is not anticipated.

Overall, it is considered that the site of the proposed afforestation is of relatively low value to faunal species due to the existing levels of disturbance from agricultural activity and the low sensitivity of habitats present on the site.

5.5.15 Impact Assessment and Associated Mitigation Measures

5.5.15.1 Do Nothing' Impact

Were the site to remain unplanted the management on site would likely remain as it is presently i.e. occasionally grazed by livestock and drained. However, given that the site has received Technical Approval from the Forest Service as described above it will likely be afforested per the provisions of the approval at a later date.

5.5.15.2 Loss of Floral Habitat

Long-Term Neutral Impact

The loss of habitat is likely to be restricted to wet grassland. The impacted habitat is not considered to be of great ecological sensitivity and its loss will constitute a neutral impact when compared with the coniferous forestry to be planted.

Mitigation

All works will be carried out in accordance with the relevant Forest Service guidelines, including *'Forestry Biodiversity Guidelines'* (2000)'.

Residual Impact

The replacement of Wet Grassland habitat with coniferous forestry is assessed as a **Long Term Neutral Impact**.

5.5.15.3 Loss of Faunal Habitat

Long Term Neutral Impact

The habitats in which the proposed afforestation will take place, wet grassland, is not of high value or great importance as a faunal habitat. It is likely that the proposed planting of forestry will result in some loss of faunal habitat for species such as Fox (*Vulpes vulpes*) and other small mammals along with a range of bird species. The impacted habitat is widespread in the local area and this loss is negligible. The afforestation, in particular that of broadleaf species will result in the recreation of cover and shelter for a range of species such as songbirds, Badger and Fox in the long term, resulting in an overall **Long Term Neutral Impact**

5.5.15.4 Water Pollution

Short Term Minor Negative Impact

The proposed afforestation site is located within the Blackwater (Munster) Catchment. The closest waterbody is the Euglaune Stream, which is located 800m north of the site. The Euglane drains into the Blackwater River SAC approximately 2.6km (straight line) south east if the study site. The site is located within the Munster Blackwater Pearl Mussel (Margaritifera margaritifera) sensitive area, which is a catchment for SAC populations of the species.Given the highly sensitive nature of this SAC, any deterioration in water quality have the potential to cause an impact on the qualifying interests of this SAC.

Mitigation

The works associated with planting, maintenance, thinning and harvesting will be carried out in accordance with the *'Forestry and Water Quality Guidelines'* (2000) and buffer zone widths for the water courses calculated accordingly.

Residual Impact

No impacts on water quality are anticipated as a result on any element of the proposed afforestation.

5.5.15.5 Cumulative Impacts

The proposed afforestation has Technical Approval from the Forest Service and will be undertaken accordingly. This approval is conditional to all associated works being undertaken in accordance with Forest Service guidelines. The impacts associated with this afforestation have been classified overall as a neutral impact. As such, when considered in combination with the other land uses in the area, and considering that the forestry guidelines are designed to minimise and prevent impacts to habitats that are outside the site, cumulative impacts on sensitive ecological receptors are not anticipated.

5.5.16 Significance of the Effects

Based on the above, there will be no significant effects on flora and fauna, associated with afforestation, at this site.

6 SOILS AND GEOLOGY

6.1 Introduction

This section of the report provides baseline information on the environmental setting of the approved afforestation lands in terms of soils and geology and discusses the potential impacts and associated effect that the activity may have on them. Where required, appropriate mitigation measures to limit any identified significant impacts to soils and geology are recommended.

6.1.1 Desk Study

This desk study involved collecting all relevant geological data for each site and its surrounding area. This included consultation of the following:

- Environmental Protection Agency database (www.epa.ie);
- Geological Survey of Ireland - National Draft Bedrock Aquifer map;
- Geological Survey of Ireland - Groundwater Database (www.gsi.ie);
- Bedrock Geology 1:100,000 Scale Map Series. Geological Survey of Ireland (GSI, 2003);
- Geological Survey of Ireland – 1:25,000 Field Mapping Sheets; and,
- General Soil Map of Ireland 2nd edition (www.epa.ie);

6.1.2 Impact Assessment Methodology

Using information from the desk study, an estimation of the importance of the soil and geological environment within each of the study areas is assessed using the criteria set out in Table 6.1 (NRA, 2005).

Table 6.1 Estimation of Importance of Soil and Geology Criteria (NRA, 2005)

Importance	Criteria	Typical Example
Very High	Attribute has a high quality, significance or value on a regional or national scale. Degree or extent of soil contamination is significant on a national or regional scale. Volume of peat and/or soft organic soil underlying route is significant on a national or regional scale.	Geological feature rare on a regional or national scale (NHA). Large existing quarry or pit. Proven economically extractable mineral resource
High	Attribute has a high quality, significance or value on a local scale. Degree or extent of soil contamination is significant on a local scale. Volume of peat and/or soft organic soil underlying site is significant on a local scale.	Contaminated soil on site with previous heavy industrial usage. Large recent landfill site for mixed wastes Geological feature of high value on a local scale (County Geological Site). Well drained and/or highly fertility soils. Moderately sized existing quarry or pit Marginally economic extractable mineral resource.

Medium	Attribute has a medium quality, significance or value on a local scale. Degree or extent of soil contamination is moderate on a local scale. Volume of peat and/or soft organic soil underlying site is moderate on a local scale.	Contaminated soil on site with previous light industrial usage. Small recent landfill site for mixed Wastes. Moderately drained and/or moderate fertility soils. Small existing quarry or pit. Sub-economic extractable mineral Resource.
Low	Attribute has a low quality, significance or value on a local scale. Degree or extent of soil contamination is minor on a local scale. Volume of peat and/or soft organic soil underlying site is small on a local scale.	Large historical and/or recent site for construction and demolition wastes. Small historical and/or recent landfill site for construction and demolition wastes. Poorly drained and/or low fertility soils. Uneconomically extractable mineral Resource.

The statutory criteria (EPA, 2002 and EPA, 2003) for the assessment of impacts require that likely impacts are described with respect to their extent, magnitude, complexity, probability, duration, frequency, reversibility and transfrontier nature (if applicable). The descriptors used in this environmental impact assessment are those set out in EPA (2002) Glossary of Impacts as shown in Section 1 of the EIS which accompanied the application. In addition, the two impact characteristics proximity and probability are described for each impact and these are defined in Table 6.2.

In order to provide an understanding of this descriptive system in terms of the geological/hydrological environment, elements of this system of description of impacts are related to examples of potential impacts on the hydrology and morphology of the existing environment, as listed in Table 6.3.

Table 6.2 Additional Impact Characteristics

Impact Characteristic	Degree/ Nature	Description
Proximity	Direct	An impact which occurs within the area of the proposed project, as a direct result of the proposed project.
	Indirect	An impact which is caused by the interaction of effects, or by off-site developments.
Probability	Low	A low likelihood of occurrence of the impact.
	Medium	A medium likelihood of occurrence of the impact.
	High	A high likelihood of occurrence of the impact.

Table 6.3 Impact descriptors related to the receiving environment

Impact Characteristics		Potential Hydrological Impacts
Quality	Significance	
Negative only	Profound	Widespread permanent impact on: - The extent or morphology of a cSAC. - Regionally important aquifers. - Extents of floodplains. Mitigation measures are unlikely to remove such impacts.
Positive or Negative	Significant	Local or widespread time dependent impacts on: -The extent or morphology of a cSAC / ecologically important area. -A regionally important hydrogeological feature (or widespread effects to minor hydrogeological features). -Extent of floodplains. Widespread permanent impacts on the extent or morphology of an NHA/ecologically important area, Mitigation measures (to design) will reduce but not completely remove the impact – residual impacts will occur.
Positive or Negative	Moderate	Local time dependent impacts on: - The extent or morphology of a cSAC / NHA / ecologically important area. - A minor hydrogeological feature. - Extent of floodplains. Mitigation measures can mitigate the impact OR residual impacts occur, but these are consistent with existing or emerging trends
Positive, Negative or Neutral	Slight	Local perceptible time dependent impacts not requiring mitigation.
Neutral	Imperceptible	No impacts, or impacts which are beneath levels of perception, within normal bounds of variation, or within the bounds of measurement or forecasting error.

6.2 Proposed Replanting Lands

6.2.1 Replanting Area 1: Ballyduff Beg, Co. Clare

6.2.1.1 Geology and Subsoils

Information on the main geological formations and subsoils underlying replanting area 1 (Ballyduff Beg) is shown in Table 6.4.

Table 6.4 Information on geology and subsoil under site in Ballyduff Beg, Co. Clare

Site	Geological Formation	Subsoil Type
Ballyduff Beg	▪ Sandstone, siltstone & mudstone	▪ Cutover Peat ▪ Sandstone Till

The site at Ballyduff Beg is underlain with sandstone, siltstone and mudstone, with the subsoil being composed of cutover peat and sandstone derived till. The area surrounding the site is underlain with similar subsoils to the site, with Cutover Peat being the most widespread and areas of Blanket Peat. The peat is interspersed with Numerian Sandstone Till in pockets of varying size. There are also pockets of Alluvian soil in the surrounding area.

6.2.1.2 Geological Resource Importance

The sandstone bedrock at the site could be classified as "Medium" importance. The bedrock could be used on a "sub-economic" local scale for construction purposes. The bedrock at the site has not been used in the past for this purpose.

The peat deposits at the site could be classified as "low" importance. While peat has not been cut at this site, it is not designated in this area, is of a small volume, is used for agricultural purposes and is poorly drained. Refer to Table 6.1 for criteria.

6.2.1.3 Geological Heritage and Designated Sites

There are no recorded Geological Heritage sites, mineral deposit sites or mining sites (current or historic) within the proposed development area.

6.2.1.4 Potential Impacts

6.2.1.4.1 'Do-Nothing' Scenario

The lands have been Technically Approved and will be afforested should the Meenbog wind farm proceed or not.

6.2.1.4.2 Likely and Significant Impacts and Associated Mitigation Measures

The likely impacts of the proposed development and mitigation measures that will be put in place to eliminate or reduce them are described below.

Construction of Drains and Planting of Trees
There will be some minor disturbance of soils, associated with the construction of drains through the site. Planting of trees will be carried out by hand using the slit planting method, so soil disturbance from this will be insignificant. There are no likely impacts of this afforestation on the underlying geology.

Site Roads & Tracks Construction
Forestry felling can occur within 0.8-1km of access points (roads & tracks) to the main forest body. Due to the small size of this site, additional access tracks or roads will not be required. This site is located adjacent an existing road network with existing entrances which will not require alteration.

6.2.1.4.3 Mitigation Measures

Planting of trees will be carried out by hand. Any drains will be generally shallow and will be constructed in accordance with the forestry service best practice guidelines described in detail in Section 2. Soils will remain in situ at the site and will not be removed offsite.

6.2.1.4.4 Residual Impact

There will be no impacts on soils and geology associated with the proposed afforestation.

6.2.1.4.5 Significance of the Effects

Based on the above, there will be no significant effects on soils and geology at this site.

6.2.2 Replanting Area 2: Mologha, Co. Clare

6.2.2.1 Geology & Subsoils

Information on the main geological formations and subsoils underlying replanting area 2 (Mologha, Co. Clare) is shown in Table 6.5.

Table 6.5 Information on geology and subsoil under site in Mologha, Co. Clare

Site	Geological Formations	Main Subsoil Types
Mologha	▪ Sandstone, Siltstone and Mudstone	▪ Shales and Sandstones tills (Namurian) ▪ Cutover peat ▪ Bedrock Outcrop

The subsoils of the the replanting site are a mixture of Shale/Sandstone (Numurian) Till, Bedrock Outcrop and Cut Peat. The northernmost part of the site contains bedrock outcrops, while the central and southern parts of the site consist of Cutover Peat and Shale/Sandstone Till.
The area surrounding the site is underlain with similar subsoils to the site itself, with Cutover Peat and Shale/Sandstone Till being the most common types.

6.2.2.2 Geological Resource Importance

The sandstone bedrock at the site could be classified as "Medium" importance. The bedrock could be used on a "sub-economic" local scale for construction purposes. The bedrock has not been used in the past at the site for this purpose.

The peat deposits around the site could be classified as "Low" importance as the peat is not designated in this area and is significantly degraded in most places at the site as a result of turf cutting. Refer to Table 6.1 for criteria.

6.2.2.3 Geological Heritage and Designated Sites

There are no recorded Geological Heritage sites, mineral deposit sites or mining sites (current or historic) within the proposed development area. The proposed development is not located within any designated site.

6.2.2.4 Potential Impacts

6.2.2.4.1 'Do-Nothing' Scenario

The lands have been Technically Approved and will be afforested should the Meenbog wind farm proceed or not.

6.2.2.4.2 Likely and Significant Impacts and Associated Mitigation Measures

The likely impacts of the proposed development and mitigation measures that will be put in place to eliminate or reduce them are shown below.

Construction of Drains and Planting of Trees
There will be some minor disturbance of soils, associated with the construction of drains through the site. Planting of trees will be carried out by hand using the slit planting method, so soil disturbance from this will be insignificant. There are no likely impacts of this afforestation on the underlying geology.

Site Roads & Tracks Construction

Forestry felling can occur within 0.8-1km of access points (roads & tracks) to the main forest body. Due to the small size of the parcels of land which make up this site, additional access tracks or roads will not be required. This site is located adjacent an existing road network with existing entrances which will not require upgrading or alteration.

6.2.2.4.3 Mitigation Measures

Planting of trees will be carried out by hand. Any drains will be generally shallow and will be constructed in accordance with the forestry service best practice guidelines described in detail in Section 2. Soils will remain in situ at the site and will not be removed offsite.

6.2.2.4.4 Residual Impact

There will be no impacts on soils and geology associated with the proposed afforestation.

6.2.2.4.5 Significance of the Effects

Based on the above, there will be no significant effects on soils and geology at this site.

6.2.3 Replanting Area 3: Claraghatlea North, Co. Cork

6.2.3.1 Geology and Subsoils

Information on the main geological formations and subsoils underlying the proposed replanting area is shown in Table 6.7.

Table 6.6 Information on geology and subsoil under replanting area in Claraghatlea North, Co. Cork

Site	Geological Formation	Subsoil Type
Claraghatlea North	▪ Numerian (Undifferentiated) Shale and Sandstone	▪ Blanket Peat ▪ Alluvium

Blanket Peat is the dominant subsoil type under the site. Alluvium is present to the north and is found 20 meters inside the northern boundary of the site by the banks of the Owennagleo river. The surrounding wider area consists of a combination of Devonian Till, Blanket Peat, Alluvium and Bedrock Outcrops.

6.2.3.2 Geological Resource Importance

The peat deposits at the site could be classified as "Low" importance as the peat is not designated in this area and is significantly degraded in most places at the site as a result of agriculture related drainage. Refer to Table 6.1 for criteria.

The shale and sandstone bedrock at the site could be classified as "Medium" importance. The bedrock could be used on a "sub-economic" local scale for construction purposes. The bedrock has not been used in the past at the site for this purpose.

6.2.3.3 Geological Heritage and Designated Sites

There are no recorded Geological Heritage sites, mineral deposit sites or mining sites (current or historic) within the proposed development area. The proposed development is not located within any designated site.

6.2.3.4 Potential Impacts

6.2.3.4.1 'Do-Nothing' Scenario

The lands have been Technically Approved and will be afforested should the Meenbog wind farm proceed or not.

6.2.3.4.2 Likely and Significant Impacts and Associated Mitigation Measures

The likely impacts of the proposed development and mitigation measures that will be put in place to eliminate or reduce them are shown below.

Construction of Drains and Planting of Trees
There will be some minor disturbance of soils, associated with the construction of drains through the site. Planting of trees will be carried out by hand using the slit planting method, so soil disturbance from this will be insignificant. There are no likely impacts of this afforestation on the underlying geology.

Site Access
Forestry felling can occur within 0.8-1km of access points (roads and tracks) to the main forest body. Due to the small size of this site, additional access tracks or roads will not be required. This site is located adjacent an existing road network with existing entrances which will not require upgrading or alteration.

6.2.3.4.3 Mitigation Measures

Planting of trees will be carried out by hand. Any drains will be generally shallow and will be constructed in accordance with the forestry service best practice guidelines described in detail in Section 2. Soils will remain in situ at the site and will not be removed offsite.

6.2.3.4.4 Residual Impact

There will be no impacts on soils and geology associated with the proposed afforestation.

6.2.3.4.5 Significance of the Effects

Based on the above, there will be no significant effects on soils and geology at this site.

6.2.4 Replanting Area 4: Glantane Beg, Co. Cork

6.2.4.1 Geology and Subsoils

Information on the main geological formations and subsoils underlying the proposed replanting area is shown in Table 6.7.

Table 6.7 Information on geology and subsoil under replanting area in Glantane Beg, Co. Cork

Site	Geological Formation	Subsoil Type
Glantane Beg	▪ Namurian (Undifferentiated) Shale and Sandstone	▪ Till derived from Namurian rocks

The underlying geology of the site is composed of Namurian Sandstone and Shale. The dominant subsoil of the site is Till derived from these Namurian rocks. There are areas of Blanket Peat to the north and east of the site The area surrounding the site is underlain with Namurian Shale and Sandstone Till and fragmented areas of Blanket Peat.

6.2.4.2 Geological Resource Importance

The peat deposits at the site could be classified as "Low" importance as the peat is not designated in this area and is significantly degraded in most places at the site as a result of agriculture related drainage. Refer to Table 6.1 for criteria. The bedrock at the site could be classified as "Medium" importance. The bedrock could be used on a "sub-economic" local scale for construction purposes. The bedrock has not been used in the past at the site for this purpose.

6.2.4.3 Geological Heritage and Designated Sites

There are no recorded Geological Heritage sites, mineral deposit sites or mining sites (current or historic) within the proposed development area. The proposed development is not located within any designated site.

6.2.4.4 Potential Impacts

6.2.4.4.1 'Do-Nothing' Scenario

The lands have been Technically Approved and will be afforested should the Meenbog wind farm proceed or not.

6.2.4.4.2 Likely and Significant Impacts and Associated Mitigation Measures

The likely impacts of the proposed development and mitigation measures that will be put in place to eliminate or reduce them are shown below.

Construction of Drains and Planting of Trees

There will be some minor disturbance of soils, associated with the construction of drains through the site. Planting of trees will be carried out by hand using the slit planting method, so soil disturbance from this will be insignificant. There are no likely impacts of this afforestation on the underlying geology.

Site Access

Forestry felling can occur within 0.8-1km of access points (roads and tracks) to the main forest body. Due to the small size of this site, additional access tracks or roads will not be required. This site is located adjacent an existing road network with existing entrances which will not require upgrading or alteration.

6.2.4.4.3 Mitigation Measures

Planting of trees will be carried out by hand. Any drains will be generally shallow and will be constructed in accordance with the forestry service best practice guidelines described in detail in Section 2. Soils will remain in situ at the site and will not be removed offsite.

6.2.4.4.4 Residual Impact

There will be no impacts on soils and geology associated with the proposed afforestation.

6.2.4.4.5 Significance of the Effects

Based on the above, there will be no significant effects on soils and geology at this site.

7 HYDROLOGY AND HYDROGEOLOGY

7.1 Introduction

7.1.1 Background and Objectives

McCarthy Keville O'Sullivan was engaged to undertake an assessment of the potential impacts and associated effect of forestry planting at 4 no. site locations on water aspects (hydrology and hydrogeology) of the receiving environment. The objective of the assessment is to:

- Produce a baseline study of the existing water environment (surface and groundwater) in the area of the site locations;
- Identify likely positive and negative impacts of the proposed development on surface and groundwater during all phases of the development; and,
- Identify mitigation measures to avoid, remediate or reduce significant negative impacts.

This section of the report provides baseline information on the environmental setting of the approved afforestation sites in terms of hydrology and hydrogeology and discusses the potential impacts that the activity may have on them. Where required, appropriate mitigation measures to limit any identified significant impacts to site hydrology and hydrogeology are recommended.

7.1.2 Methodology

7.1.2.1 Desk Study

A desk study of the site and the surrounding areas involved collecting all relevant geological, hydrological, hydrogeological and meteorological data for the area. This included consultation with the following:

- Environmental Protection Agency database (www.epa.ie);
- Geological Survey of Ireland - National Draft Bedrock Aquifer map;
- Geological Survey of Ireland - Groundwater Database (www.gsi.ie);
- Met Eireann Meteorological Databases (www.met.ie);
- National Parks & Wildlife Services Public Map Viewer (www.npws.ie);
- Water Framework Directive "*WaterMaps*" Map Viewer (www.wfdireland.ie);
- Bedrock Geology 1:100,000 Scale Map Series, Geological Survey of Ireland (GSI, 2003);
- OPW Indicative Flood Maps (www.floodmaps.ie);
- Environmental Protection Agency – "Hydrotool" Map Viewer (www.epa.ie);
- CFRAM Preliminary Flood Risk Assessment (PFRA) maps (www.cfram.ie); and,
- Department of Environment, Community and Local Government on-line mapping viewer (www.myplan.ie).

7.1.2.2 Impact Assessment Methodology

Please refer to Section 1 of the EIAR which accompanied the application for details on the impact assessment methodology (EPA, 2002 & 2003). In addition to the above methodology the sensitivity of the water environment receptors were assessed on completion of the desk study. Levels of sensitivity which are defined in Table 7.1 are then used to assess the potential effect that the proposed development may have on them.

Table 7.1 Receptor Sensitivity Criteria (Adapted from www.sepa.org.uk)

Sensitivity of Receptor	
Not sensitive	Receptor is of low environmental importance (e.g. surface water quality classified by EPA as A3 waters or seriously polluted), fish sporadically present or restricted). Heavily engineered or artificially modified and may dry up during summer months. Environmental equilibrium is stable and is resilient to changes which are considerably greater than natural fluctuations, without detriment to its present character. No abstractions for public or private water supplies. GSI groundwater vulnerability "Low" – "Medium" classification and "Poor" aquifer importance.
Sensitive	Receptor is of medium environmental importance or of regional value. Surface water quality classified by EPA as A2. Salmonid species may be present and may be locally important for fisheries. Abstractions for private water supplies. Environmental equilibrium copes well with all natural fluctuations but cannot absorb some changes greater than this without altering part of its present character. GSI groundwater vulnerability "High" classification and "Locally" important aquifer.
Very sensitive	Receptor is of high environmental importance or of national or international value i.e. NHA or SAC. Surface water quality classified by EPA as A1 and salmonid spawning grounds present. Abstractions for public drinking water supply. GSI groundwater vulnerability "Extreme" classification and "Regionally" important aquifer

7.2 Proposed Drainage

The proposed replanting lands will be drained in accordance with the Forestry Guidelines. Forestry plantations are generally drained by a network of mound drains which typically run perpendicular to the topographic contours of the site and feed into collector drains, which discharge to interceptor drains down-gradient of the plantation.

Mound drains are generally spaced approximately every 15m. Interceptor drains are generally located up-gradient (cut-off drains) and down-gradient of forestry plantations. A schematic of a typical standard forestry drainage network and one which is representative of the proposed site drainage network is shown in Figure 2.9 of this report.

7.3 Replanting Area 1: Ballyduff Beg, Co. Clare

7.3.1 Baseline Environment and Local Hydrology

Ground level elevations range between approximately 58m and 69m OD (meters above Ordnance Datum).

There are no streams or rivers within the site or adjacent the site boundary. The nearest surface water course is the river Inagh located approximately 200m to the west of the northern end of the site across the N85. This river rises approximately 8km to the south west and flows through the village of Inagh before it enters the Atlantic in Lahinch, 13.3 km to the north west.

There are numerous manmade drains within the site and surrounds that are in place predominately to drain the surrounding lands for agricultural purposes and the neighbouring forestry plantations

7.3.1.1 Water Balance

While the process of afforestation may result in a slight alteration in the water runoff of the site, the small size of the site (0.141 km^2) when compared with the Mal Bay catchment (848.6 km^2) means that any potential impacts this may have would be insignificant. The afforestation will lead to an imperceptible reduction in the runoff volumes in the longer term as the trees mature.

7.3.1.2 Regional Hydrology

The site is located in the Mal Bay River Catchment (IE_28), and forms part of the Inagh [Ennistymon]_SC_010 subcatchment (Code: IE_SH_28I010100). The subcatchment here has an overall status of 'Good' condition. It flows in an east to west direction, discharging into the Inagh Estuary in Lahinch.

7.3.1.3 Flood Risk Identification

OPW's indicative river and coastal flood map (www.floodmaps.ie), CFRAM Preliminary Flood Risk Assessment (PFRA) maps (www.cfram.ie), Department of Environment, Community and Local Government on-line planning mapping (www.myplan.ie) were consulted to identify those areas as being at risk of flooding.

No records or risks associated with flooding were identified in the published data sets.

7.3.1.4 Surface Water Hydrochemistry

Slightly acidic pH values of surface waters would be typical of peatland environments due to the decomposition of peat. In addition, the sandstone bedrock (and related till subsoils) which underlie the area would have slightly acidic groundwater characteristics which would have some effect on surface water chemistry specifically during dry periods when baseflow is likely to be more prevalent.

7.3.1.5 Hydrogeology

The underlying bedrock at the site is mapped as being sandstone, siltstone and black mudstone. (refer to Section 6 – Soils & Geology). The GSI has classified the bedrock formation here as a Locally Important Aquifers (Ll – bedrock which is moderately productive only in local zones).

7.3.1.6 Groundwater Vulnerability

The vulnerability rating of the aquifer within the site ranges from "Low vulnerability" to "Moderate vulnerability" (Low in the south and moderate in the North) and this reflects the varying depth of local subsoils and peat. There are areas of 'High vulnerablility' and area of 'X' rating (Rock at or near Surface or Karst) to the immediate east and west of the site.

7.3.1.7 Surface Water Body Status

The EU Water Framework Directive aims to protect, enhance and restore all waters with aim to achieve at least good status by 2021.

Under the first cycle of the Water Framework Directive Local surface water Body status reports were available for download from www.wfdireland.ie. Local surface water body (1st and 2nd cycle) information is available for viewing from www.catchments.ie.

The proposed afforestation site is located adjacent to the Inagh River (INAGH (ENNISTYMON)_020; 2nd cycle code: IE_SH_28I010206), which was deemed to be of 'good' status and 'under review' for it's risk of not achieving good status by 2021.

7.3.1.8 Groundwater Body Status

Under the first cycle of the Water Framework Directive Local Groundwater Body status reports were available for download from www.wfdireland.ie. and information related to the 1st and 2nd cycles of the WFD is available at www.catchments.ie.

The proposed afforestation site lies on the Miltown Malbay (Code: IE_SH_G_167) groundwater body (GWB) as classified during the 2010-2015 assessment cycle. This GWB extends southwest to near Kilkee, east past inagh and north past Lisdoonvarna. It was classified during the 2010-2015 assessment cycle as having 'Good Status' and it's risk of not achieving good status by 2021 was under review.

7.3.1.9 Designated Sites and Habitats

Designated sites include National Heritage Areas (NHAs), Proposed National Heritage Areas (pNHAs) Special Areas of Conservation (SACs), candidate Special Areas of Conservation (cSAC) and Special Protection Areas (SPAs). The proposed forestry development site is not located within any designated conservation-site. Designated sites in proximity to the proposed development site are described Section 5, Flora and Fauna.

7.3.1.10 Water Resources

There is a borehole well (name-1117NWW016) and a dug well located in the area of the site and it's adjacent land, according to www.gsi.ie. These are most likely associated with clustered houses to the northwest and southwest of the site, and were both constructed in the early 1960s. The exact location of these wells can not be determined from the online database.

7.3.1.11 Receptor Sensitivity

Due to the nature of afforestation, being near surface construction activities, impacts on groundwater are generally negligible and surface water is generally the main sensitive receptor assessed during impact assessments. The primary risk to groundwater at the site would be from nutrients associated with fertilisers.

Based on criteria set out in Table 7.1 groundwater at the site can be classed as Sensitive to pollution because the sandstone bedrock is classified as a locally important Aquifer. However, the majority of the site is covered in peat which acts as a protective cover to the underlying aquifer. Any contaminants which may be accidently released on-site are more likely to travel to nearby streams within surface runoff.

Surface waters such as the River Inagh are sensitive to potential contamination. This river is known to be of trout potential and are important locally for fishing (see Ecology, Section 6).

Surface water mitigation and controls are outlined in Section 7.3 below to ensure protection of all downstream receiving waters. Mitigation measures will ensure that surface runoff from the afforested areas of the site will be of a high quality and will therefore not impact on the quality of downstream surface water bodies.

7.3.2 Proposed Site Drainage

The site will be drained in accordance with the Forestry Guidelines. Forestry plantations are generally drained by a network of mound drains which typically run perpendicular to the topographic contours of the site and feed into collector drains, which discharge to interceptor drains down-gradient of the plantation.

Mound drains are generally spaced approximately every 15m. As illustrated in Figure 2.9, Interceptor drains are generally located up-gradient (cut-off drains) and down-gradient of forestry plantations. A schematic of a typical standard forestry drainage network and one which is representative of the proposed site drainage network is shown above as Figure 2.9.

7.3.3 Proposed Drainage Management

Runoff control and drainage management are key elements in terms of mitigation against impacts on surface water bodies. Two distinct methods will be employed to manage drainage water within the proposed development. The first method involves 'keeping clean water clean' by avoiding disturbance to natural drainage features. The second method involves collecting any drainage waters from planted areas within the site that might carry silt or sediment, and nutrients, using cut off drains to control direct discharge into streams.

7.3.4 Potential Impacts

The potential impacts of the proposed development and mitigation measures that will be put in place to eliminate or reduce them are set out below.

7.3.4.1 'Do-Nothing' Scenario

The lands have been Technically Approved and will be afforested should the Meenbog wind farm proceed or not.

7.3.4.2 Likely and Significant Impacts and Associated Mitigation measures

7.3.4.2.1 Excavation of Forestry Drains and Planting

Pathways: Drainage and surface water discharge routes.
Receptors: Surface waters and associated dependent ecosystems.
Potential Impacts: Indirect, negative, slight, short term, medium probability impact.

Shallow forestry drains will be constructed using an excavator throughout the site to a similar drainage pattern as Figure 2.9. There are no surface water courses on or adjacent the site and so the drains will ultimately discharge to the existing offsite field drain networks.

Potential impacts during drain construction occur mainly from:

- Exposure of soil and subsoils due to excavation, vehicle tracking, and skidding resulting in a source of suspended sediment which can become entrained in surface water runoff and enter drains;
- Nutrient release.

7.3.4.2.2 Harvesting Operations

Pathways: Drainage and surface water discharge routes.
Receptors: Surface waters and associated dependant ecosystems.
Potential Impacts: Indirect, negative, moderate, short term, medium probability impact.

Potential impacts during tree felling occur mainly from:

- Exposure of soil and subsoils due to vehicle tracking, and skidding or forwarding extraction methods resulting in a source of suspended sediment which can become entrained in surface water runoff

- Release of sediment attached to timber in stacking areas; and,
- Nutrient release.

7.3.4.2.3 Site Access

Forestry felling can occur within 0.8-1km of access points (roads & tracks) to the main forest body. Due to the small size of this site, additional access tracks or roads will not be required. This site is located adjacent an existing road network with existing entrances which will not require upgrading or alteration.

7.3.4.2.3.1 Proposed Mitigation Measures

Best practice methods related to water incorporated into the forestry management and mitigation measures have been derived from:

- Forestry Commission (2004): Forests and Water Guidelines, Fourth Edition. Publ. Forestry Commission, Edinburgh;
- Coillte (2009): Forest Operations & Water Protection Guidelines;
- Forest Service (Draft): Forestry and Freshwater Pearl Mussel Requirements – Site Assessment and Mitigation Measures; and,
- Forest Service (2000): Forestry and Water Quality Guidelines. Forest Service, DAF, Johnstown Castle Estate, Co. Wexford.

Mitigation measures which will reduce the risk of entrainment of suspended solids and nutrient release in surface watercourses comprise best practice methods which are set out as follows:

- Machine combinations will be chosen which are most suitable for ground conditions at the time of excavation and felling, and which will minimise surrounding soils disturbance;
- Where possible, existing drains will not be disturbed during drainage works;
- Drains and sediment traps will be installed during ground preparation and felling. Collector drains will be excavated at an acute angle to the contour (~0.3%-3% gradient), to minimise flow velocities. Main drains to take the discharge from collector drains will include water drops and rock armour, as required, where there are steep gradients, and should avoid being placed at right angles to the contour;
- Drains and silt traps will be maintained throughout all planting works, ensuring that they are clear of sediment build-up and are not severely eroded. Correct drain alignment, spacing and depth will ensure that erosion and sediment build-up are minimised and controlled;

Buffer Zones

There is a requirement in the Forest Service Code of Practice and in the FSC Certification Standard for the installation of buffer zones adjacent to aquatic zones at planting stage. Minimum buffer zone widths recommended in the Forest Service (2000) guidance document "*Forestry and Water Quality Guidelines*" are shown in Table 7.2.

Table 7.2 Minimum Buffer Zone Widths (Forest Service, 2000)

Average slope leading to the aquatic zone		Buffer zone width on either side of the aquatic zone	Buffer zone width for highly erodible soils
Moderate	(0 – 15%)	10 m	15 m
Steep	(15 – 30%)	15 m	20 m
Very steep	(>30%)	20 m	25 m

7.3.4.2.3.2 Residual Impact

Indirect, slight, short term, low probability impact.

7.3.4.2.4 Potential Release of Hydrocarbons during drainage works

Pathway: Groundwater flow paths and site drainage network.
Receptor: Groundwater and surface water.
Potential Impact: Indirect, negative, slight, temporary, medium probability impact to surface water quality.
Indirect, negative, slight, temporary, medium probability impact to local groundwater quality.

The replanting will be carried out by hand but it may be necessary to employ one excavator to create shallow drainage channels prior to planting. There is the potential for minor leaks from the excavator.

7.3.4.2.4.1 Proposed Mitigation Measures:

Mitigation measures proposed to avoid release of hydrocarbons at the site are as follows:

- Maintenance will not be carried out on site.
- Fuels will not be stored on site.
- The plant used will be regularly inspected for leaks and fitness for purpose;

7.3.4.2.4.2 Residual Impact

Indirect, negative, imperceptible, short term, low probability impact.

7.3.4.2.5 Potential Hydrological Impacts on Designated Sites

The proposed afforestation site is located within the Mal Bay catchment. There will however be no direct discharges from the site and the hydrological regime locally will not be altered by the afforestation due to its small scale.

Pathway: Surface water flow paths.
Receptor: Down-gradient water quality & designated sites.
Potential Impact: Indirect, negative, imperceptible, short term, low probability impact.

7.3.4.2.5.1 Impact Assessment & Proposed Mitigation Measures

The proposed mitigation measures which will include buffer zones and drainage control measures (*i.e.* cut off drains, tapered drains before buffer zones) will ensure that the quality of runoff from proposed development areas will be very high. The proposed development site is located in the Mal Bay catchment. There could potentially be an "*imperceptible, short term, low probability impact*" on local streams and rivers but this would be very localised and over a very short time period (*i.e.* hours).

7.3.4.2.5.2 Residual Impact

No residual impacts.

7.3.5 Significance of the Effects

Based on the above, there will be no significant effects on hydrology and hydrogeology at this site.

7.4 Replanting Area 2: Mologha, Co. Clare

7.4.1 Baseline Environment and Local Hydrology

Ground level elevations range between approximately 30m and 45m OD (meters above Ordnance Datum) for Mologha.

The replanting site is drained by the Knockerry East which flows along the northern edge of the site. This then becomes the Kilcarrol stream which is a tributary of the Wood River which discharges into the Shannon Estuary at Kilrush. There are two small lakes 3km to the north east of the site called Knockerra and Tarmon Lough.

In addition to these streams, there are numerous manmade drains that are in place predominately to drain the surrounding lands for agriculture and the neighbouring forestry plantations.

7.4.1.1 Water Balance

While the process of afforestation may result in a slight alteration in the water runoff of the sites due to transpiration, the small size of the site (0.125 km^2) when compared with the Shannon Estuary North catchment (1,651.28 km^2) means that any potential impacts this would be insignificant. The afforestation will lead to an imperceptible reduction in the runoff volumes in the longer term as the trees mature.

7.4.1.2 Regional Hydrology

The site is located in the Shannon Estuary North Catchment (Code: 27), and mostly forms part of the Wood_SC_010 subcatchment (Code: IE_SH_27W010100). The subcatchment here has an overall status of 'Poor' condition, and is categorized as 'At Risk' of not achieving good status by 2021. A very small area at the southern end of the replanting site is located within the Cloon[Clare]_SC_010 subcathcment, which has an overall status of 'Good' condition, and is categorized as 'Not At Risk' of not maintaining good status by 2021. Both Rivers flow in a north-east to south-west direction, discharging into the Shannon Estuary, with the River Wood flowing through Kilrush town.

7.4.1.3 Flood Risk Identification

OPW's indicative river and coastal flood map (www.floodmaps.ie), CFRAM Preliminary Flood Risk Assessment (PFRA) maps (www.cfram.ie), Department of Environment, Community and Local Government on-line planning mapping (www.myplan.ie) were consulted to identify those areas as being at risk of flooding.

No areas are indicated for flooding in the Mologha site.

7.4.1.4 Surface Water Hydrochemistry

Slightly acidic pH values of surface waters would be typical of peatland environments due to the decomposition of peat. In addition, the sandstone, siltstone and mudstone bedrock (and related till subsoils) which underlie the area would have slightly acidic groundwater characteristics which would have some effect on surface water chemistry specifically during dry periods when baseflow is likely to be more prevalent.

7.4.1.5 Hydrogeology

The underlying bedrock at the replanting site is mapped as being Sandstone, Siltstone and Mudstone. The GSI has classified the site as being located on a Locally Important Aquifer (Bedrock which is moderately productive only in Local Zones).

7.4.1.6 Groundwater Vulnerability

The vulnerability rating of the aquifer within the site ranges from "Extreme vulnerability" in the majority of the site to "Rock at or near surface or karstified" in the north of the site reflecting the shallow soil.

7.4.1.7 Surface Water Body Status

The EU Water Framework Directive aims to protect, enhance and restore all waters with aim to achieve at least good status by 2021.

Under the first cycle of the Water Framework Directive Local surface water Body status reports were available for download from www.wfdireland.ie. Local surface water body (1st and 2nd cycle) information is available for viewing from www.catchments.ie.

The proposed afforestation site is mostly located adjacent to the River Wood (WOOD 27_010; 2nd cycle code: IE_SH_27W010100), which was deemed to be of 'Poor' status and 'At risk' of not achieving good status in the 2010-2015 assessment cycle of the Water Framework Directive. The southern end of the site is located near the River Tonavoher (TONAVOHER_010; 2nd cycle code: IE_SH_27T230880), which was found to be of 'Unassigned' status and under 'Review' for risk of not achieving good status by 2021.

7.4.1.8 Groundwater Body Status

Under the first cycle of the Water Framework Directive Local Groundwater Body status reports were available for download from www.wfdireland.ie. and information related to the 1st and 2nd cycles of the WFD is available at www.catchments.ie.

The proposed afforestation site lies on the Kilrush (Code: IE_SH_G_123) groundwater body (GWB) as classified during the 2010-2015 assessment cycle. This GWB extends southwest to the tip of Loop Head and east to near Lissycasey. It was classified during the 2010-2015 assessment cycle as having 'Good Status' and it's risk of not achieving good status by 2021 was under review.

7.4.1.9 Designated Sites and Habitats

Designated sites include National Heritage Areas (NHAs), Proposed National Heritage Areas (pNHAs) Special Areas of Conservation (SACs), candidate Special Areas of Conservation (cSAC) and Special Protection Areas (SPAs). The proposed forestry development site is located 3.5 km from the Lower River Shannon SAC and the River Shannon and River Ferguson SPA. Designated sites in proximity to the proposed development site are described in Section 5, Flora and Fauna.

7.4.1.10 Water Resources

There is one borehole well identified within 2km to the east of the site in the GSI well database (www.gsi.ie). It has a location accuracy of 1km so its presence is of little concern. The borehole design is of moderate productivity used for agricultural and domestic purposes. This well is located within the same groundwater catchment as the proposed development site.

7.4.1.11 Receptor Sensitivity

Due to the nature of afforestation, being near surface construction activities, impacts on groundwater are generally negligible and surface water is generally the main sensitive receptor assessed during impact assessments. The primary risk to groundwater at the site would be from nutrients associated with fertilisers.

Based on criteria set out in Table 7.1, groundwater at the site can be classed as very sensitive to pollution because the bedrock is classified as a locally and regionally important Aquifer. However, the majority of the site is covered in sandstone till and peat which acts as a protective cover to the underlying aquifer. Any contaminants which may be accidently released on-site are more likely to travel to nearby streams within surface runoff.

Surface waters such as the Wood River are sensitive to potential contamination. These rivers and associated lakes are known to be of trout potential but are of least concern for fishing (see Flora and Fauna, Section 5 of this document).

Surface water mitigation and controls are outlined in Section 7.4.3 below to ensure protection of all downstream receiving waters. Mitigation measures will ensure that surface runoff from the afforested areas of the site will be of a high quality and will therefore not impact on the quality of downstream surface water bodies.

7.4.2 Proposed Site Drainage

The site will be drained in accordance with the Forestry Guidelines. Forestry plantations are generally drained by a network of mound drains which typically run perpendicular to the topographic contours of the site and feed into collector drains, which discharge to interceptor drains down-gradient of the plantation.

Mound drains are generally spaced approximately every 15m. As illustrated in Figure 2.9, Interceptor drains are generally located up-gradient (cut-off drains) and down-gradient of forestry plantations. A schematic of a typical standard forestry drainage network and one which is representative of the proposed site drainage network is shown above as Figure 2.9.

7.4.3 Proposed Drainage Management

Runoff control and drainage management are key elements in terms of mitigation against impacts on surface water bodies. Two distinct methods will be employed to manage drainage water within the proposed development. The first method involves 'keeping clean water clean' by avoiding disturbance to natural drainage features. The second method involves collecting any drainage waters from planted areas within the site that might carry silt or sediment, and nutrients, using cut off drains to control direct discharge into streams.

7.4.4 Potential Impacts

The potential impacts of the proposed development and mitigation measures that will be put in place to eliminate or reduce them are set out below.

7.4.4.1 'Do-Nothing' Scenario

The lands have been Technically Approved and will be afforested should the Meenbog wind farm proceed or not.

7.4.4.2 Likely and Significant Impacts and Associated Mitigation measures

7.4.4.2.1 Excavation of Forestry Drains

Pathways: Drainage and surface water discharge routes.
Receptors: Surface waters and associated dependent ecosystems.
Potential Impacts: Indirect, negative, slight, short term, medium probability impact.

Shallow forestry drains will be constructed using an excavator throughout the site to a similar drainage pattern as shown in Figure 2.9 above. There are no surface water courses on or adjacent the site and so the drains there will ultimately discharge to the existing offsite field drain networks.

Potential impacts during drain construction occur mainly from:

- Exposure of soil and subsoils due to excavation, vehicle tracking, and skidding resulting in a source of suspended sediment which can become entrained in surface water runoff and enter drains/surface water;
- Nutrient release.

7.4.4.2.2 Harvesting Operations

Pathways: Drainage and surface water discharge routes.
Receptors: Surface waters and associated dependant ecosystems.
Potential Impacts: Indirect, negative, moderate, short term, medium probability impact.

Potential impacts during tree felling occur mainly from:

- Exposure of soil and subsoils due to vehicle tracking, and skidding or forwarding extraction methods resulting in a source of suspended sediment which can become entrained in surface water runoff
- Release of sediment attached to timber in stacking areas; and,
- Nutrient release.

7.4.4.2.3 Site Access

Forestry felling can occur within 0.8-1km of access points (roads & tracks) to the main forest body. Due to the small size of this site, additional access tracks or roads will not be required. This site is located adjacent an existing road network with existing entrances which will not require upgrading or alteration.

7.4.4.2.3.1 Proposed Mitigation Measures

Best practice methods related to water incorporated into the forestry management and mitigation measures have been derived from:

- Forestry Commission (2004): Forests and Water Guidelines, Fourth Edition. Publ. Forestry Commission, Edinburgh;
- Coillte (2009): Forest Operations & Water Protection Guidelines;
- Forest Service (Draft): Forestry and Freshwater Pearl Mussel Requirements – Site Assessment and Mitigation Measures; and,
- Forest Service (2000): Forestry and Water Quality Guidelines. Forest Service, DAF, Johnstown Castle Estate, Co. Wexford.

Mitigation measures which will reduce the risk of entrainment of suspended solids and nutrient release in surface watercourses comprise best practice methods which are set out as follows:

- Machine combinations will be chosen which are most suitable for ground conditions at the time of excavation, and which will minimise surrounding soils disturbance;
- Where possible, existing drains will not be disturbed during drainage works;
- Drains and sediment traps will be installed during ground preparation. Collector drains will be excavated at an acute angle to the contour (~0.3%-3% gradient), to minimise flow velocities. Main drains to take the discharge from collector drains will include water drops and rock armour, as required, where there are steep gradients, and should avoid being placed at right angles to the contour;
- Drains and silt traps will be maintained throughout all planting works, ensuring that they are clear of sediment build-up and are not severely eroded. Correct drain alignment, spacing and depth will ensure that erosion and sediment build-up are minimised and controlled;

Buffer Zones

There is a requirement in the Forest Service Code of Practice and in the FSC Certification Standard for the installation of buffer zones adjacent to aquatic zones at planting stage. Minimum buffer zone widths recommended in the Forest Service (2000) guidance document "*Forestry and Water Quality Guidelines*" are shown in Table 7.2.

7.4.4.2.3.2 Residual Impact

Indirect, negative, slight, short term, low probability impact.

7.4.4.2.4 Potential Release of Hydrocarbons During Drainage Works

Pathway: Groundwater flow paths and site drainage network.
Receptor: Groundwater and surface water.
Potential Impact: Indirect, negative, slight, temporary, medium probability impact to surface water quality.
Indirect, negative, slight, temporary, medium probability impact to local groundwater quality.

The replanting will be carried out by hand but it may be necessary to employ one excavator to create shallow drainage channels prior to planting. There is the potential for minor leaks from the excavator.

7.4.4.2.4.1 Proposed Mitigation Measures

Mitigation measures proposed to avoid release of hydrocarbons at the site are as follows:

- Maintenance will not be carried out on site.
- Fuels will not be stored on site.
- The plant used will be regularly inspected for leaks and fitness for purpose;

7.4.4.2.4.2 Residual Impact

Indirect, negative, imperceptible, short term, low probability impact.

7.4.4.2.5 Potential Hydrological Impacts on Designated Sites

The proposed afforestation site is located within the Mal Bay catchment. There will however be no direct discharges from the sites and the hydrological regime locally will not be altered by the afforestation. Drainage at the both sites will adhere to forestry and water quality guidelines, as specified in the technical approval for the site.

Pathway: Surface water flow paths.
Receptor: Down-gradient water quality & designated sites.
Potential Impact: Indirect, negative, imperceptible, short term, low probability impact.

7.4.4.2.5.1 Impact Assessment and Proposed Mitigation Measures

The proposed mitigation measures which will include buffer zones and drainage control measures (*i.e.* cut off drains, tapered drains before buffer zones) will ensure that the quality of runoff from proposed development areas will be very high. The proposed development site is located in the Mal Bay catchment. There could potentially be an "*imperceptible, short term, low probability impact*" on local streams and rivers but this would be very localised and over a very short time period (*i.e.* hours). Therefore, direct, or indirect impacts on the Lower River Shannon SAC will not occur.

7.4.4.2.5.2 Residual Impact

No residual impacts.

7.4.5 Significance of the Effects

Based on the above, there will be no significant effects on hydrology and hydrogeology at this site.

7.5 Replanting Area 3: Claraghatlea North, Co. Cork

7.5.1 Baseline Environment and Local Hydrology

Ground level elevations range between approximately 100m and 110m OD (meters above Ordnance Datum).

A tributary stream to the Finnow River flows along the northern edge of the site leading into the Owenagloo River before it joins the Finnow River again and flows north east away from the site. 250m to the east of the site the Finnow flows north to meet this confluence.

There are numerous manmade drains within and around the site and surrounds that are in place predominately to drain the surrounding lands for agricultural purposes.

7.5.1.1 Water Balance

While the process of afforestation may result in a slight alteration in the water runoff of the site, the small size of the site (0.187 km^2) when compared with the Munster Blackwater catchment (3,108 km^2) means that any potential impacts this may have would be insignificant. The afforestation will lead to an imperceptible reduction in the runoff volumes in the longer term as the trees mature.

7.5.1.2 Regional Hydrology

The site is located in the Blackwater (Munster) Catchment (Code: 18), and forms part of the Blackwater[Munster]_SC_040 subcatchment (Code: 18_9). The site is located between the River Owennagloo (OWENNAGLOO_010) and the River Finnow (FINNOW (BLACKWATER)_030) southwest of their confluence. The River Finnow flows from near the site in a northeasterly direction, discharging into the Blackwater (BLACKWATER (MUNSTER)_060).

7.5.1.3 Flood Risk Identification

OPW's indicative river and coastal flood map (www.floodmaps.ie), CFRAM Preliminary Flood Risk Assessment (PFRA) maps (www.cfram.ie), Department of Environment,

Community and Local Government on-line planning mapping (www.myplan.ie) were consulted to identify those areas as being at risk of flooding.

In April 2005 there was flooding on the River Finnow tributary near Liscreagh (1km to the north-east) and at Inchileigh Br Millstreet (800m to the south east).

7.5.1.4 Surface Water Hydrochemistry

Slightly acidic pH values of surface waters would be typical of peatland environments due to the decomposition of peat. In addition, the sandstone and shale bedrock (and related till subsoils) which underlie the area would have slightly acidic groundwater characteristics which would have some effect on surface water chemistry specifically during dry periods when baseflow is likely to be more prevalent.

7.5.1.5 Hydrogeology

The underlying bedrock at the site is mapped as being sandstone and shale. (refer to Section 6 – Soils & Geology). The GSI has classified the formations here as a Locally Important Aquifers (Ll – bedrock which is moderately productive only in local zones).

7.5.1.6 Groundwater Vulnerability

The vulnerability rating of the aquifer within the site is "Low" reflecting the depth of subsoils on the site.

7.5.1.7 Surface Water Body Status

The EU Water Framework Directive aims to protect, enhance and restore all waters with aim to achieve at least good status by 2021.

Under the first cycle of the Water Framework Directive Local surface water Body status reports were available for download from www.wfdireland.ie. Local surface water body (1st and 2nd cycle) information is available for viewing from www.catchments.ie.

The proposed afforestation site is located adjacent to the River Owennagloo (OWENNAGLOO_010; 2nd cycle code: IE_SW_18O070700) and the River Finnow (FINNOW (BLACKWATER)_030; 2nd cycle code: IE_SW_18F030300). The Owennagloo was deemed to be of 'Good' status while the Finnow had a status of 'Unassigned'. Both were deemed to be 'Not At risk' of not maintaining/achieving good status by 2021.

7.5.1.8 Groundwater Body Status

Under the first cycle of the Water Framework Directive Local Groundwater Body status reports were available for download from www.wfdireland.ie. and information related to the 1st and 2nd cycles of the WFD is available at www.catchments.ie.

The proposed afforestation site lies on the Rathmore West (Code: IE_SW_G_070) groundwater body (GWB) as classified during the 2010-2015 assessment cycle. This GWB extends south to Rathmore, east to Mallow and north to Freemount. It was classified during the 2010-2015 assessment cycle as having 'Good Status' and 'Not at Risk' of not maintaining good status by 2021.

7.5.1.9 Designated Sites and Habitats

Designated sites include National Heritage Areas (NHAs), Proposed National Heritage Areas (pNHAs) Special Areas of Conservation (SACs), candidate Special Areas of Conservation (cSAC) and Special Protection Areas (SPAs). The proposed forestry development site is located within the Blackwater River (Cork/Waterford) SAC. The boundary of the SAC extends approximately 50 meters into the northern end of the site.

This and other designated sites in proximity to the proposed development site are described Section 5, Flora and Fauna.

7.5.1.10 Water Resources

There were no groundwater wells identified within 2km radius from the site in the GSI well database (www.gsi.ie).

7.5.1.11 Receptor Sensitivity

Due to the nature of afforestation, being near surface construction activities, impacts on groundwater are generally negligible and surface water is generally the main sensitive receptor assessed during impact assessments. The primary risk to groundwater at the site would be from nutrients associated with fertilisers.

Based on criteria set out in Table 8.1 groundwater at the site can be classed as Sensitive to pollution because the limestone bedrock is classified as a locally important Aquifer. However, the majority of the site is covered in peat which acts as a protective cover to the underlying aquifer. Any contaminants which may be accidently released on-site are more likely to travel to nearby streams within surface runoff.

Surface water mitigation and controls are outlined below to ensure protection of all downstream receiving waters. Mitigation measures will ensure that surface runoff from the afforested areas of the site will be of a high quality and will therefore not impact on the quality of downstream surface water bodies.

7.5.2 Proposed Site Drainage

The site will be drained in accordance with the Forestry Guidelines. Forestry plantations are generally drained by a network of mound drains which typically run perpendicular to the topographic contours of the site and feed into collector drains, which discharge to interceptor drains down-gradient of the plantation.

Mound drains are generally spaced approximately every 15m. As illustrated in Figure 2.9, Interceptor drains are generally located up-gradient (cut-off drains) and down-gradient of forestry plantations. A schematic of a typical standard forestry drainage network and one which is representative of the proposed site drainage network is shown above as Figure 2.9.

7.5.3 Proposed Drainage Management

Runoff control and drainage management are key elements in terms of mitigation against impacts on surface water bodies. Two distinct methods will be employed to manage drainage water within the proposed development. The first method involves 'keeping clean water clean' by avoiding disturbance to natural drainage features. The second method involves collecting any drainage waters from planted areas within the site that might carry silt or sediment, and nutrients, using cut off drains to control direct discharge into streams.

7.5.4 Potential Impacts

The potential impacts of the proposed development and mitigation measures that will be put in place to eliminate or reduce them are set out below.

7.5.4.1 'Do-Nothing' Scenario

The lands have been Technically Approved and will be afforested should the Meenbog wind farm proceed or not.

7.5.4.2 Likely and Significant Impacts and Associated Mitigation measures

7.5.4.2.1 Excavation of Forestry Drains and Planting

Pathways: Drainage and surface water discharge routes.
Receptors: Surface waters and associated dependant ecosystems.
Potential Impacts: Indirect, negative, slight, short term, medium probability impact.

Shallow forestry drains will be constructed using an excavator throughout the site to a similar drainage pattern as Figure 2.9. There are no surface water courses on or adjacent the site and so the drains will ultimately discharge to the existing offsite field drain networks.

Potential impacts during drain construction occur mainly from:

- Exposure of soil and subsoils due to excavation, vehicle tracking, and skidding resulting in a source of suspended sediment which can become entrained in surface water runoff and enter drains;
- Nutrient release.

7.5.4.2.2 Harvesting Operations

Pathways: Drainage and surface water discharge routes.
Receptors: Surface waters and associated dependant ecosystems.
Potential Impacts: Indirect, negative, moderate, short term, medium probability impact.

Potential impacts during tree felling occur mainly from:

- Exposure of soil and subsoils due to vehicle tracking, and skidding or forwarding extraction methods resulting in a source of suspended sediment which can become entrained in surface water runoff
- Release of sediment attached to timber in stacking areas; and,
- Nutrient release.

7.5.4.2.3 Site Access

Forestry felling can occur within 0.8-1km of access points (roads & tracks) to the main forest body. Due to the small size of this site, additional access tracks or roads will not be required. This site is located adjacent an existing road network with existing entrances which will not require upgrading or alteration.

7.5.4.2.3.1 Proposed Mitigation Measures

Best practice methods related to water incorporated into the forestry management and mitigation measures have been derived from:

- Forestry Commission (2004): Forests and Water Guidelines, Fourth Edition. Publ. Forestry Commission, Edinburgh;
- Coillte (2009): Forest Operations & Water Protection Guidelines;
- Forest Service (Draft): Forestry and Freshwater Pearl Mussel Requirements – Site Assessment and Mitigation Measures; and,
- Forest Service (2000): Forestry and Water Quality Guidelines. Forest Service, DAF, Johnstown Castle Estate, Co. Wexford.

Mitigation measures which will reduce the risk of entrainment of suspended solids and nutrient release in surface watercourses comprise best practice methods which are set out as follows:

- Machine combinations will be chosen which are most suitable for ground conditions at the time of excavation and felling, and which will minimise surrounding soils disturbance;
- Where possible, existing drains will not be disturbed during drainage works;
- Drains and sediment traps will be installed during ground preparation and felling. Collector drains will be excavated at an acute angle to the contour (~0.3%-3% gradient), to minimise flow velocities. Main drains to take the discharge from collector drains will include water drops and rock armour, as required, where there are steep gradients, and should avoid being placed at right angles to the contour;
- Drains and silt traps will be maintained throughout all planting works, ensuring that they are clear of sediment build-up and are not severely eroded. Correct drain alignment, spacing and depth will ensure that erosion and sediment build-up are minimized and controlled;

Buffer Zones

There is a requirement in the Forest Service Code of Practice and in the FSC Certification Standard for the installation of buffer zones adjacent to aquatic zones at planting stage. Minimum buffer zone widths recommended in the Forest Service (2000) guidance document '*Forestry and Water Quality Guidelines*', as shown in Table 7.2 above.

7.5.4.2.3.2 Residual Impact

Indirect, slight, short term, low probability impact.

7.5.4.2.4 Potential Release of Hydrocarbons During Drainage Works

Pathway: Groundwater flow paths and site drainage network.
Receptor: Groundwater and surface water.

Potential Impact: Indirect, negative, slight, temporary, medium probability impact to surface water quality.
Indirect, negative, slight, temporary, medium probability impact to local groundwater quality.

The replanting will be carried out by hand but it may be necessary to employ one excavator to create shallow drainage channels prior to planting. There is the potential for minor leaks from the excavator.

7.5.4.2.4.1 Proposed Mitigation Measures

Mitigation measures proposed to avoid release of hydrocarbons at the site are as follows:

- Maintenance will not be carried out on site.
- Fuels will not be stored on site.
- The plant used will be regularly inspected for leaks and fitness for purpose;

7.5.4.2.4.2 Residual Impact

Indirect, negative, imperceptible, short term, low probability impact.

7.5.4.2.5 Potential Hydrological Impacts on Designated Sites

The proposed afforestation site is located within the River Shannon catchment. There will however be no direct discharges from the site and the hydrological regime locally will not be altered by the afforestation due to its small scale.

Pathway: Surface water flow paths.
Receptor: Down-gradient water quality & designated sites.
Potential Impact: Indirect, negative, imperceptible, short term, low probability impact.

7.5.4.2.5.1 Impact Assessment and Proposed Mitigation Measures

The proposed mitigation measures which will include buffer zones and drainage control measures (*i.e.* cut off drains, tapered drains before buffer zones) will ensure that the quality of runoff from proposed development areas will be very high. The proposed development site is located in the River Shannon catchment but there are no rivers or streams adjacent the site. Runoff will discharge via the forestry drains to the existing local agricultural drainage network.

7.5.4.2.5.2 Residual Impact

No residual impacts.

7.5.5 Significance of the Effects

Based on the above, there will be no significant effects on hydrology and hydrogeology at this site.

7.6 Replanting Area 4: Glantane Beg, Co. Cork

7.6.1 Baseline Environment and Local Hydrology

Ground level elevations range between approximately 184m and 192m OD (meters above Ordnance Datum).

There are no streams or rivers within the site or adjacent the site boundary. The nearest surface water course is the river Owentarglin located approximately 92m to the north of the site flowing through the forestry already there. This flows in a south east direction .

There are numerous manmade drains within the site and surrounds that are in place predominately to drain the surrounding lands for agricultural purposes and the neighbouring forestry plantations

7.6.1.1 Water Balance

While the process of afforestation may result in a slight alteration in the water runoff of the site, the small size of the site (0.0293 km^2) when compared with the Munster Blackwater catchment (3,108 km^2) means that any potential impacts this may have would be insignificant. The afforestation will lead to an imperceptible reduction in the runoff volumes in the longer term as the trees mature.

7.6.1.2 Regional Hydrology

The site is located in the Munster Blackwater Catchment (Code:_18), and forms part of the Blackwater[Munster]_SC_120 Subcatchment (Code: 18_28). A tributary to the Owentaraglin river (OWENTARAGLIN_040) flows along the northern boundary of the site. It flows in an west to east direction, discharging into the main Owentarglin river approximately 2.5km to the south east.

7.6.1.3 Flood Risk Identification

OPW's indicative river and coastal flood map (www.floodmaps.ie), CFRAM Preliminary Flood Risk Assessment (PFRA) maps (www.cfram.ie), Department of Environment, Community and Local Government on-line planning mapping (www.myplan.ie) were consulted to identify those areas as being at risk of flooding.

No records or risks associated with flooding were identified in the published data sets.

7.6.1.4 Surface Water Hydrochemistry

Slightly acidic pH values of surface waters would be typical of peatland environments due to the decomposition of peat. In addition, the sandstone bedrock (and related till subsoils) which underlie the area would have slightly acidic groundwater characteristics which would have some effect on surface water chemistry specifically during dry periods when baseflow is likely to be more prevalent.

7.6.1.5 Hydrogeology

The underlying bedrock at the site is mapped as being sandstone and shale. (refer to Section 6 – Soils & Geology). The GSI has classified the bedrock formation here as a Locally Important Aquifers (Ll – bedrock which is moderately productive only in local zones).

7.6.1.6 Groundwater Vulnerability

The vulnerability rating of the aquifer within the site is of "Low vulnerability".

7.6.1.7 Water Framework Directive Water Body Status and Objectives

The EU Water Framework Directive aims to protect, enhance and restore all waters with aim to achieve at least good status by 2021.

Under the first cycle of the Water Framework Directive Local surface water Body status reports were available for download from www.wfdireland.ie. Local surface water body (1st and 2nd cycle) information is available for viewing from www.catchments.ie.

The proposed afforestation site is located adjacent to a tributary of the Owentaraglin (OWENTARAGLIN_040 ,2nd cycle code: IE_SW_180091200). This river was deemed to be of 'High' status and is currently not at risk.

7.6.1.8 Groundwater Body Status

Under the first cycle of the Water Framework Directive Local Groundwater Body status reports were available for download from www.wfdireland.ie. and information related to the 1st and 2nd cycles of the WFD is available at www.catchments.ie.

The proposed afforestation site lies on the Rathmore West (Code: IE_SW_G_070) groundwater body (GWB) as classified during the 2010-2015 assessment cycle. This GWB extends south to Rathmore, east to Mallow and north to Freemount. It was classified during the 2010-2015 assessment cycle as having 'Good Status' and 'Not at Risk' of not maintaining good status by 2021.

7.6.1.9 Designated Sites and Habitats

Designated sites include National Heritage Areas (NHAs), Proposed National Heritage Areas (pNHAs) Special Areas of Conservation (SACs), candidate Special Areas of Conservation (cSAC) and Special Protection Areas (SPAs). The proposed forestry development site is not located within any designated conservation-site. Designated

sites in proximity to the proposed development site are described Section 5, Flora and Fauna.

7.6.1.10 Water Resources

There is a borehole well 1km to the north of the site (name- 1109SWW054) located on agricultural land within a 2km raduis. However this well does not enter the site boundary (www.gsi.ie).

7.6.1.11 Receptor Sensitivity

Due to the nature of afforestation, being near surface construction activities, impacts on groundwater are generally negligible and surface water is generally the main sensitive receptor assessed during impact assessments. The primary risk to groundwater at the site would be from nutrients associated with fertilisers.

Based on criteria set out in Table 7.1 groundwater at the site can be classed as Sensitive to pollution because the sandstone bedrock is classified as a locally important Aquifer. However, the majority of the site is covered in peat which acts as a protective cover to the underlying aquifer. Any contaminants which may be accidently released on-site are more likely to travel to nearby streams within surface runoff.

Surface water mitigation and controls are outlined in Section 7.3 below to ensure protection of all downstream receiving waters. Mitigation measures will ensure that surface runoff from the afforested areas of the site will be of a high quality and will therefore not impact on the quality of downstream surface water bodies.

7.6.2 Proposed Site Drainage

The site will be drained in accordance with the Forestry Guidelines. Forestry plantations are generally drained by a network of mound drains which typically run perpendicular to the topographic contours of the site and feed into collector drains, which discharge to interceptor drains down-gradient of the plantation.

Mound drains are generally spaced approximately every 15m. As illustrated in Figure 2.9, Interceptor drains are generally located up-gradient (cut-off drains) and down-gradient of forestry plantations. A schematic of a typical standard forestry drainage network and one which is representative of the proposed site drainage network is shown above as Figure 2.9.

7.6.3 Proposed Drainage Management

Runoff control and drainage management are key elements in terms of mitigation against impacts on surface water bodies. Two distinct methods will be employed to manage drainage water within the proposed development. The first method involves 'keeping clean water clean' by avoiding disturbance to natural drainage features. The second method involves collecting any drainage waters from planted areas within the site that might carry silt or sediment, and nutrients, using cut off drains to control direct discharge into streams.

7.6.4 Potential Impacts

The potential impacts of the proposed development and mitigation measures that will be put in place to eliminate or reduce them are set out below.

7.6.4.1 'Do-Nothing' Scenario

The lands have been Technically Approved and will be afforested should the Meenbog wind farm proceed or not.

7.6.4.2 Likely and Significant Impacts and Associated Mitigation measures

7.6.4.2.1 Excavation of Forestry Drains and Planting

Pathways: Drainage and surface water discharge routes.
Receptors: Surface waters and associated dependent ecosystems.
Potential Impacts: Indirect, negative, slight, short term, medium probability impact.

Shallow forestry drains will be constructed using an excavator throughout the site to a similar drainage pattern as Figure 2.9. There are no surface water courses on or adjacent the site and so the drains will ultimately discharge to the existing offsite field drain networks.

Potential impacts during drain construction occur mainly from:

- Exposure of soil and subsoils due to excavation, vehicle tracking, and skidding resulting in a source of suspended sediment which can become entrained in surface water runoff and enter drains;
- Nutrient release.

7.6.4.2.2 Harvesting Operations

Pathways: Drainage and surface water discharge routes.
Receptors: Surface waters and associated dependant ecosystems.
Potential Impacts: Indirect, negative, moderate, short term, medium probability impact.

Potential impacts during tree felling occur mainly from:

- Exposure of soil and subsoils due to vehicle tracking, and skidding or forwarding extraction methods resulting in a source of suspended sediment which can become entrained in surface water runoff
- Release of sediment attached to timber in stacking areas; and,
- Nutrient release.

7.6.4.2.3 Site Access

Forestry felling can occur within 0.8-1km of access points (roads & tracks) to the main forest body. Due to the small size of this site, additional access tracks or roads will not be required. This site is located adjacent an existing road network with existing entrances which will not require upgrading or alteration.

7.6.4.2.3.1 Proposed Mitigation Measures

Best practice methods related to water incorporated into the forestry management and mitigation measures have been derived from:

- Forestry Commission (2004): Forests and Water Guidelines, Fourth Edition. Publ. Forestry Commission, Edinburgh;
- Coillte (2009): Forest Operations & Water Protection Guidelines;
- Forest Service (Draft): Forestry and Freshwater Pearl Mussel Requirements – Site Assessment and Mitigation Measures; and,
- Forest Service (2000): Forestry and Water Quality Guidelines. Forest Service, DAF, Johnstown Castle Estate, Co. Wexford.

Mitigation measures which will reduce the risk of entrainment of suspended solids and nutrient release in surface watercourses comprise best practice methods which are set out as follows:

- Machine combinations will be chosen which are most suitable for ground conditions at the time of excavation and felling, and which will minimise surrounding soils disturbance;
- Where possible, existing drains will not be disturbed during drainage works;
- Drains and sediment traps will be installed during ground preparation and felling. Collector drains will be excavated at an acute angle to the contour (~0.3%-3% gradient), to minimise flow velocities. Main drains to take the discharge from collector drains will include water drops and rock armour, as required, where there are steep gradients, and should avoid being placed at right angles to the contour;
- Drains and silt traps will be maintained throughout all planting works, ensuring that they are clear of sediment build-up and are not severely eroded. Correct drain alignment, spacing and depth will ensure that erosion and sediment build-up are minimised and controlled;

Buffer Zones

There is a requirement in the Forest Service Code of Practice and in the FSC Certification Standard for the installation of buffer zones adjacent to aquatic zones at planting stage. Minimum buffer zone widths recommended in the Forest Service (2000) guidance document "*Forestry and Water Quality Guidelines*" are shown in Table 7.2 above.

7.6.4.2.3.2 Residual Impact

Indirect, slight, short term, low probability impact.

7.6.4.2.4 Potential Release of Hydrocarbons during drainage works

Pathway: Groundwater flow paths and site drainage network.
Receptor: Groundwater and surface water.
Potential Impact: Indirect, negative, slight, temporary, medium probability impact to surface water quality.
Indirect, negative, slight, temporary, medium probability impact to local groundwater quality.

The replanting will be carried out by hand but it may be necessary to employ one excavator to create shallow drainage channels prior to planting. There is the potential for minor leaks from the excavator.

7.6.4.2.4.1 Proposed Mitigation Measures:

Mitigation measures proposed to avoid release of hydrocarbons at the site are as follows:

- Maintenance will not be carried out on site.
- Fuels will not be stored on site.
- The plant used will be regularly inspected for leaks and fitness for purpose;

7.6.4.2.4.2 Residual Impact

Indirect, negative, imperceptible, short term, low probability impact.

7.6.4.2.5 Potential Hydrological Impacts on Designated Sites

The proposed afforestation site is located within the Mal Bay catchment. There will however be no direct discharges from the site and the hydrological regime locally will not be altered by the afforestation due to its small scale.

Pathway: Surface water flow paths.
Receptor: Down-gradient water quality & designated sites.
Potential Impact: Indirect, negative, imperceptible, short term, low probability impact.

7.6.4.2.5.1 Impact Assessment & Proposed Mitigation Measures

The proposed mitigation measures which will include buffer zones and drainage control measures (*i.e.* cut off drains, tapered drains before buffer zones) will ensure that the quality of runoff from proposed development areas will be very high. The proposed development site is located in the Mal Bay catchment. There could potentially be an "*imperceptible, short term, low probability impact*" on local streams and rivers but this would be very localised and over a very short time period (*i.e.* hours).

7.6.4.2.5.2 Residual Impact

No residual impacts.

7.6.5 Significance of the Effects

Based on the above, there will be no significant effects on hydrology and hydrogeology at this site.

8 LANDSCAPE AND VISUAL

8.1 Introduction

This section of the report addresses the landscape and visual impacts of the proposed replanting areas at Ballyduff Beg and Mologha, Co Clare and Claraghatlea and Glantane Beg, Co. Cork. It includes a description of the relevant County Council landscape policy for each site and describes the sites' landscape values and sensitivity. The landscape of each area is described in terms of its character, which includes a description of landform and landcover. An impact assessment of the proposed replanting is then undertaken. Documents consulted include:

- *'Landscape and Landscape Assessment: Consultation Draft of Guidelines for Planning Authorities'* (Department of the Environment and Local Government 2000)
- *'Guidelines for Landscape and Visual Impact Assessment'* (The Landscape Institute/Institute of Environmental Management & Assessment, 2013)
- *'Forestry and the Landscape Guidelines'* (Forest Service, 2000)

8.1.1 Baseline Landscape Assessment Methodology

In order to carry out this assessment, a desk study was undertaken which identified relevant policies and guidelines, both at national and local level. This includes policies on forestry, landscape and landscape character, designated landscapes, and scenic routes. Maps and up to date aerial images of the proposed replanting sites were also studied.

8.2 Replanting Area 1: Ballyduff Beg, Co. Clare

8.2.1 Landscape Policy Context

This section of the report refers to the Clare County Development Plan 2017 – 2023 and the Landscape Character Assessment of County Clare, as well as to the Forest Service Landscape Guidelines.

8.2.1.1 Clare County Development Plan 2017-2023

8.2.1.1.1 Forestry Policy and Objectives

Section 13 of the Clare County Development Plan (Rural Development and Natural Resources) deals with policies and objectives relating to forestry. The Plan refers to the forestry sector as the largest and most readily available biomass resource and also refers to the scope for wood to replace dependence on fossil fuels, as well as potential economic and social gains. The Plan notes that approximately 14% of the land area of Clare County is under afforestation, which is above the National average, and also notes its role as a carbon sink. The policies are listed in Chapter 3.

8.2.1.1.2 Landscape Policies and Objectives

Section 16 of the Clare County Development Plan sets out the objectives required to sustainably manage the diverse landscape throughout Clare, and includes objectives as they relate to the different landscapes throughout the County. Objectives for the future planning of rural areas in County Clare have been developed by considering the County to comprise three types of areas or 'Living Landscapes', which are illustrated on Map 16A of the Clare County Development Plan 2011 and comprise Settled

Landscapes, Working Landscapes and Heritage Landscapes. The replanting site lies within a Settled Landscape.

Uses envisaged by the Plan within Settled Landscapes, include agriculture, energy, forestry, extraction, transportation, industry and commerce, tourism, recreation and leisure, education, healthcare and social infrastructure.

8.2.1.1.3 Scenic Routes

Section 16.5 of the County Development Plan addresses Scenic Routes. Objective CDP 16.6 of the Plan states it is an objective of Clare County Council:

- To protect sensitive areas from inappropriate development while providing for development and change that will benefit the rural community;
- To ensure that proposed developments take into consideration their effects on views from the public road towards scenic features or areas and are designed and located to minimise their impact;
- To ensure that appropriate standards of location, siting, design, finishing and landscaping are achieved."

Appendix 7 of the County Development Plan lists 35 routes within the county which are designated as Scenic Routes. The proposed replanting site at Ballyduff Beg is not located along or adjacent to a scenic route.

8.2.1.1 Landscape Character Assessment of County Clare

The current Development Plan has a revised policy approach called Clare's Living Landscapes, as described above. The Landscape Character Assessment of County Clare (2003) identifies 26 Landscape Types as well as 21 Landscape Character Areas.

The proposed replanting site is located within the Landscape Character Area (LCA) 16 Cullenagh River Farmlands, in Landscape Type 26 uplands. This LCA is described as an area of intact rural landscape that has few detractors. The low drumlins, streams, loughs and river valleycombined with hedgegrows help create a diverse and well-wooded landscape. This area is influenced by the Cullenagh river valley and drumlin farmland, and is framed by Sliabh Callan to the south, Kilnamona High Drumlin land to the north and eastwards beyond Kilmaley.

The principles for landscape management include careful consideration of siting and planting regime of new forestry plantations, in small scale irregular plantations with a good proportion of deciduous trees and recommend irregular edges which follow the landform and a varied age structure.

8.2.1.2 Forestry and the Landscape Guidelines

The Forest Service have produced the '*Forestry and the Landscape Guidelines'* (Forest Service, 2000) which provide recommendations on forest planning and design which aim to ensure that the proposed forest is sympathetic to the landscape character if the location. The Guidelines identify scenarios for four main types of landscape character:

- Rolling Moorland
- Rolling Fertile Farmland
- Drumlins
- Mountain and Farmland complex

The Ballyduff Beg site is best described as Rolling Fertile Farmland. The relatively small size of the area to be replanted conforms to the recommendations in the Guidelines for this landscape type.

The Ballyduff Begsite has been granted Technical Approval for afforestation. The Technical Approval document for this site includes as a condition that all Forest Service guidelines will apply to afforestation at this location. In addition, the document specifies the approved species to be planted on the site this being mostly Sitka Spruce and some alternate broadleaf species. Hedgerows are to be retained where possible. There are three houses in proximity to the site, but the proposed replanting area is set back from these in accordance with the Guidelines.

8.2.2 Baseline Landscape

8.2.2.1 Landscape Character

The topography, vegetation and anthropological features on the land surface in an area combine to set limits on the amount of the landscape that can be seen at any one time. These physical restrictions form individual areas or units, known as physical units, whose character can be defined by aspect, slope, scale and size. A physical unit is generally delineated by topographical boundaries and is defined by landform and landcover.

The site is located directly to the south east to the town of Inagh. and the topography of the site ranges from above 58 metres to approximately 69 metres O.D. The National Road N85 and the Inagh River run by the west of the site. The surrounding countryside to the site is composed of rolling hills with a mixture of farmland and forestry.

Landcover on the subject site itself is currently composed of wet agricultural grassland which comprises several fields, and a number of hedgerows. The boundaries of the proposed replanting site follow the field patterns. Landcover in the areas surrounding is composed of a mixture of coniferous plantations, and agricultural fields.

The proposed replanting area which has been given technical approval is 14.51 hectares (ha). This represents a relatively large area of cover, and is similar in size to the plantations to the east and west of the site.

The proposed replanting site is located within the Mal Bay catchment. There are no surface water features on the site.

8.2.2.2 Landscape Sensitivity

The sensitivity of a landscape to development and therefore to change varies according to its character and to the importance that is attached to any combination of landscape values. The sensitivity of a landscape is derived from consideration of designations such as Special Protection Areas (SPAs), Special Areas of Conservation (SACs), Natural Heritage Areas (NHAs) and National Parks, from information such as tourist maps, guidebooks and brochures, and from the evaluation of indicators such as uniqueness, popularity, distinctiveness, and quality of the elements of the area.

A desktop assessment of landscape sensitivity in the vicinity of the proposed replanting site was carried out. The methodology for this assessment was based on that set out in the Department of the Environment and Local Government (DoEHLG) guidance document *'Landscape and Landscape Assessment – Consultation Draft of Guidelines for Planning Authorities'* (2000). This document recommends an assessment of

landscape sensitivity based on an evaluation of individual features, such as the quality, integrity, etc. The results of the assessment are presented in Table 8.1.

Table 8.1 Ballyduff Beg Site: Landscape Sensitivity

Feature	Description
Quality	The quality of the landscape in this area can be described as modified due to agriculture and forestry plantations.
Integrity	The current development site has been modified by the interaction of man with the environment.
Distinctiveness	There are no distinctive features on the site.
Popularity	A sense of popularity is created where landscape features are widely recognised or appreciated. There are no popular features on the proposed replanting site.
Rarity	There are no Natura 2000 sites within the vicinity of the site
Cultural Meaning	A sense of cultural meaning arises where a site or features within a site are deemed to explain, represent or inspire cultural values. There are no archaeological monuments close to the site and none within the site.
Sense of Public Ownership & Social Importance	A sense of public ownership arises due to ease of accessibility, visibility or a widely shared meaning. The site is privately owned and has no special social importance.

The proposed replanting site is therefore considered to be of low landscape sensitivity.

8.2.2.3 Landscape Context and Site Visibility

Views towards the site would be upwards towards the sloping ground from the N85, and the hill that lies to the east of the road will partially block views from the main area to be afforested.

8.2.3 Impact Assessment

8.2.3.1 'Do-Nothing' Scenario

The lands have been Technically Approved and will be afforested should the Meenbog wind farm proceed or not, with a mixture of Sitka Spruce and broadleaves.

8.2.3.2 Site Preparation and Planting Phase

8.2.3.2.1 Impacts on Landscape Character – Temporary Imperceptible Neutral Impact

The planting of the forestry will entail site works in terms of woody weed clearance construction of forestry drains. The forestry drains are to be mound drains where deemed necessary along contours, or at most at a 30% acute angle to the contours, as outlined in the Conditions in the Technical Approval Document. Mitigation measures for the construction of the drainage and planting methods have been included as indicated in the Technical Document, and as a mitigation measure the planting method will be pit planting and mound drains constructed. The proposed replanting will be carried out in line with the recommendations of the Forestry and the Landscape Guidelines. These activities will be have a temporary neutral impact on the landscape character which is a rural working landscape with a mixture of agricultural and forestry land uses. A neutral impact is a change which does not affect the quality of the environment (EPA, 2002). The site clearance and replanting activities will assimilate well into the receiving environment, and are therefore classed as an imperceptible impact, i.e. an impact capable of measurement but without noticeable consequences.

8.2.3.2.2 Impacts on Visual Amenity - Long Term Imperceptible Neutral Impact

The proposed replanting is to be carried out in an area where there are already existing conifer plantations among agricultural fields, and therefore the proposed replanting is not introducing a new land use but conforming to an established one. The predicted residual visual impact of the proposed replanting is Long Term, Imperceptible Neutral Impact.

8.2.3.3 Operational Phase

8.2.3.3.1 Impacts on Landscape Character – Long Term Imperceptible Neutral Impact

The proposed replanting is to be carried out in an area where there are already existing conifer plantations among agricultural fields, and therefore the proposed replanting is not introducing a new land use but conforming to an established one and contributing to the patchwork of forestry plantations with open land. The predicted residual visual impact of the proposed replanting is Long Term, Imperceptible Neutral Impact.

8.2.3.3.2 Impacts on Visual Amenity - Long Term Imperceptible Neutral Impact

The proposed replanting is to be carried out in an area where there are already existing conifer plantations among agricultural fields, and therefore the proposed replanting is not introducing a new land use but conforming to an established one and contributing to the patchwork of forestry plantations with open land. Felling will be carried out in accordance with the *Forestry and the Landscape* Guidelines. The predicted residual visual impact of the proposed replanting is Long Term, Imperceptible Neutral Impact.

8.2.4 Proposed Mitigation Measures

The forestry drains are to be mound drains where deemed necessary along contours, or at most at a 30% acute angle to the contours, as outlined in the Conditions in the Technical Approval Document. Mitigation measures for the construction of the drainage and planting methods have been included as indicated in the Technical Document, and as a mitigation measure the planting method will be pit planting and mound drains constructed.

8.2.5 Residual Impacts

Following mitigation, the Residual Impact on Landscape Character will be Long Term Imperceptible Neutral Impact while the Residual Impact on Visual Amenity will be Long Term Imperceptible Neutral Impact.

8.2.6 Cumulative Impacts

Cumulative impacts are described as additional changes to the landscape or visual amenity caused by the proposed development in conjunction with other developments or actions that occurred in the past, present or are likely to occur in the foreseeable future. The cumulative impact assessment is based on the Planning History search carried out and described in Section 2 and the existing landuses. The cumulative impact arising from the proposed replanting in conjunction with the existing forestry plantations in the immediate vicinity and future development is assessed as Long Term, Imperceptible Neutral Impact. The cumulative impact of the proposed replanting site is assessed as Long Term Imperceptible Neutral Impact.

8.3 Replanting Area 2: Mologha, Co. Clare

8.3.1 Landscape Policy Context

8.3.1.1 Clare County Development Plan 2014 – 2020

This section of the report refers to the Clare County Development Plan 2017 – 2023 and the Landscape Character Assessment of County Clare, as well as to the Forest Service Landscape Guidelines.

8.3.1.2 Landscape Character Assessment of County Clare 2017

8.3.1.2.1 Landscape Character Areas

The Mologha site is located within Landscape Character Area 18: Shannon Estuary Farmland. This LCA is described as being a prominently ridged landscape, with linear hills aligned south-west to north-west. Secluded areas interspersed with more open views. Coastal fringe is flatter and slopes down towards the sea. There is a comples pattern of pasture, woodland and scrub habitats

8.3.1.3 Forestry and the Landscape Guidelines

The Forest Service *'Forest and the Landscape Guidelines'* identify scenarios for four main types of landscape character, as described in Section 8.2.1.2 above. The Mologha site is best described as Rolling Fertile Farmland. The Guidelines advocate planting separate adjacent forests on this landscape type to create larger areas of cover, which is what the proposed replanting will achieve in conjunction with the adjacent plantations. In addition, the document specifies the approved species to be planted on the site.

The Landscape Recommendations for Forest Harvesting for this landscape type are detailed in Section 8.2.1.3 above.

The Mologha site has been granted Technical Approval for afforestation. The Technical Approval document for each site includes as a condition that all Forest Service guidelines will apply to afforestation at these locations. In addition, the document specifies the approved species to be planted on the sites.

8.3.2 Baseline Environment

8.3.2.1 Landscape Character

The proposed replanting site at Mologha is located adjacent to a local road. To the southeast of the site across the road, lies a large area of coniferous forestry, and this is a feature of the wider landscape. The site is bordered by agricultural grassland. Field boundaries are evident. The site lies at between 30 and 45metres OD and is relatively flat.

The site is located within the Shannon Estuary North Catchment. The northern boundary of the Mologha site is delineated by a tributary of the Knockerry East. There are no surface water features located on the Mologha site.

8.3.2.2 Landscape Sensitivity

A desktop assessment of landscape sensitivity of the site has been carried out, as per the methodology described in Section 8.2.2.2 above. The Results are shown in Table 8.2.

Table 8.2 Mologha Site: Landscape Sensitivity

Feature	Description
Quality	The quality of the landscape of the proposed replanting area has been modified by forestry and agriculture in the surrounding area.
Integrity	The proposed replanting sites have been modified by the interaction of man with the environment, primarily in the form of coniferous forestry and agriculture as well as turf cutting.
Distinctiveness	There are a number of ringforts in the surrounding landscape but there are none on the site itself. The nearest one is across the local road adjacent to the site.
Popularity	A sense of popularity is created where landscape features are widely recognised or appreciated. There are no such features on these sites.
Rarity	The proposed replanting properties are not considered to represent a rare or unique landscape type, at a local or regional scale. Neither property is located within a designated ecological area. The closest Natura 2000 site, i.e. Special Area of Conservation (SAC) or Special Protection Area (SPA), is the Lower River Shannon SAC and SPA, located approximately 3.4 kilometres south of the Mologha site, at its nearest point.
Cultural Meaning	A sense of cultural meaning arises where a site or features within a site are deemed to explain, represent or inspire cultural values. The site has a recorded archaeological monument on site (Barrow).
Sense of Public Ownership & Social Importance	A sense of public ownership arises due to ease of accessibility, visibility or a widely shared meaning. The proposed replanting sites are located on privately owned land and there is no sense of public ownership pertaining to either site.

The proposed replanting sites are therefore considered to be of low landscape sensitivity.

8.3.2.3 Landscape Context and Site Visibility

The Mologha site is visible from the local road which passes adjacent to the site, while intermittent vegetation partially screens views.

8.3.3 Impact Assessment

8.3.3.1 'Do-Nothing' Scenario

The lands have been Technically Approved and will be afforested should the Meenbog wind farm proceed or not.

8.3.3.2 Site Preparation and Planting Phase

8.3.3.2.1 Impacts on Landscape Character – Temporary Imperceptible Neutral Impact

The planting of forestry will entail site works in terms of construction of forestry drains and the use of the slit planting technique. These activities will be have a temporary imperceptible neutral impact on the landscape character, which is that of a rural working landscape with a mixture of agricultural and forestry land uses. A neutral

impact is a change which does not affect the quality of the environment (EPA, 2002). The site clearance and replanting activities will assimilate well into the receiving environment, and are therefore classed as an imperceptible impact, i.e. an impact capable of measurement but without noticeable consequences.

8.3.3.2.2 Impacts on Visual Amenity - Temporary Imperceptible Neutral Impact

The proposed replanting is to be carried out in an area where there are already existing conifer plantations among agricultural fields, and therefore the proposed replanting is not introducing a new land use but conforming to an established one. The predicted visual impact of the proposed replanting is therefore a Long Term, Imperceptible Neutral Impact.

8.3.3.3 Operational Phase

8.3.3.3.1 Impacts on Landscape Character – Long Term Imperceptible Neutral Impact

The proposed replanting is to be carried out in an area where there are already existing conifer plantations among agricultural fields, and therefore the proposed replanting is contributing to the patchwork of forestry plantations. The predicted impact of the proposed replanting on landscape character is a Long Term, Imperceptible Neutral Impact.

8.3.3.3.2 Impacts on Visual Amenity - Long Term Neutral Imperceptible Impact

The proposed replanting is to be carried out in an area where there are already existing conifer plantations among agricultural fields, and therefore the proposed replanting is not introducing a new land use but conforming to an established one and contributing to the patchwork of forestry plantations within open land. Felling will be carried out in accordance with the *Forestry and the Landscape* Guidelines. The predicted long-term visual impact of the proposed replanting is therefore a Long Term, Imperceptible Neutral Impact.

8.3.4 Proposed Mitigation Measures

Mitigation measures for the construction of the drainage and planting methods have been included in the Technical Approval document. The planting method will be slit planting and mound drains will be constructed. The proposed replanting will be carried out in line with the recommendations of the Forestry and the Landscape Guidelines. Archaeological mitigation measures specified for the Barrow are contained in the Technical Approval Document.

8.3.5 Residual Impacts

Following mitigation, the Residual Impact on Landscape Character will be Long Term Imperceptible Neutral Impact while the Residual Impact on Visual Amenity will be Long Term Imperceptible Neutral Impact.

8.3.6 Cumulative Impacts

Cumulative impacts are described as additional changes to the landscape or visual amenity caused by the proposed development in conjunction with other developments or actions that occurred in the past, present or are likely to occur in the foreseeable future. The cumulative impact assessment is based on the Planning History search carried out and described in Section 2 and the existing landuses. The cumulative impact of the proposed Molougha replanting site is assessed as Long Term Imperceptible Neutral Impact.

8.4 Replanting Area 3: Claraghatlea North, Co. Cork

8.4.1 Landscape Policy Context

This section of the report refers to policies of the Cork County Development Plan 2014 and the Landscape Character Assessment of Co. Cork, as well as to the Forest Service Landscape Guidelines.

8.4.1.1 Cork County Development Plan 2014

8.4.1.1.1 Landscape Policy and Objectives

The following policies relate to Landscape Character Assessment: County Development Plan Objective GI 6-1: Landscape

- Protect the visual and scenic amenities of County Cork's built and natural environment
- Landscape issues will be an important factor in all land-use proposals, ensuring that a proactive view of development is undertaken while maintaining respect for the environment and heritage generally in line with the principle of sustainability.
- Ensure that new development meets high standards of siting and design.
- Protect skylines and ridgelines from development.
- Discourage proposals necessitating the removal of extensive amounts of trees, hedgerows and historic walls or other disctinctive boundary treatments.

8.4.1.1.2 High Amenity Areas

County Cork has a number of areas designated as High Amenity Areas. The proposed replanting site is not within a High Amenity Area and is deemed a medium value landscape type.

8.4.1.2 Landscape Character Assessment of County Cork

8.4.1.2.1 Background

Chapter 13 of the County Development Plan refers to landscape character of Cork's landscape. The Landscape Character Assessment for Cork divides the county into 76 Landscape Character Areas (LCAs). This high number reflects the complexity and diversity of the entire county.

8.4.1.2.2 Landscape Character Areas

The proposed replanting area is located within LCA 11 Broad Marginal Middleground Valley, in the north-west of the county near the Kerry border. This landscape is characterized by its relative evenness of terrain across the broad shallow valley of the river Balckwater, fed by several tributaries draining the higher ground to the north and the south.

There are a number of landscape recommendation policies relating to this area, and the relevant policies are listed below:

- Ensure that additional conifer planting is at a small scale and is in sympathy with the landscape. Plantations and replantations should be planned and managed in a way that enhances the landscape and should be set back from peaks and ridges.

- Minimise distrurbance of hedgerows in rural areas and encourage appropriate landscaping and screen planting of proposed developments by introducing deciduous edges to existing conifer plantations to soften their appearance. New plantations should respect landscaoe pattern (see forestry guidelines)

8.4.1.2.3 Landscape Value

8.4.1.3 Forestry and the Landscape Guidelines

The Forest Service *'Forest and the Landscape Guidelines'* identify scenarios for four main types of landscape character, as described in Section 8.2.1.2 above. The Claraghatlea site is best described as Rolling Fertile Farmland, although the landscape appears almost flat or gently sloping. This Guidelines describe this landscape type as follows:

> *This landscape type is a man-made 'working landscape'. The rolling hills are characterised by a patchwork of clearly defined fields with farmsteads and houses scattered throughout. These fields are typically under pasture or tillage. The scale of the landscape is usually relatively enclosed. Soil fertility should allow broadleaf plantations, with a potential for silvicultural systems other than clearfelling.*

For this landscape character type, the Guidelines recommend certain approaches to the planning and design of the plantation. Forest planning considerations include size, arrangement, location, and for this landscape type, small to medium forests, and coverage which is are dispersed as opposed to extensive are recommended. The proposed replanting site is of similar scale to existing forestry plantations to the northwest of the site and is not extensive. Forest design considerations include shape, pattern, proportion, edge, margin, colour and texture. Hedgerows are to be retained where possible.

The proposed replanting site has been awarded Technical Approval for forestry and requires compliance with Departmental Guidelines including Landscape and Harvesting Guidelines. In addition, the Technical Approval document specifies the species to be planted. The proposed replanting area is in proximity to an existing dwelling and a setback distance as outlined in the Guidelines will be observed.

Landscape Recommendations for Forest Harvesting: For this landscape type, the Guidelines recommend:

> *"Clearfelling in farmland and drumlins is typically not as sensitive as it is on moorland. The sense of landscape utility through farming activities lends an ethos of human process and change, thus increasing acceptability."*

8.4.2 Baseline Environment

8.4.2.1 Landscape Character

The topography, vegetation and anthropological features on the land surface in an area combine to set limits on the amount of the landscape that can be seen at any one time. These physical restrictions form individual areas or units, known as physical units, whose character can be defined by aspect, slope, scale and size. A physical unit is generally delineated by topographical boundaries and is defined by landform and landcover.

The proposed replanting site occupies 18.7 hectares, and lies within an area of approximately 100 metres OD, and is generally flat. The landcover of the proposed replanting site is peatland with a conifer plantation already present along its eastern border. There are hedgerows around the site boundary and only one hedgerow within the site. The landcover of the surrounding fields consists of agricultural grassland to the south, while to the northwest there are patches of peat cover with some open fields in between. Land uses in the area are mainly agricultural. Roadside vegetation is plentiful and reduces long distance views.

The Owenagloo river runs along the northern edge of the site for approximately 300 meters.

8.4.2.2 Landscape Sensitivity

A desktop assessment of landscape sensitivity of the site has been carried out, as per the methodology described in Section 8.2.2.2 above. The Results are shown in Table 8.3.

Table 8.3 Claraghatlea North, Co. Cork: Landscape Sensitivity

Feature	Description
Quality	The quality of the landscape of the proposed site and its immediate environs can be described as modified.
Integrity	The current development site has been modified by the interaction of man with the environment, primarily in the form of agriculture and in the wider area, commercial forestry.
Distinctiveness	There is no particular feature of distinctiveness on the site or in the immediate area.
Popularity	A sense of popularity is created where landscape features are widely recognised or appreciated. There are no such features on this site.
Rarity	The site is located within a designated ecological area. The closest Natura 2000 site, i.e. Special Area of Conservation (SAC) or Special Protection Area (SPA), is the Blackwater river (Cork/Waterford) SAC, which is located withing the northern boundary of the site.
Cultural Meaning	A sense of cultural meaning arises where a site or features within a site are deemed to explain, represent or inspire cultural values. There are no recorded sites or monuments located within or around this site. The nearest recorded features are a series of ringforts in the surrounding countryside.
Sense of Public Ownership & Social Importance	A sense of public ownership arises due to ease of accessibility, visibility or a widely shared meaning. This is privately owned land and there is no sense of public ownership.

8.4.2.3 Landscape Context and Site Visibility

Views from and around the site are restricted due to intermittent roadside vegetation.

8.4.3 Impact Assessment

8.4.3.1 'Do-Nothing' Scenario

The lands have been Technically Approved and will be afforested should the Meenbog wind farm proceed or not.

8.4.3.2 Site Preparation and Planting Phase

8.4.3.2.1 Impacts on Landscape Character –Temporary Imperceptible Neutral Impact

The planting of forestry will entail site works in terms of woody weed clearance and construction of forestry drains and the use of the slit planting technique. These activities will be have a temporary neutral impact on the landscape character, which is that of a rural working landscape with a mixture of agricultural and forestry land uses. A neutral impact is a change which does not affect the quality of the environment (EPA, 2002). The site clearance and replanting activities will assimilate well into the receiving environment, and are therefore classed as an imperceptible impact, i.e. an impact capable of measurement but without noticeable consequences.

8.4.3.2.2 Impacts on Visual Amenity - Temporary Imperceptible Neutral Impact

The proposed replanting is to be carried out in an area where there are already existing conifer plantations among agricultural fields, and therefore the proposed replanting is not introducing a new land use but conforming to a locally established one. The predicted visual impact of the proposed replanting is therefore a Long Term, Imperceptible Neutral Impact.

8.4.3.3 Operational Phase

8.4.3.3.1 Impacts on Landscape Character – Long Term Imperceptible Neutral Impact

The proposed replanting is to be carried out in an area where there are already existing conifer plantations to the northwest, among agricultural fields, and therefore the proposed replanting is contributing to the patchwork of forestry plantations. The predicted impact of the proposed replanting on landscape character is a Long Term, Imperceptible Neutral Impact.

8.4.3.3.2 Impacts on Visual Amenity - Long Term Imperceptible Neutral Impact

The proposed replanting is to be carried out in an area where there are already existing conifer plantations among agricultural fields, and therefore the proposed replanting is not introducing a new land use but conforming to an established one and contributing to the patchwork of forestry plantations within open land. Felling will be carried out in accordance with the *Forestry and the Landscape* Guidelines. The predicted long-term visual impact of the proposed replanting is therefore a Long Term, Imperceptible Neutral Impact.

8.4.4 Proposed Mitigation Measures

8.4.4.1 Site Preparation and Planting Phase

Mitigation measures for the construction of the drainage and planting methods have been included in the Technical Approval document. The planting method will be slit planting and mound drains will be constructed. The proposed replanting will be carried out in line with the recommendations of the Forestry and the Landscape Guidelines.

8.4.5 Residual Impacts

Following mitigation, the Residual Impact on Landscape Character will be Long Term Imperceptible Neutral Impact while the Residual Impact on Visual Amenity will be Long Imperceptible Term Neutral Impact.

8.4.6 Cumulative Impacts

Cumulative impacts are described as additional changes to the landscape or visual amenity caused by the proposed development in conjunction with other developments

or actions that occurred in the past, present or are likely to occur in the foreseeable future. The cumulative impact assessment is based on the Planning History search carried out and described in Section 2 and the existing land-uses. The cumulative impact arising from the proposed replanting in conjunction with the existing forestry plantations and future development is assessed as Long Term, Imperceptible Neutral Impact.

8.5 Replanting Area 4: Glantane Beg, Co. Cork

8.5.1 Landscape Policy Context

This section of the report refers to policies of the Cork County Development Plan 2014 and the Landscape Character Assessment of Co. Cork, as well as to the Forest Service Landscape Guidelines.

8.5.1.1 Cork County Development Plan 2014

8.5.1.1.1 Landscape Policy and Objectives

The following policies relate to Landscape Character Assessment: County Development Plan Objective GI 6-1: Landscape

- Protect the visual and scenic amenities of County Cork's built and natural environment
- Landscape issues will be an important factor in all land-use proposals, ensuring that a proactive view of development is undertaken while maintaining respect for the environment and heritage generally in line with the principle of sustainability.
- Ensure that new development meets high standards of siting and design.
- Protect skylines and ridgelines from development.
- Discourage proposals necessitating the removal of extensive amounts of trees, hedgerows and historic walls or other disctinctive boundary treatments.

8.5.1.1.2 High Amenity Areas

County Cork has a number of areas designated as High Amenity Areas. The proposed replanting site is not within a High Amenity Area and is deemed a high value landscape type.

8.5.1.2 Landscape Character Assessment of County Cork

8.5.1.2.1 Background

Chapter 13 of the County Development Plan refers to landscape character of Cork's landscape. The Landscape Character Assessment for Cork divides the county into 76 Landscape Character Areas (LCAs). This high number reflects the complexity and diversity of the entire county.

8.5.1.2.2 Landscape Character Areas

The proposed replanting area is located within LCA 11 Broad Marginal Middleground Valley, in the north-west of the county near the Kerry border. This landscape is characterized by its relative evenness of terrain across the broad shallow valley of the river Balckwater, fed by several tributaries draining the higher ground to the north and the south.

There are a number of landscape recommendation policies relating to this area, and the relevant policies are listed below:

- Ensure that additional conifer planting is at a small scale and is in sympathy with the landscape. Plantations and replantations should be planned and managed in a way that enhances the landscape and should be set back from peaks and ridges.

- Minimise distrurbance of hedgerows in rural areas and encourage appropriate landscaping and screen planting of proposed developments by introducing deciduous edges to existing conifer plantations to soften their appearance. New plantations should respect landscaoe pattern (see forestry guidelines)

8.5.1.2.3 Landscape Value

8.5.1.3 Forestry and the Landscape Guidelines

The Forest Service *'Forest and the Landscape Guidelines'* identify scenarios for four main types of landscape character, as described in Section 8.2.1.2 above. The Glantane Beg site is best described as Rolling Fertile Farmland, although the landscape appears almost flat or gently sloping. This Guidelines describe this landscape type as follows:

> *This landscape type is a man-made 'working landscape'. The rolling hills are characterised by a patchwork of clearly defined fields with farmsteads and houses scattered throughout. These fields are typically under pasture or tillage. The scale of the landscape is usually relatively enclosed. Soil fertility should allow broadleaf plantations, with a potential for silvicultural systems other than clearfelling.*

For this landscape character type, the Guidelines recommend certain approaches to the planning and design of the plantation. Forest planning considerations include size, arrangement, location, and for this landscape type, small to medium forests, and coverage which is are dispersed as opposed to extensive are recommended. The proposed replanting site will be filling in a gap in the existing forestry plantation to the north of the site. Forest design considerations include shape, pattern, proportion, edge, margin, colour and texture. Hedgerows are to be retained where possible.

The proposed replanting site has been awarded Technical Approval for forestry and requires compliance with Departmental Guidelines including Landscape and Harvesting Guidelines. In addition, the Technical Approval document specifies the species to be planted. The proposed replanting area is in proximity to an existing dwelling and a setback distance as outlined in the Guidelines will be observed.

Landscape Recommendations for Forest Harvesting: For this landscape type, the Guidelines recommend:

"Clearfelling in farmland and drumlins is typically not as sensitive as it is on moorland. The sense of landscape utility through farming activities lends an ethos of human process and change, thus increasing acceptability."

8.5.2 Baseline Environment

8.5.2.1 Landscape Character

The topography, vegetation and anthropological features on the land surface in an area combine to set limits on the amount of the landscape that can be seen at any one time. These physical restrictions form individual areas or units, known as physical units, whose character can be defined by aspect, slope, scale and size. A physical unit is generally delineated by topographical boundaries and is defined by landform and landcover.

The proposed replanting site occupies 2.93 hectares, and lies within an area of approximately 185 metres OD, and is generally flat. The landcover of the proposed replanting site is peatland with a conifer plantation already present along its northern and southern border. There are hedgerows around the site boundary and only one hedgerow within the site. The landcover of the surrounding fields consists of a patchwork of agricultural grassland, peatland and coniferous plantations. Land uses in the area are mainly agricultural. Roadside vegetation is plentiful and reduces long distance views.

8.5.2.2 Landscape Sensitivity

A desktop assessment of landscape sensitivity of the site has been carried out, as per the methodology described in Section 8.2.2.2 above. The Results are shown in Table 8.4.

Table 8.4 Glantane Beg, Co. Cork: Landscape Sensitivity

Feature	Description
Quality	The quality of the landscape of the proposed site and its immediate environs can be described as modified.
Integrity	The current development site has been modified by the interaction of man with the environment, primarily in the form of commercial forestry and in the wider area agriculture.
Distinctiveness	There is no particular feature of distinctiveness on the site or in the immediate area.
Popularity	A sense of popularity is created where landscape features are widely recognised or appreciated. There are no such features on this site.
Rarity	The site is not located within a designated ecological area. The closest Natura 2000 site, i.e. Special Area of Conservation (SAC) or Special Protection Area (SPA), is the Blackwater river (Cork/Waterford) SAC, which is located 3km to the east of the site.
Cultural Meaning	A sense of cultural meaning arises where a site or features within a site are deemed to explain, represent or inspire cultural values. There are no recorded sites or monuments located within or around this site. The nearest recorded features are a series of standing stones 1km to the east of the site.

Feature	Description
Sense of Public Ownership & Social Importance	A sense of public ownership arises due to ease of accessibility, visibility or a widely shared meaning. This is privately owned land and there is no sense of public ownership.

8.5.2.3 Landscape Context and Site Visibility

Views from and around the site are restricted due to intermittent roadside vegetation.

8.5.3 Impact Assessment

8.5.3.1 'Do-Nothing' Scenario

The lands have been Technically Approved and will be afforested should the Meenbog wind farm proceed or not.

8.5.3.2 Site Preparation and Planting Phase

8.5.3.2.1 Impacts on Landscape Character –Temporary Imperceptible Neutral Impact

The planting of forestry will entail site works in terms of woody weed clearance and construction of forestry drains and the use of the slit planting technique. These activities will be have a temporary neutral impact on the landscape character, which is that of a rural working landscape with a mixture of agricultural and forestry land uses. A neutral impact is a change which does not affect the quality of the environment (EPA, 2002). The site clearance and replanting activities will assimilate well into the receiving environment, and are therefore classed as an imperceptible impact, i.e. an impact capable of measurement but without noticeable consequences.

8.5.3.2.2 Impacts on Visual Amenity - Temporary Imperceptible Neutral Impact

The proposed replanting is to be carried out in an area where there are already existing conifer plantations among agricultural fields, and therefore the proposed replanting is not introducing a new land use but conforming to an established one. The predicted visual impact of the proposed replanting is therefore a Long Term, Imperceptible Neutral Impact.

8.5.3.3 Operational Phase

8.5.3.3.1 Impacts on Landscape Character – Long Term Imperceptible Neutral Impact

The proposed replanting is to be carried out in an area where there are already existing conifer plantations to the northwest, among agricultural fields, and therefore the proposed replanting is contributing to the patchwork of forestry plantations. The predicted impact of the proposed replanting on landscape character is a Long Term, Imperceptible Neutral Impact.

8.5.3.3.2 Impacts on Visual Amenity - Long Term Imperceptible Neutral Impact

The proposed replanting is to be carried out in an area where there are already existing conifer plantations among agricultural fields, and therefore the proposed replanting is not introducing a new land use but conforming to an established one and contributing to the patchwork of forestry plantations within open land. Felling will be carried out in accordance with the *Forestry and the Landscape* Guidelines. The predicted long-term visual impact of the proposed replanting is therefore a Long Term, Imperceptible Neutral Impact.

8.5.4 Proposed Mitigation Measures

8.5.4.1 Site Preparation and Planting Phase

Mitigation measures for the construction of the drainage and planting methods have been included in the Technical Approval document. The planting method will be slit planting and mound drains will be constructed. The proposed replanting will be carried out in line with the recommendations of the Forestry and the Landscape Guidelines.

8.5.5 Residual Impacts

Following mitigation, the Residual Impact on Landscape Character will be Long Term Imperceptible Neutral Impact while the Residual Impact on Visual Amenity will be Long Imperceptible Term Neutral Impact.

8.5.6 Cumulative Impacts

Cumulative impacts are described as additional changes to the landscape or visual amenity caused by the proposed development in conjunction with other developments or actions that occurred in the past, present or are likely to occur in the foreseeable future. The cumulative impact assessment is based on the Planning History search carried out and described in Section 2 and the existing land-uses. The cumulative impact arising from the proposed replanting in conjunction with the existing forestry plantations and future development is assessed as Long Term, Imperceptible Neutral Impact.

9 CULTURAL HERITAGE

9.1 Introduction

This section presents the results of an archaeological and cultural heritage impact assessment for the proposed afforestation of the proposed replanting areas.

The purpose of this section is to assess the potential impacts of the afforestation on the surrounding archaeological, architectural and cultural heritage landscape. An assessment of potential impacts is presented and a number of mitigation measures are recommended where appropriate.

9.2 Methodology

A desk-based study of the proposed replanting areas was undertaken in order to assess the archaeological, architectural and cultural heritage potential of the area and to identify constraints or features of archaeological/cultural heritage significance within or adjacent to the sites. Each of the proposed sites have been Technically Approved for afforestation which will be completed in accordance with the *Forestry and Archaeology Guidelines'* (2000) (Guidelines). The guidelines provide specific mitigation measures to be employed for afforestation which will minimise potential impacts on this resource.

9.2.1 Statutory Context

9.2.1.1 Current Legislation

Archaeological monuments are safeguarded through national and international policy, which is designed to secure the protection of the cultural heritage resource. This is undertaken in accordance with the provisions of the European Convention on the Protection of the Archaeological Heritage (Valletta Convention). This was ratified by Ireland in 1997.

Both the National Monuments Acts 1930 to 2004 and relevant provisions of the Cultural Institutions Act 1997 are the primary means of ensuring protection of archaeological monuments, the latter of which includes all man-made structures of whatever form or date. There are a number of provisions under the National Monuments Acts which ensure protection of the archaeological resource. These include the Register of Historic Monuments (1997 Act) which means that any interference to a monument is illegal under that Act. All registered monuments are included on the Record of Monuments and Places (RMP).

The Record of Monuments and Places (RMP) was established under Section 12 (1) of the National Monuments (Amendment) Act 1994 and consists of a list of known archaeological monuments and accompanying maps. The Record of Monuments and Places affords some protection to the monuments entered therein. Section 12 (3) of the 1994 Amendment Act states that any person proposing to carry out work at or in relation to a recorded monument must give notice in writing to the Minister (Environment, Heritage and Local Government) and shall not commence the work for a period of two months after having given the notice. All proposed works, therefore, within or around any archaeological monument are subject to statutory protection and legislation (National Monuments Acts 1930-2004).

Under the Heritage Act (1995) architectural heritage is defined to include *'all structures, buildings, traditional and designed, and groups of buildings including street-scapes and urban vistas, which are of historical, archaeological, artistic, engineering, scientific, social or technical interest, together with their setting, attendant grounds, fixtures, fittings and contents…'*. A heritage building is also defined to include *'any building, or part thereof, which is of significance because of its intrinsic architectural or artistic quality or its setting or because of its association with the commercial, cultural, economic, industrial, military, political, social or religious history of the place where it is situated or of the country or generally'*.

9.2.1.2 Granada Convention

The Council of Europe, in Article 2 of the 1985 Convention for the Protection of the Architectural Heritage of Europe (Granada Convention), states that *'for the purpose of precise identification of the monuments, groups of structures and sites to be protected, each member State will undertake to maintain inventories of that architectural heritage'*. The Granada Convention emphasises the importance of inventories in underpinning conservation policies.

The National Inventory of Architectural Heritage (NIAH) was established in 1990 to fulfill Ireland's obligations under the Granada Convention, through the establishment and maintenance of a central record, documenting and evaluating the architectural heritage of Ireland. Article 1 of the Granada Convention establishes the parameters of this work by defining *'architectural heritage'* under three broad categories of Monument, Groups of Buildings, and Sites:

- **Monument**: all buildings and structures of conspicuous historical, archaeological, artistic, scientific, social or technical interest, including their fixtures and fittings;
- **Group of buildings**: homogeneous groups of urban or rural buildings conspicuous for their historical, archaeological, artistic, scientific, social or technical interest, which are sufficiently coherent to form topographically definable units;
- **Sites**: the combined works of man and nature, being areas which are partially built upon and sufficiently distinctive and homogenous to be topographically definable, and are of conspicuous historical, archaeological, artistic, scientific, social or technical interest.

The Council of Europe's definition of architectural heritage allows for the inclusion of structures, groups of structures and sites which are considered to be of significance in their own right, or which are of significance in their local context and environment. The NIAH believes it is important to consider the architectural heritage as encompassing a wide variety of structures and sites as diverse as post boxes, grand country houses, mill complexes and vernacular farmhouses.

9.2.2 Desktop Assessment

A primary cartographic source and base-line data for the archaeological assessment was the consultation of the Sites and Monuments Record (SMR) and Record of Monuments and Places (RMP) through the electronic database of recorded monuments which may be accessed at www.archaeology.ie. All known recorded archaeological monuments are indicated on 6 inch Ordnance Survey (OS) maps and are listed in this record.

The following sources were consulted for this assessment report:

- Electronic database of recorded monuments (www.archaeology.ie)
- Aerial photographs (copyright of Ordnance Survey Ireland (OSI.ie)

9.2.2.1 Recorded Monuments and Places

The Sites and Monuments Record (SMR) and Record of Monuments and Places (RMP) is a record of all known recorded archaeological monuments. The SMR/RMP is not a complete record of all monuments as newly discovered sites may not appear in the list or accompanying maps. In conjunction with the consultation of the SMR and RMP, the electronic database of recorded monuments which may be accessed at www.archaeology.ie was consulted.

Aerial Photograph Analysis

Aerial photographs of the sites were examined and no previously unrecorded archaeological features could be seen. Sources included Bing, Google Maps and Ordnance Survey of Ireland.

9.2.3 Archaeology

Archaeological heritage is a non-renewable resource. The overall objective of this assessment of impacts of the proposed development is to ensure that where a potential impact has been identified, that it can be mitigated against to ensure that the archaeological heritage will be available for future generations. The potential impacts on the recorded archaeological heritage are assessed here.

Potential impact are assessed on the basis of the impact classification terminology outlined in Table 1.1 of the EIS, with the significance of impacts being defined as either imperceptible, slight, moderate, significant or profound, or if no impact is predicted to occur, 'No Impact'.

9.2.4 Potential Impacts

Potential afforestation impacts include direct destruction of recorded and unrecorded sites and indirect impacts on archaeological potential of nearby sites.

9.3 Replanting Area 1: Ballyduff Beg, Co. Clare

9.3.1 Existing Environment

9.3.1.1 Recorded Monuments within the Study Area

There are no recorded archaeological features on or in the vicinity of the study site. The Electronic database of recorded monuments (www.archaeology.ie) was used to compile a list of known sites which occur in the vicinity of the site.

The nearest recorded features are a rigfort, located approximately 1km to the north-east of the site.

9.3.2 Potential Impacts

9.3.2.1 'Do-Nothing' Scenario

The lands have been Technically Approved and will be afforested should the Meenbog wind farm proceed or not.

9.3.2.2 Potential Direct Impacts on the Archaeological Heritage

Direct Impact refers to a 'physical impact' on a monument. The afforestation will require some minor earthmoving activities such as drainage and the provision of access tracks. Harvesting will require tree felling.

There are no recorded monuments on the site and therefore there will be no direct impacts.

9.3.2.3 Potential Indirect Impacts on the Archaeological Heritage

Potential indirect impacts may arise where a monument or area of archaeological potential is situated in relative close proximity to a proposed development but is not directly (physically) affected by the development. In such cases the impact on the setting of the monument or views to and from it are assessed.

There are no recorded monuments in the vicinity of the site and therefore there will be no indirect impacts.

9.3.2.4 Cumulative Impacts

There will be no cumulative impact associated with the afforestation of the site as there are no features close to the site. A planning history search of applications in the vicinity of the proposed replanting lands has also been carried out, as described in Section 3.2 of this report. There are no developments located in the vicinity of the site that would give rise to cumulative impacts in conjunction with the proposed on features of cultural heritage significance.

9.3.3 Significance of the Effects

Based on the above, there will be no significant effects, on cultural heritage or archaeology, associated with afforestation the at this site.

9.4 Replanting Area 2:Mologha, Co. Clare

9.4.1 Existing Environment

9.4.1.1 Recorded Monuments within the Study Area

There are no recorded monuments located within the site at Mologha. The Electronic database of recorded monuments (www.archaeology.ie) was used to compile a list of known sites which occur within (and adjacent to) the Mologha site. There are a number of ringforts in the vicinity of the study site with the closest one beng 300 meters to the east of the site. A Holy Well can be found 600 meters to the south along with church ruins to the east of the well.

9.4.2 Potential Impacts

9.4.2.1 'Do-Nothing' Scenario

The lands have been Technically Approved and will be afforested should the Meenbog wind farm proceed or not.

9.4.2.2 Potential Direct Impacts and Mitigation Measures

Direct Impact refers to a 'physical impact' on a monument. The afforestation will require some minor earthmoving activities such as drainage and the provision of access tracks. Harvesting will require tree felling.

There are no recorded monuments on the site and therefore there will be no direct impacts.

9.4.2.3 Potential Indirect Impacts and Mitigation Measures

Potential indirect impacts may arise where a monument or area of archaeological potential is situated in relative close proximity to a proposed development but is not directly (physically) affected by the development. In such cases the impact on the setting of the monument or views to and from it are assessed.

It is not expected that there will be any indirect impact on the recorded archaeological features due to the incorporated exclusion area and proposed mitigation measures described above.

9.4.2.4 Cumulative Impacts

It is not expected that there will be any cumulative impact associated with the proposed afforestation provided the project is completed in accordance with the Guidance document and employing the mitigation measures described above.

A planning history search of applications in the vicinity of the proposed replanting lands has also been carried out, as described in Section 3.2 of this report. There are no developments located in the vicinity of the site that would give rise to cumulative impacts in conjunction with the proposed on features of cultural heritage significance.

9.4.3 Significance of the Effects

Based on the above, there will be no significant effects, on cultural heritage or archaeology, associated with afforestation the at this site.

9.5 Replanting Area 3: Claraghatlea North, Co. Cork

9.5.1 Existing Environment

9.5.1.1 Recorded Monuments within the Study Area

There are no recorded archaeological features within the study site. The Electronic database of recorded monuments (www.archaeology.ie) was used to compile a list of known sites which occur in the vicinity of the site.

The nearest recorded features are ringforts surrounding the site, the nearest of which is found approximately 200 meters to the south east and 200 meters to the north.

9.5.2 Potential Impacts

9.5.2.1 'Do-Nothing' Scenario

The lands have been Technically Approved and will be afforested should the Meenbog wind farm proceed or not.

9.5.2.2 Potential Direct Impacts on the Archaeological Heritage

Direct Impact refers to a 'physical impact' on a monument. The afforestation will require some minor earthmoving activities such as drainage and the provision of access tracks. Harvesting will require tree felling.

There are no recorded monuments on the site and therefore there will be no direct impacts.

9.5.2.3 Potential Indirect Impacts on the Archaeological Heritage

Potential indirect impacts may arise where a monument or area of archaeological potential is situated in relative close proximity to a proposed development but is not directly (physically) affected by the development. In such cases the impact on the setting of the monument or views to and from it are assessed.

There are no recorded monuments in the vicinity of the site and therefore there will be no indirect impacts.

9.5.2.4 Cumulative Impacts

There will be no cumulative impact associated with the afforestation of the site as there are no features close to the site. A planning history search of applications in the vicinity of the proposed replanting lands has also been carried out, as described in Section 3.2 of this report. There are no developments located in the vicinity of the site that would give rise to cumulative impacts in conjunction with the proposed on features of cultural heritage significance.

9.5.3 Significance of the Effects

Based on the above, there will be no significant effects, on cultural heritage or archaeology, associated with afforestation the at this site.

9.6 Replanting Area 4: Glantane Beg, Co. Cork

9.6.1 Existing Environment

9.6.1.1 Recorded Monuments within the Study Area

There are no recorded archaeological features within the study site. The Electronic database of recorded monuments (www.archaeology.ie) was used to compile a list of known sites which occur in the vicinity of the site.

The nearest recorded features are standing stones located approximately 1km to the east of the study site.

9.6.2 Potential Impacts

9.6.2.1 'Do-Nothing' Scenario

The lands have been Technically Approved and will be afforested should the Meenbog wind farm proceed or not.

9.6.2.2 Potential Direct Impacts on the Archaeological Heritage

Direct Impact refers to a 'physical impact' on a monument. The afforestation will require some minor earthmoving activities such as drainage and the provision of access tracks. Harvesting will require tree felling.

There are no recorded monuments on the site and therefore there will be no direct impacts.

9.6.2.3 Potential Indirect Impacts on the Archaeological Heritage

Potential indirect impacts may arise where a monument or area of archaeological potential is situated in relative close proximity to a proposed development but is not directly (physically) affected by the development. In such cases the impact on the setting of the monument or views to and from it are assessed.

There are no recorded monuments in the vicinity of the site and therefore there will be no indirect impacts.

9.6.2.4 Cumulative Impacts

There will be no cumulative impact associated with the afforestation of the site as there are no features close to the site. A planning history search of applications in the vicinity of the proposed replanting lands has also been carried out, as described in Section 3.2 of this report. There are no developments located in the vicinity of the site that would give rise to cumulative impacts in conjunction with the proposed on features of cultural heritage significance.

9.6.3 Significance of the Effects

Based on the above, there will be no significant effects, on cultural heritage or archaeology, associated with afforestation the at this site.

10 AIR, CLIMATE AND NOISE

10.1 Air

10.1.1 Background

The primary land-uses within and in the vicinity of the 4 no. site locations comprise agriculture, forestry and some peat extraction. Due to the non-industrial nature of afforestation and the general character of the surrounding environment, air quality sampling was deemed to be unnecessary for this study. It is expected that air quality in the existing environment is good, since there are no major sources of air pollution (e.g. heavy industry) in the vicinity of the sites.

The growth of forestry has no direct atmospheric emissions. Some minor indirect emissions associated with site preparation, planting and harvesting include vehicular and dust emissions.

10.1.2 Air Quality Standards

In 1996, the Air Quality Framework Directive (96/62/EC) was published. This Directive was transposed into Irish law by the Environmental Protection Agency Act 1992 (Ambient Air Quality Assessment and Management) Regulations 1999. The Directive was followed by four Daughter Directives, which set out limit values for specific pollutants:

- The first Daughter Directive (1999/30/EC) deals with sulphur dioxide, oxides of nitrogen, particulate matter and lead.
- The second Daughter Directive (2000/69/EC) addresses carbon monoxide and benzene. The first two Daughter Directives were transposed into Irish law by the Air Quality Standards Regulations 2002 (SI No. 271 of 2002).
- A third Daughter Directive, Council Directive (2002/3/EC) relating to ozone was published in 2002 and was transposed into Irish law by the Ozone in Ambient Air Regulations 2004 (SI No. 53 of 2004).
- The fourth Daughter Directive, published in 2007, deals with polyaromatic hydrocarbons (PAHs), arsenic, nickel, cadmium and mercury in ambient air.

The Air Quality Framework Directive and the first three Daughter Directives have been replaced by the Clean Air for Europe (CAFE) Directive (Directive 2008/50/EC on ambient air quality), which encompasses the following elements:

- The merging of most of the existing legislation into a single Directive (except for the Fourth Daughter Directive) with no change to existing air quality objectives.
- New air quality objectives for $PM_{2.5}$ (fine particles) including the limit value and exposure concentration reduction target.
- The possibility to discount natural sources of pollution when assessing compliance against limit values.
- The possibility for time extensions of three years (for particulate matter PM_{10}) or up to five years (nitrogen dioxide, benzene) for complying with limit values, based on conditions and the assessment by the European Commission.

Table 10.1 below sets out the limit values of the CAFE Directive, as derived from the Air Quality Framework Daughter Directives. Limit values are presented in micrograms

per cubic metre (µg/m^3) and parts per billion (ppb). The notation PM_{10} is used to describe particulate matter or particles of ten micrometres or less in aerodynamic diameter. $PM_{2.5}$ represents particles measuring less than 2.5 micrometres in aerodynamic diameter.

Table 10.1 Limit values of Directive 2008/50/EC, 1999/30/EC and 2000/69/EC (Source: EPA)

Pollutant	Limit Value Objective	Averaging Period	Limit Value (µg/m^3)	Limit Value (ppb)	Basis of Application of Limit Value	Attainment Date
Sulphur dioxide (SO_2)	Protection of Human Health	1 hour	350	132	Not to be exceeded more than 24 times in a calendar year	1st Jan 2005
Sulphur dioxide (SO_2)	Protection of human health	24 hours	125	47	Not to be exceeded more than 3 times in a calendar year	1st Jan 2005
Sulphur dioxide (SO_2)	Protection of vegetation	Calendar year	20	7.5	Annual mean	19th Jul 2001
Sulphur dioxide (SO_2)	Protection of vegetation	1st Oct to 31st Mar	20	7.5	Winter mean	19th Jul 2001
Nitrogen dioxide (NO_2)	Protection of human health	1 hour	200	105	Not to be exceeded more than 18 times in a calendar year	1st Jan 2010
Nitrogen dioxide (NO_2)	Protection of human health	Calendar year	40	21	Annual mean	1st Jan 2010
Nitrogen monoxide (NO) and nitrogen dioxide (NO_2)	Protection of ecosystems	Calendar year	30	16	Annual mean	19th Jul 2001
Particulate matter 10 (PM_{10})	Protection of human health	24 hours	50	-	Not to be exceeded more than 35 times in a calendar year	1st Jan 2005
Particulate matter 2.5 ($PM_{2.5}$)	Protection of human health	Calendar year	40	-	Annual mean	1st Jan 2005
Particulate matter 2.5 ($PM_{2.5}$) Stage 1	Protection of human health	Calendar year	25	-	Annual mean	1st Jan 2015
Particulate matter 2.5 ($PM_{2.5}$) Stage 2	Protection of human health	Calendar year	20	-	Annual mean	1st Jan 2020
Lead (Pb)	Protection of human health	Calendar year	0.5	-	Annual mean	1st Jan 2005

Pollutant	Limit Value Objective	Averaging Period	Limit Value (µg/m³)	Limit Value (ppb)	Basis of Application of Limit Value	Attainment Date
Carbon Monoxide (CO)	Protection of human health	8 hours	10,000	8,620	-	1st Jan 2005
Benzene (C_6H_6)	Protection of human health	Calendar Year	5	1.5	-	1st Jan 2010

The Ozone Daughter Directive 2002/3/EC is different from the other Daughter Directives in that it sets target values and long-term objectives for ozone rather than limit values. Table 10.2 presents the limit and target values for ozone.

Table 10.2 Target values for Ozone Defined in Directive 2008/50/EC

Objective	Parameter	Target Value for 2010	Target Value for 2020
Protection of human health	Maximum daily 8 hour mean	120 mg/m³ not to be exceeded more than 25 days per calendar year averaged over 3 years	120 mg/m³
Protection of vegetation	AOT_{40} calculated from 1 hour values from May to July	18,000 mg/m³.h averaged over 5 years	6,000 mg/m³.h
Information Threshold	1 hour average	180 mg/m³	-
Alert Threshold	1 hour average	240 mg/m³	-

AOT_{40} is a measure of the overall exposure of plants to ozone. It is the sum of the excess hourly concentrations greater than 80 µg/m³ and is expressed as µg/m³ hours.

10.1.3 Air Quality Zones

The Environmental Protection Agency (EPA) has designated four Air Quality Zones for Ireland:

- Zone A: Dublin City and environs
- Zone B: Cork City and environs
- Zone C: 16 urban areas with population greater than 15,000
- Zone D: Remainder of the country.

These zones were defined to meet the criteria for air quality monitoring, assessment and management described in the Framework Directive and Daughter Directives. The sites for afforestation lie within Zone D, which represents rural areas located away from large population centres.

10.1.4 Likely and Significant Impacts and Associated Mitigation Measures

10.1.4.1 'Do-Nothing' Impact

The lands have been Technically Approved and will be afforested should the Meenbog wind farm proceed or not.

10.1.4.2 Long Term Slight Positive Impact

The growth of trees will result in the fixation of atmospheric carbon, and the production of oxygen.

10.1.4.3 Short-term Imperceptible Negative Impact

Some minor emissions associated with the use of an excavator for site drainage works are expected. This potential impact will not be significant and will be restricted to the duration of the drainage works.

10.1.4.3.1 Mitigation

All construction machinery will be maintained in good operational order while on-site, minimising any emissions that are likely to arise.

10.1.4.4 Short-term Imperceptible Negative Impact

Potential dust emission sources include the working of an excavator. This potential impact will not be significant and will be restricted to the duration of the drainage works.

10.1.4.4.1 Mitigation

Areas of excavation will be kept to a minimum, and all works will be carried out in accordance with the forestry service best practice guidelines described in detail in Section 2.

10.1.5 Significance of the Effects

Based on the above, there will be no significant effects, on air quality, associated with afforestation the at this site.

10.2 Climate

10.2.1 Climate Change and Greenhouse Gases

Although climate change is thought to be a natural process, the rate at which the climate is changing has been accelerated rapidly by human activities. Climate change is one of the most challenging global issues facing us today and is primarily the result of increased levels of greenhouse gases in the atmosphere. These greenhouse gases come primarily from the combustion of fossil fuels in energy use. Changing climate patterns are thought to increase the frequency of extreme weather conditions such as storms, floods and droughts. In addition, warmer weather trends can place pressure on animals and plants that cannot adapt to a rapidly changing environment. Moving away from our reliance on coal, oil and other fossil fuel-driven power plants is essential to reduce emissions of greenhouse gases and combat climate change.

10.2.1.1 The Kyoto Protocol

Ireland is a Party to the Kyoto Protocol, which is an international agreement that sets limitations and reduction targets for greenhouse gases for developed countries. It is a protocol to the United Nations Framework for the Convention on Climate Change. The Kyoto Protocol came into effect in 2005, as a result of which, emission reduction targets agreed by developed countries, including Ireland, are binding.

At Kyoto in 2007, the European Union committed to an average annual greenhouse gas (GHG) emission reduction of 8% below the 1990 levels, over the five year period 2008-2012, with the reductions to be shared between EU Member States. Ireland negotiated an increase of 13% above the 1990 level for the period 2008-2012. Other Member States committed to a reduction of more than 8% to facilitate Ireland's increase in emissions.

In Doha, Qatar, on 8th December 2012, the 'Doha Amendment to the Kyoto Protocol' was adopted. The amendment includes:

- New commitments for Annex I Parties (including Ireland) to the Kyoto Protocol who agreed to take on commitments in a second commitment period from 1 January 2013 to 31 December 2020;
- A revised list of greenhouse gases (GHG) to be reported on by Parties in the second commitment period; and
- Amendments to several articles of the Kyoto Protocol which specifically referenced issues pertaining to the first commitment period and which needed to be updated for the second commitment period.

During the first commitment period, 37 industrialised countries and the European Community committed to reduce GHG emissions to an average of five percent against 1990 levels. During the second commitment period, Parties committed to reduce GHG emissions by at least 18 percent below 1990 levels in the eight-year period from 2013 to 2020; however, the composition of Parties in the second commitment period is different from the first. Under the protocol, countries must meet their targets primarily through national measures, although market based mechanisms (such as international emissions trading can also be utilised).

10.2.2 Replanting Area 1: Ballyduff Beg, Co. Clare

10.2.2.1 Baseline Environment

County Clare has a temperate oceanic climate, resulting in mild winters and cool summers. The Met Éireann weather station at Shannon Airport is the nearest weather and climate monitoring station to the site, located approximately 26.6 kilometres south east of the site. Meteorological data recorded at Claremorris over the 30-year period from 1981-2010 is shown in Table 10.3 overleaf. The wettest months are October and December, and April is usually the driest. July is the warmest month with an average temperature of 19.8° Celsius.

Table 10.3 Data from Met Éireann Weather Station at Claremorris, 1971 to 2000 Monthly and Annual Mean and Extreme Values

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	**Year**
TEMPERATURE (degrees Celsius)													
Mean daily max	8.8	9.2	11.1	13.3	16.0	18.3	19.8	19.6	17.7	14.3	11.1	9.0	14.0
Mean daily min	3.2	3.2	4.5	5.7	8.2	10.9	12.9	12.7	10.8	8.2	5.5	3.6	7.4
Mean temperature	6.0	6.2	7.8	9.5	12.1	14.6	16.4	16.2	14.2	11.2	8.3	6.3	10.7
Absolute max.	14.8	15.5	18.3	23.5	27.2	30.2	30.6	29.8	26.1	22.3	17.6	15.3	30.6
Absolute Min.	-11.2	-5.5	-5.8	-2.3	0.2	3.6	6.7	4.4	1.7	-2.0	-6.6	-11.4	-11.4
Mean No. of Days With Air Frost	5.3	5.1	2.1	0.7	0.0	0.0	0.0	0.0	0.0	0.5	2.3	4.8	20.8
Mean No. of Days With Ground Frost	13.7	12.6	11.0	8.3	3.3	0.3	0.0	0.1	1.2	3.8	9.5	12.5	76.3
RELATIVE HUMIDITY (%)													
Mean at 0900UTC	87.1	87.0	85.0	79.8	76.3	76.8	80.0	82.1	84.7	87.0	88.9	88.4	83.6
Mean at 1500UTC	80.5	74.6	70.5	64.4	63.3	65.1	68.0	68.2	69.2	75.2	80.5	83.1	71.9
SUNSHINE (Hours)													
Mean daily duration	1.6	2.3	3.2	5.1	5.8	5.2	4.5	4.5	3.9	2.9	2.0	1.4	3.5
Greatest daily duration	8.1	10.2	11.0	13.6	15.6	15.8	15.7	14.4	12.2	10.1	8.3	7.1	15.8
Mean no. of days with no sun	9.2	6.4	5.7	2.4	1.9	2.0	2.4	2.3	2.9	5.5	7.8	11.1	59.8
RAINFALL (mm)													
Mean monthly total	102.3	76.2	78.7	59.2	64.8	69.8	65.9	82.0	75.6	104.9	94.1	104.0	977.6
Greatest daily total	38.2	29.4	28.1	40.2	25.0	40.6	39.5	51.0	52.3	36.9	26.9	41.2	52.3
Mean num. of days with >= 0.2mm	20	16	19	16	16	15	16	18	16	20	20	19	211
Mean num. of days with >= 1.0mm	16	12	14	11	12	11	12	13	12	16	15	15	159
Mean num. of days with >= 5.0mm	8	5	5	4	4	4	4	5	4	7	6	7	63
WIND (knots)													
Mean monthly speed	10.3	10.2	10.0	9.0	8.9	8.5	8.5	8.2	8.4	9.2	9.1	9.4	9.1
Max. gust	75	80	65	62	59	51	52	55	62	71	66	83	83
Max. mean 10-minute speed	52	46	44	40	37	37	38	35	40	47	41	57	57
Mean num. of days with gales	1.7	0.9	0.8	0.3	0.2	0.1	0.0	0.1	0.1	0.6	0.7	1.2	6.7
WEATHER (Mean No. of Days With:)													
Snow or sleet	2.3	2.3	1.4	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.3	8.0
Snow lying at 0900UTC	0.6	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.9
Hail	3.6	3.3	3.4	2.2	1.2	0.1	0.1	0.1	0.3	0.9	1.1	2.4	18.6
Thunder	0.9	0.5	0.4	0.3	0.5	0.5	0.8	0.4	0.2	0.4	0.4	0.5	5.7
Fog	3.3	2.0	2.1	1.9	1.5	1.4	1.4	2.0	2.9	2.9	3.9	4.2	29.6

10.2.2.2 Impact Assessment

10.2.2.2.1 Short Term Imperceptible Negative Impact

The use of machinery during the drainage works will result in the emission of greenhouse gases. Operations such as the transport of materials are typical examples of machinery use. This impact is considered to be imperceptible only, given the insignificant quantity of greenhouse gases that will be emitted. Planting will be carried out by hand.

10.2.2.2.2 Long Term Slight Positive Impact

The growth of forestry allows for the fixation of atmospheric carbon as it grows.

10.2.2.3 Proposed Mitigation Measures

Planting of trees will be carried out by hand using the slit planting method. Any drains will be constructed in accordance with the forestry service best practice guidelines described in detail in Section 2.

10.2.2.4 Residual Impacts

On balance there will be positive impacts on air and climate associated with the proposed afforestation.

10.2.3 Significance of the Effects

Based on the above, there will be no significant effects, on climate, associated with afforestation the at this site.

10.2.4 Replanting Area 2: Mologha, Co. Clare

10.2.4.1 Baseline Environment

County Clare has a temperate oceanic climate, resulting in mild winters and cool summers. The Met Éireann weather station at Shannon Airport is the nearest weather and climate monitoring station to the site, located approximately 32 kilometres east of the site. Meteorological data recorded at Shannon Airport over the 30-year period from 1981-2010 is shown above in Table 10.3. The wettest months are October and December, and April is usually the driest. July is the warmest month with an average temperature of 19.8° Celsius.

10.2.4.2 Impact Assessment

10.2.4.2.1 Short Term Imperceptible Negative Impact

The use of machinery during the drainage works will result in the emission of greenhouse gases. Operations such as the transport of materials are typical examples of machinery use. This impact is considered to be imperceptible only, given the insignificant quantity of greenhouse gases that will be emitted. Planting will be carried out by hand.

10.2.4.2.2 Long Term Slight Positive Impact

The growth of forestry allows for the fixation of atmospheric carbon as it grows.

10.2.4.3 Proposed Mitigation Measures

Planting of trees will be carried out by hand using the slit planting method. Any drains will be constructed in accordance with the forestry service best practice guidelines described in detail in Section 2 of this document.

10.2.4.4 Residual Impacts

On balance there will be positive impacts on air and climate associated with the proposed afforestation.

10.2.4.5 Significance of the Effects

Based on the above, there will be no significant effects, on climate, associated with afforestation the at this site.

10.2.5 Replanting Area 3: Claraghatlea North, Co. Cork

10.2.5.1 Baseline Environment

County Cork has a temperate oceanic climate, resulting in mild winters and cool summers. The Met Éireann weather station at Cork Airport is the nearest weather and climate monitoring station to the site, located approximately 48 kilometres south-east of the site. Meteorological data recorded at Cork Airport over the 30-year period from 1981-2010 is shown in Table 10.5 overleaf. The wettest month is October, and July is usually the driest. July is also the warmest month with an average temperature of 18.7° Celsius.

Table 10.5 Data from Met Éireann Weather Station at Cork Airport, 1981 to 2010 Monthly and Annual Mean and Extreme Values

	Jan	Feb	Mar	Ar	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	**Year**
TEMPERATURE (degrees Celsius)													
Mean daily max	8.2	8.3	9.9	11.8	14.4	17.0	18.7	18.5	16.5	13.2	10.3	8.5	12.9
Mean daily min	3.0	3.1	4.0	4.9	7.4	10.0	11.8	11.8	10.2	7.7	5.2	3.7	6.9
Mean temperature	5.6	5.7	6.9	8.4	10.9	13.5	15.3	15.2	13.3	10.5	7.8	6.1	9.9
Absolute max.	16.1	14.0	15.7	21.2	23.6	27.5	28.7	28.0	24.7	21.4	16.2	13.8	28.7
Absolute Min.	-8.0	-4.7	-4.3	-2.3	-0.9	3.7	6.7	5.3	2.3	-0.9	-3.3	-7.2	-8.0
Mean No. of Days With Air Frost	4.6	4.1	1.8	1.2	0.0	0.0	0.0	0.0	0.0	0.2	1.2	3.6	16.7
Mean No. of Days With Ground Frost	12.8	11.8	9.7	7.8	2.1	0.1	0.0	0.0	0.5	2.4	7.3	11.0	65.3
RELATIVE HUMIDITY (%)													
Mean at 0900UTC	89.8	89.4	87.8	83.1	80.6	81.3	83.2	85.4	88.4	90.1	90.7	90.5	86.7
Mean at 1500UTC	83.7	78.9	75.5	71.3	70.9	71.5	72.9	72.8	75.4	80.4	83.4	85.4	76.8
SUNSHINE (Hours)													
Mean daily duration	1.8	2.4	3.3	5.3	6.2	5.8	5.4	5.2	4.3	3.0	2.3	1.7	3.9
Greatest daily duration	8.5	10.0	11.5	13.6	15.5	16.0	15.3	14.4	11.9	10.3	8.7	7.6	16.0
Mean no. of days with no sun	10.1	7.9	6.3	3.1	2.1	2.5	2.0	2.6	3.6	6.4	8.6	11.9	67.1
RAINFALL (mm)													
Mean monthly total	131.4	97.8	97.6	76.5	82.3	80.9	78.8	96.8	94.6	138.2	120.0	133.1	1227.9
Greatest daily total	45.7	49.9	55.2	34.2	34.9	59.7	73.2	60.9	58.9	52.1	47.9	41.9	73.2
Mean num. of days with >= 0.2mm	20	17	19	16	15	14	15	15	16	19	19	19	204
Mean num. of days with >= 1.0mm	16	13	14	11	12	10	10	11	11	15	14	15	152
Mean num. of days with >= 5.0mm	9	6	5	5	5	5	5	5	5	8	7	8	73
WIND (knots)													
Mean monthly speed	12.1	12.0	11.6	10.3	10.1	9.4	9.0	9.0	9.4	10.7	10.9	11.6	10.5
Max. gust	78	83	70	62	59	49	57	54	58	75	66	80	65.9
Max. mean 10-minute speed	52	54	43	40	40	33	40	38	39	48	46	56	44.1
Mean num. of days with gales	2.3	1.8	1.3	0.3	0.3	0.0	0.1	0.2	0.3	1.0	1.2	1.9	10.8
WEATHER (Mean No. of Days With:)													
Snow or sleet	3.1	3.1	2.0	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.3	2.2	11.3
Snow lying at 0900UTC	0.7	0.5	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	2.0
Hail	1.0	1.1	1.4	1.9	0.7	0.2	0.1	0.0	0.1	0.3	0.2	0.4	7.4
Thunder	0.2	0.1	0.1	0.1	0.6	0.5	0.8	0.3	0.0	0.4	0.1	0.1	3.3
Fog	7.8	6.8	8.5	7.5	7.6	7.6	8.4	8.8	9.1	8.7	7.6	8.4	96.8

10.2.5.2 Impact Assessment

10.2.5.2.1 Short Term Imperceptible Negative Impact

The use of machinery during the drainage works will result in the emission of small amounts of greenhouse gases. This impact is considered to be imperceptible only, given the insignificant quantity of greenhouse gases that will be emitted. Planting will be carried out by hand.

10.2.5.2.2 Long Term Slight Positive Impact

The growth of forestry allows for the fixation of atmospheric carbon as it grows.

10.2.5.3 Proposed Mitigation Measures

Planting of trees will be carried out by hand using the slit planting method. Any drains will be constructed in accordance with the forestry service best practice guidelines described in detail in Section 2.

10.2.5.4 Residual Impacts

On balance there will be positive impacts on air and climate associated with the proposed afforestation.

10.2.6 Replanting Area 5: Rahalisk, Co. Cork

10.2.6.1 Baseline Environment

County Cork has a temperate oceanic climate, resulting in mild winters and cool summers. The Met Éireann weather station at Cork Airport is the nearest weather and climate monitoring station to the site, located approximately 35 kilometres south-east of the site. Meteorological data recorded at Cork Airport over the 30-year period from 1981-2010 is shown in Table 10.5 above. The wettest month is October, and July is usually the driest. July is also the warmest month with an average temperature of 18.7° Celsius.

10.2.6.2 Impact Assessment

10.2.6.2.1 Short Term Imperceptible Negative Impact

The use of machinery during the drainage works will result in the emission of small amounts of greenhouse gases. This impact is considered to be imperceptible only, given the insignificant quantity of greenhouse gases that will be emitted. Planting will be carried out by hand.

10.2.6.2.2 Long Term Slight Positive Impact

The growth of forestry allows for the fixation of atmospheric carbon as it grows.

10.2.6.3 Proposed Mitigation Measures

Planting of trees will be carried out by hand using the slit planting method. Any drains will be constructed in accordance with the forestry service best practice guidelines described in detail in Section 2.

10.2.6.4 Residual Impacts

On balance there will be positive impacts on air and climate associated with the proposed afforestation.

10.2.6.5 Significance of the Effects

Based on the above, there will be no significant effects, on climate, associated with afforestation the at this site.

10.2.7 Replanting Area 4: Glantane Beg, Co. Cork

10.2.7.1 Baseline Environment

County Cork has a temperate oceanic climate, resulting in mild winters and cool summers. The Met Éireann weather station at Cork Airport is the nearest weather and climate monitoring station to the site, located approximately 53 kilometres south-east of the site. Meteorological data recorded at Cork Airport over the 30-year period from 1981-2010 is shown in Table 10.5 above. The wettest month is October, and July is usually the driest. July is also the warmest month with an average temperature of 18.7° Celsius.

10.2.7.2 Impact Assessment

10.2.7.2.1 Short Term Imperceptible Negative Impact

The use of machinery during the drainage works will result in the emission of small amounts of greenhouse gases. This impact is considered to be imperceptible only, given the insignificant quantity of greenhouse gases that will be emitted. Planting will be carried out by hand.

10.2.7.2.2 Long Term Slight Positive Impact

The growth of forestry allows for the fixation of atmospheric carbon as it grows.

10.2.7.3 Proposed Mitigation Measures

Planting of trees will be carried out by hand using the slit planting method. Any drains will be constructed in accordance with the forestry service best practice guidelines described in detail in Section 2.

10.2.7.4 Residual Impacts

On balance there will be positive impacts on air and climate associated with the proposed afforestation.

10.2.7.5 Significance of the Effects

Based on the above, there will be no significant effects, on climate, associated with afforestation the at this site.

10.3 Noise

10.3.1 Replanting Area 1: Ballyduff Beg, Co. Clare

10.3.1.1 Receiving Environment

The nearest sensitive location to the afforestation site is the residential dwellings located adjacent to the site boundary on the north-western side at the village of Inagh. There are no dwelling houses close to the eastern and southern boundaries of the site. In general, the existing noise climate is typical of a rural agricultural location. There are existing forestry plantations located in the vicinity of the site, along with a small number of agricultural yards.

10.3.1.2 Likely and Significant Impacts and Associated Mitigation Measures

10.3.1.2.1 'Do-Nothing' Scenario

The lands have been Technically Approved and will be afforested should the Meenbog wind farm proceed or not.

10.3.1.3 Planting Phase

10.3.1.3.1 Construction Activities

Negative Imperceptible Short-term Impact

There will potentially be an increase in noise levels in the vicinity of the proposed development site during the planting phase, as a result of the use of an excavator for drainage works. These impacts will be short-term in duration and are not considered significant. The noise levels will be similar to the existing agricultural machinery in use in the vicinity of the lands which is a working rural environment. Noise at any given noise sensitive location will be variable throughout the works, depending on the distance from the excavator to the receiving properties.

Mitigation

Best practice measures for noise control will be adhered to onsite during the planting phase of the afforestation in order to mitigate the potentially imperceptible short-term negative impact associated with this phase of the development. The measures include:

- Noise will be controlled by prescribing that all work will be restricted to the specified working hours. Any work carried out outside of these hours shall be restricted to activities that will not generate noise of a level that may cause a nuisance.
- The excavator used on the site shall be well maintained and will comply with E.U. and Irish legislation in relation to noise emissions. The timing of on- and off-site movements of plant near occupied properties will be controlled.

10.3.1.4 Operational Phase

10.3.1.4.1 Negative Slight Short-term Impact

There will be an intermittent increase in noise levels in the vicinity of the proposed development site during the operational phase, as a result of the use of machinery for timber harvesting works. These impacts will be short-term in duration. Noise at any given noise sensitive location will be variable throughout the harvesting works, depending on the distance from the machinery to the receiving properties.

Mitigation

Best practice measures for noise control will be adhered to onsite during the timber harvesting at the proposed afforestation site in order to mitigate the slight short-term negative impact associated with this phase of the development. The measures include:

- Harvesting noise will be controlled by prescribing that all construction work will be restricted to the specified working hours. Any work carried out outside of these hours shall be restricted to activities that will not generate noise of a level that may cause a nuisance.
- The machinery used on the site shall be well maintained and will comply with E.U. and Irish legislation in relation to noise emissions. The timing of on- and off-site movements of plant near occupied properties will be controlled.

Residual Impacts

Potential residual impacts will be imperceptible and temporary in nature and not dissimilar to the existing noise sources of a working rural environment.

10.3.1.5 Significance of the Effects

Based on the above, there will be no significant effects, in relation to noise, associated with afforestation the at this site.

10.3.2 Replanting Area 2: , Co. Mologha, Co. Clare

10.3.2.1 Receiving Environment

The nearest sensitive location to the Mologha afforestation site are the farm dwellings. One of which is located in the middle of the replanting site . There are no dwelling houses close to the northern boundaries of the Mologha site. The nearest dwelling to the east of the site is approximately 100m across the road. There is another farmyard approximately 300m to the south-east In general, the existing noise climate is typical of a rural agricultural location. There are existing forestry plantations located in the vicinity of the sites, along with a small number of agricultural yards.

10.3.2.2 Likely and Significant Impacts and Associated Mitigation Measures

10.3.2.2.1 'Do-Nothing' Scenario

The lands have been Technically Approved and will be afforested should the Meenbog wind farm proceed or not.

10.3.2.3 Planting Phase

Negative Imperceptible Short-term Impact

There will potentially be an increase in noise levels in the vicinity of the proposed development site during the planting phase, as a result of the use of an excavator for drainage works. These impacts will be short-term in duration and are not considered significant. The noise levels will be similar to the existing agricultural machinery in use in the vicinity of the lands which is a working rural environment. Noise at any given noise sensitive location will be variable throughout the works, depending on the distance from the excavator to the receiving properties.

Mitigation

Best practice measures for noise control will be adhered to onsite during the planting phase of the afforestation in order to mitigate the potentially imperceptible short-term negative impact associated with this phase of the development. The measures include:

- Noise will be controlled by prescribing that all work will be restricted to the specified working hours. Any work carried out outside of these hours shall be restricted to activities that will not generate noise of a level that may cause a nuisance.
- The excavator used on the site shall be well maintained and will comply with E.U. and Irish legislation in relation to noise emissions. The timing of on- and off-site movements of plant near occupied properties will be controlled.

10.3.2.4 Operational Phase

Negative Slight Short-term Impact

There will be an intermittent increase in noise levels in the vicinity of the proposed development site during the operational phase, as a result of the use of machinery for timber harvesting works. These impacts will be short-term in duration. Noise at any given noise sensitive location will be variable throughout the harvesting works, depending on the distance from the machinery to the receiving properties.

Mitigation

Best practice measures for noise control will be adhered to onsite during the timber harvesting at the proposed afforestation site in order to mitigate the slight short-term negative impact associated with this phase of the development. The measures include:

- Harvesting noise will be controlled by prescribing that all construction work will be restricted to the specified working hours. Any work carried out outside of these hours shall be restricted to activities that will not generate noise of a level that may cause a nuisance.
- The machinery used on the site shall be well maintained and will comply with E.U. and Irish legislation in relation to noise emissions. The timing of on- and off-site movements of plant near occupied properties will be controlled.

Residual Impacts

Potential residual impacts will be imperceptible and temporary in nature and not dissimilar to the existing noise sources of a working rural environment.

10.3.3 Replanting Area 3: Claraghatlea North, Co. Cork

10.3.3.1 Receiving Environment

The nearest sensitive location to the afforestation site are the residential dwellings located approximately 150 to 200 meters to the south of the site boundary along the R582 road. There is one small farmstead across the Owennagleo to the North approximately 270 meters from the site boundary. In general, the existing noise climate is typical of a rural agricultural location. There are existing forestry plantations located in the vicinity of the site, along with a number of agricultural yards.

10.3.3.2 Likely and Significant Impacts and Associated Mitigation Measures

10.3.3.2.1 'Do-Nothing' Scenario

The lands have been Technically Approved and will be afforested should the Meenbog wind farm proceed or not.

10.3.3.3 Planting Phase

Negative Imperceptible Short-term Impact

There will potentially be an increase in noise levels in the vicinity of the proposed development site during the planting phase, as a result of the use of an excavator for drainage works. These impacts will be short-term in duration and are not considered potentially significant. The noise levels will be similar to the existing agricultural machinery in use in the vicinity of the lands which is a working rural environment. Noise at any given noise sensitive location will be variable throughout the works, depending on the distance from the excavator to the receiving properties.

Mitigation

Best practice measures for noise control will be adhered to onsite during the planting phase of the afforestation in order to mitigate the potentially imperceptible short-term negative impact associated with this phase. The measures include:

- Noise will be controlled by prescribing that all work will be restricted to the specified working hours. Any work carried out outside of these hours shall be restricted to activities that will not generate noise of a level that may cause a nuisance.
- The excavator used on the site shall be well maintained and will comply with E.U. and Irish legislation in relation to noise emissions. The timing of on- and off-site movements of plant near occupied properties will be controlled.

10.3.3.4 Operational Phase

Negative Slight Short-term Impact

There will be an intermittent increase in noise levels in the vicinity of the proposed development site during the operational phase, as a result of the use of machinery for timber harvesting works. These impacts will be short-term in duration. Noise at any given noise sensitive location will be variable throughout the harvesting works, depending on the distance from the machinery to the receiving properties.

Mitigation

Best practice measures for noise control will be adhered to onsite during the timber harvesting at the proposed afforestation site in order to mitigate the slight short-term negative impact associated with this phase of the development. The measures include:

- Harvesting noise will be controlled by prescribing that all work will be restricted to the specified working hours. Any work carried out outside of these hours shall be restricted to activities that will not generate noise of a level that may cause a nuisance.
- The machinery used on the site shall be well maintained and will comply with E.U. and Irish legislation in relation to noise emissions. The timing of on- and off-site movements of plant near occupied properties will be controlled.

10.3.3.4.1 Residual Impacts

Potential residual impacts will be imperceptible and temporary in nature and not dissimilar to the existing noise sources of a working rural environment.

10.3.3.5 Significance of the Effects

Based on the above, there will be no significant effects, in relation to noise, associated with afforestation the at this site.

10.3.4 Replanting Area 4: Glantane Beg, Co. Cork

10.3.4.1 Receiving Environment

The Glantane Beg site is located in the corner of an established conifer plantation. The local road that runs along the western boundary of the site has farm dwellings and residential dwellings along it, the closest of which is approximately 100 meters to the south. In general, the existing noise climate is typical of a rural agricultural location. The replanting site is part of a large forestry plantation itself and many more can be found in the surrounding countryside.

10.3.4.2 Likely and Significant Impacts and Associated Mitigation Measures

10.3.4.2.1 'Do-Nothing' Scenario

The lands have been Technically Approved and will be afforested should the Meenbog wind farm proceed or not.

10.3.4.3 Planting Phase

Negative Imperceptible Short-term Impact

There will potentially be an increase in noise levels in the vicinity of the proposed development site during the planting phase, as a result of the use of an excavator for drainage works. These impacts will be short-term in duration and are not considered potentially significant. The noise levels will be similar to the existing agricultural machinery in use in the vicinity of the lands which is a working rural environment. Noise at any given noise sensitive location will be variable throughout the works, depending on the distance from the excavator to the receiving properties.

Mitigation

Best practice measures for noise control will be adhered to onsite during the planting phase of the afforestation in order to mitigate the potentially imperceptible short-term negative impact associated with this phase. The measures include:

- Noise will be controlled by prescribing that all work will be restricted to the specified working hours. Any work carried out outside of these hours shall be restricted to activities that will not generate noise of a level that may cause a nuisance.
- The excavator used on the site shall be well maintained and will comply with E.U. and Irish legislation in relation to noise emissions. The timing of on- and off-site movements of plant near occupied properties will be controlled.

10.3.4.4 Operational Phase

Negative Slight Short-term Impact

There will be an intermittent increase in noise levels in the vicinity of the proposed development site during the operational phase, as a result of the use of machinery for timber harvesting works. These impacts will be short-term in duration. Noise at any given noise sensitive location will be variable throughout the harvesting works, depending on the distance from the machinery to the receiving properties.

Mitigation

Best practice measures for noise control will be adhered to onsite during the timber harvesting at the proposed afforestation site in order to mitigate the slight short-term negative impact associated with this phase of the development. The measures include:

- Harvesting noise will be controlled by prescribing that all work will be restricted to the specified working hours. Any work carried out outside of these hours shall be restricted to activities that will not generate noise of a level that may cause a nuisance.
- The machinery used on the site shall be well maintained and will comply with E.U. and Irish legislation in relation to noise emissions. The timing of on- and off-site movements of plant near occupied properties will be controlled.

10.3.4.4.1 Residual Impacts

Potential residual impacts will be imperceptible and temporary in nature and not dissimilar to the existing noise sources of a working rural environment.

10.3.4.5 Significance of the Effects

Based on the above, there will be no significant effects, in relation to noise, associated with afforestation the at this site.

11 POPULATION AND HEALTH

This section of the report describes the potential impacts of the proposed afforestation on human beings, and has been completed in accordance with the guidance set out by the Environmental Protection Agency in '*Guidelines on Information to be contained in Environmental Impact Statements*' (EPA, 2000).

One of the principle concerns in the development process is that people, as individuals or communities, should experience no diminution in their quality of life from the direct or indirect impacts arising from the construction and operation of a development. Ultimately, all the impacts of a development impinge on human beings, directly and indirectly, positively and negatively. The key issues examined in this section of the Further Information Response document include population, employment, health and safety, land-use, residential amenity, community facilities and services, and tourism.

11.1 Replanting Area 1: Ballyduff Beg, Co. Clare

11.1.1 Baseline Environment

11.1.1.1 Population

The proposed replanting lands at Ballyduff Beg are located at the south-east of Inagh village, Co. Clare. The site is located within the District Electoral Division (DED) of Formoyle. Population data for the formoyle DED has been sourced from the results of the Census of Ireland 2011, as provided on the Central Statistics Office website, www.cso.ie. Population data for Formoyle DED and Co. clare are presented in Table 11.1.

Table11.1 Population 2002 – 2011 (Source: CSO)

Area	Population			% Population Change	
	2002	2006	2011	2002-2006	2006-2011
Formoyle DED	175	187	219	6.8%	11.7%
Co. Clare	103,333	110,950	117,196	7.4%	5.6%

The population of Formoyle DED recorded during the 2011 Census was 219 persons. The population density of the DED at this time was 9 persons per square kilometre, based on a total DED area of 24 square kilometres. This is almost 4 times as low as the population density of County Clare as a whole during the 2011 Census, which equates to 34 persons per square kilometre, based on the County area of 3,450 square kilometres.

The population of Formoyle DED grew by 6.8% between the 2002 and 2006 Censuses. This increased to a growth of 11.7% between the 2006 and 2011 Censuses. The rate of population growth within Formoyle DED between the most recent Censuses has been slightly above the average rate of population growth within the County as a whole.

The number of households recorded within formoyle DED during the 2011 Census was 77 households. The proposed replanting site is located adjacent to the N85 National Secondary Road. The overall level of residential development within a kilometre of this site is low, with intermittent houses located along the N85. The village of Inagh lies to

the north-west of the site but lies in a different DED. This is the largest dwelling location near the site.

11.1.1.2 Employment

Socio-economic grouping divides the population into categories depending on the level of skill or educational attainment required. The 'Higher Professional' category includes scientists, engineers, solicitors, town planners and psychologists. The 'Lower Professional' category includes teachers, lab technicians, nurses, journalists, actors and driving instructors. Skilled occupations are divided into 'Manual Skilled', such as bricklayers and building contractors; 'Semi-skilled', e.g. roofers and gardeners; and 'Unskilled', which includes construction labourers, refuse collectors and window cleaners.

Figure 11.1 below presents the Employment by Socio-Economic Group figures for Formoyle DED and Co. Clare, as recorded during the 2011 Census.

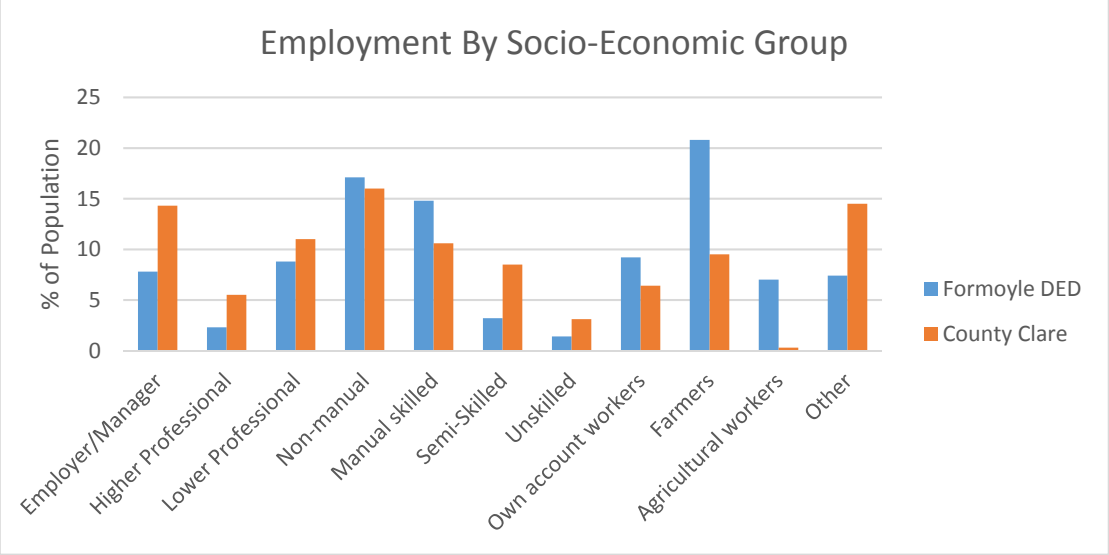

Figure 11.1 Employment by Socio-Economic Group (Source: CSO)

Overall, the socio-economic grouping results for formoyle DED are in line with those recorded within the County as a whole. The highest level of employment within the DED are within the 'Farmer', 'Non-manual' and 'Manual Skilled' categories. The biggest difference between DED and County results is observed within the 'Agricultural ' category; approximately 7% of the DED population are employed within this grouping, compared to approximately 0.3% of the overall County population.

The CSO figures for socio-economic grouping have a limitation of including the entire population, rather than just those who are in the labour force. It is likely that this is what gives rise to the high proportion of the population shown to be in the 'Other' category.

11.1.1.3 Land-use

The current land-use on the proposed replanting area is agriculture. This site is located within a rural, working landscape in which agriculture and forestry form the primary land-uses. The site is bordered to the east by existing coniferous forestry. There is some localised peat extraction in the surrounding lands.

11.1.1.4 Community Facilities and Amenities

The nearest schools and community facilities to the proposed planting site are located in the village of Inagh, located north-east of the site. The local school and GAA pitch are located approximately half a kilometre to the west of the site.

The nearest designated walking route to the proposed replanting site is the Mid-Clare Way, which is a 130 kilometre loop walk, beginning and ending in Newmarket on Fergus. The route touches on the Burren to the north and the broad Shannon Estuary to the south. At its nearest point to the proposed replanting site, the Mid Clare Way walking route is located approximately 2.7 kilometres south-east of the site. The walking route bypasses areas of existing coniferous forestry.

11.1.1.5 Tourism

Ireland is divided into seven tourism regions. The Shannon region, in which the site of the proposed replanting site is located, comprises Counties Clare, Tipperary (North), Limerick and Offaly (West). This Region benefited from approximately 9.4% of the total number of overseas tourists to Ireland and approximately 8.5% of the total tourism income generated in Ireland in 2015, as per the latest figures available from Fáilte Ireland *('Tourism facts 2015'*, Fáilte Ireland, 2015).

There are no tourist attractions pertaining specifically to the proposed replanting site. The nearest tourist attraction is the Mid Clare Way, as described in Section 11.1.1.4 above.

11.1.2 Impact Assessment and Proposed Mitigation Measures

11.1.2.1 'Do-Nothing' Scenario

The lands have been Technically Approved and will be afforested should the Meenbog wind farm proceed or not.

11.1.2.2 Population

Afforestation of the replanting site will have no impact on population trends or population density in the vicinity of the site.

11.1.2.3 Employment

The preparation and planting of the proposed replanting lands will provide short-term employment for three people; one person to operate an excavator for installation of drainage features, and two people to plant the site by hand.

In the longer-term, maintenance and felling of the site will provide part-term employment for two people.

11.1.2.4 Health and Safety

Health and safety in forestry is the concern of all those involved, including forest owners, managers, supervisors, operators, recreational users and trespassers *('Code of Best Forest Practice'*, Forest Service, 2000). Forest practice must ensure that operations do not endanger workers and others. In the absence of the correct health and safety measures, forestry-related activities have the potential to have a significant negative effect on the health and safety of workers and members of the public, on and in the vicinity of the site.

The Forest Service's *'Code of Best Forest Practice'* states that the Safety, Health and Welfare at Work Act 1989 and the Safety, Health and Welfare at Work (General

Application) Regulations 1993 place responsibilities on all involved in work activities, and set out a basis for managing health and safety in all workplaces. Forest owners have legal responsibilities to ensure that the workplace and all articles and substances situated there are safe and free from health risk. This involves informing contractors of potential hazards, work agreements and monitoring. Employers, self-employed and employees all have clear responsibility to ensure safe working practices for themselves and others.

All Forest Service guidelines and Health and Safety legislation will be adhered to during all forestry-related activities at the proposed replanting lands. The residual potential for a significant negative impact on worker and public health and safety is therefore reduced to minimal.

11.1.2.5 Land-use

Afforestation of the proposed replanting site will result in a long-term change in use of the site, from agriculture to forestry. This change in land-use is in keeping with the character of the surrounding landscape, as forestry is already an established land-use in the area. The impact of the change in land-use is therefore neutral, i.e. a change which does not affect the quality of the environment.

11.1.2.6 Residential Amenity

Planting at the site will have a short-term, slight negative impact on the residential amenity of the dwelling located closest to the proposed replanting site. This impact will be the result of the visual impact of site activity/disturbance. In the longer term, views from this house to the west and south will be restricted by forestry. However, it is a requirement of the Technical Approval for the site that the owners of this house will be consulted in advance of planting in order to resolve any concerns they may have prior to works being carried out.

11.1.2.7 Community Facilities and Amenities

There are no community facilities or amenities located on or in the immediate vicinity of the proposed replanting lands. No walks pass directly through the site, and there will be no impact to this or any other community amenities within the area. All appropriate health and safety measures, including signage, will be adopted at the site to ensure the safety of workers and the general public.

11.1.2.8 Tourism

Afforestation of the proposed replanting lands will have no impact on tourism. There are no tourist facilities or attractions located on or in the immediate vicinity of the proposed replanting lands. Forestry is an established land-use in this area, and a common feature in the landscape.

11.1.3 Significance of the Effects

Based on the above, there will be no significant effects, on human beings, population or health, associated with afforestation the at this site.

11.2 Replanting Area 2: Mologha, Co. Clare

11.2.1 Baseline Environment

11.2.1.1 Population

The Mologha site is located approximately 4.5 east of Kilrush, Co. Clare. The site is located within the District Electoral Division (DED) of Killimer. Population data for the Killimer DED has been sourced from the results of the Census of Ireland 2011, as provided on the Central Statistics Office website, www.cso.ie. Population data for Killimer DED and Co. Clare are presented in Table 11.2.

Table11.2 Population 2002 – 2011 (Source: CSO)

Area	Population			% Population Change	
	2002	2006	2011	2002-2006	2006-2011
Killimer DED	499	482	498	-3.4%	3.3%
Co. Clare	103,333	110,950	117,196	7.4%	5.6%

The population of Killimer DED recorded during the 2011 Census was 498 persons. The population density of the DED at this time was 16.7 persons per square kilometre, based on a total DED area of 29.7 square kilometres. This is lower than the average county density of 25 persons per square kilometre, as recorded during the 2011 Census. The population of Killimer DED fell by 3.4% between the 2002 and 2006 Censuses, a contrast to the growth of overall population in the county. The DED population growth rate increased to plus 3.3% between the 2006 and 2011 Censuses.

The number of households recorded within Killimer DED during the 2011 Census was 223 households. The Mologha property is traversed by a local road, which splits the site into northern and southern sections. One farmstead is located along the local road as it traverses the site. These dwellings are referred to in the Technical Approval document for the site, which includes as a condition that adjoining house owners will be consulted in advance of planting in order to resolve any concerns they may have prior to works being carried out. The overall level of residential dwellings in the surrounding land of the site is low.

11.2.1.2 Employment

Socio-economic grouping divides the population into categories depending on the level of skill or educational attainment required, as described in Section 11.1.1.2 above. Figure 11.2 below presents the Employment by Socio-Economic Group figures for Killimer DED and Co. Clare, as recorded during the 2011 Census.

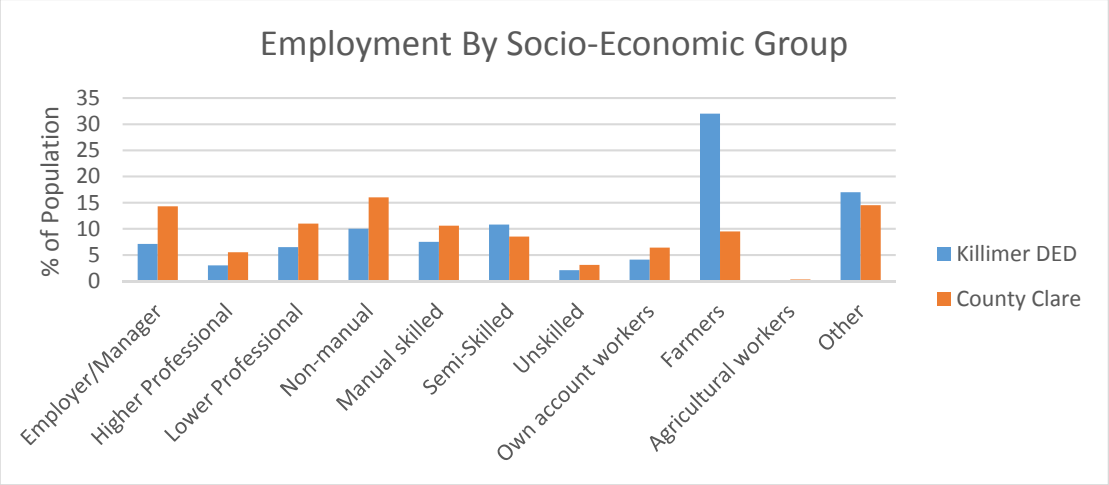

Figure 11.2 Employment by Socio-Economic Group (Source: CSO)

The highest level of employment recorded within the Baslick DED is within the 'Farmer' group. Approximately 32% of the local population works as farmers, which corresponds to the rural nature of the area. It is likely that those employed within the other categories, particularly those within the 'Professional' categories, commute to towns and villages outside the DED for work, for example to Killrush.
The CSO figures for socio-economic grouping have a limitation of including the entire population, rather than just those who are in the labour force. It is likely that this is what gives rise to the high proportion of the population shown to be in the 'Other' category.

11.2.1.3 Land-use

The current land-use on the proposed replanting lands is agriculture. These sites are located within a rural, working landscape in which agriculture and forestry form the primary land-uses. The Molougha site is not by existing coniferous forestry but there are plantations in the surrounding land.

11.2.1.4 Community Facilities and Amenities

There are no community facilities or amenities located within or in the vicinity of the proposed replanting sites. The nearest retail services, schools and community facilities to the sites are located in the town of Killrush, approximately 5.0 kilometres west of the Molougha site

There are no designated walking or cycling trails located in proximity to the Molough site.

11.2.1.5 Tourism

Ireland is divided into seven tourism regions. The Shannon region, in which the Molougha site is located, comprises Counties Clare, Tipperary (North), Limerick and Offaly (west). This Region benefited from approximately 9.4% of the total number of overseas tourists to Ireland and approximately 8.5% of the total tourism income generated in Ireland in 2015, as per the latest figures available from Fáilte Ireland (*'Tourism facts 2015'*, Fáilte Ireland, 2015).

There are no tourist attractions located in the vicinity of the proposed replanting sites. The nearest tourist attractions or facilities are located in the town of Killrush, including hotels and B&B's, Pubs, a visitor centre and the Killrush Golf Club.

11.2.2 Impact Assessment and Proposed Mitigation Measures

11.2.2.1 'Do-Nothing' Scenario

The lands have been Technically Approved and will be afforested should the Meenbog wind farm proceed or not.

11.2.2.2 Population

Afforestation of the replanting land at Mologha will have no impact on population trends or population density in the vicinity of the site.

11.2.2.3 Employment

The preparation and planting of the proposed replanting lands will provide short-term employment for three people; one person to operate an excavator for installation of drainage features, and two people to plant the site by hand.
In the longer-term, maintenance and felling of the site will provide part-term employment for two people.

11.2.2.4 Health and Safety

Health and safety in forestry is the concern of all those involved, including forest owners, managers, supervisors, operators, recreational users and trespassers *('Code of Best Forest Practice'*, Forest Service, 2000). Forest practice must ensure that operations do not endanger workers and others. In the absence of the correct health and safety measures, forestry-related activities have the potential to have a significant negative effect on the health and safety of workers and members of the public, on and in the vicinity of the site.

The Forest Service's *'Code of Best Forest Practice'* states that the Safety, Health and Welfare at Work Act 1989 and the Safety, Health and Welfare at Work (General Application) Regulations 1993 place responsibilities on all involved in work activities, and set out a basis for managing health and safety in all workplaces. Forest owners have legal responsibilities to ensure that the workplace and all articles and substances situated there are safe and free from health risk. This involves informing contractors of potential hazards, work agreements and monitoring. Employers, self-employed and employees all have clear responsibility to ensure safe working practices for themselves and others.

All Forest Service guidelines and Health and Safety legislation will be adhered to during all forestry-related activities at the proposed replanting lands. The residual potential for a significant negative impact on worker and public health and safety is therefore reduced to minimal.

11.2.2.5 Land-use

Afforestation of the proposed replanting site will result in a long-term change in use of the site, from agriculture to forestry. This change in land-use is in keeping with the character of the surrounding landscape, as forestry is already an established land-use in the area. The impact of the change in land-use is therefore neutral, i.e. a change which does not affect the quality of the environment.

11.2.2.6 Residential Amenity

Planting at the site will have a short-term, slight negative impact on the residential amenity of the dwellings located closest to the proposed replanting sites. This impact will be the result of the visual impact of site activity/disturbance. However, it is a requirement of the Technical Approval for the site that the owners of these houses will

be consulted in advance of planting in order to resolve any concerns they may have prior to works being carried out.

11.2.2.7 Community Facilities and Amenities

There are no community facilities or amenities located on or in the immediate vicinity of the proposed replanting lands. All appropriate health and safety measures, including signage, will be adopted at the site to ensure the safety of workers and the general public.

11.2.2.8 Tourism

Afforestation of the proposed replanting lands will have no impact on tourism. There are no tourist facilities or attractions located on or in the immediate vicinity of the proposed replanting lands. Forestry is an established land-use in this area, and a common feature in the landscape.

11.2.3 Significance of the Effects

Based on the above, there will be no significant effects, on human beings, population or health, associated with afforestation the at this site.

11.3 Replanting Area 3: Claraghatlea North, Co. Cork

11.3.1 Baseline Environment

11.3.1.1 Population

The proposed replanting site at Claraghatlea North is located approximately 1.4 kilometres north-west of Millstreet town. The site is located within the District Electoral Division (DED) of Coomlogane. Population data for the Clonfad DED has been sourced from the results of the Census of Ireland 2011, as provided on the Central Statistics Office website, www.cso.ie. Population data for Coomlogane DED and Co. Cork are presented in Table 11.3.

Table11.3 Population 2002 – 2011 (Source: CSO)

Area	Population			% Population Change	
	2002	2006	2011	2002-2006	2006-2011
Coomlogane DED	926	831	903	-10.25%	8.5%
Co. Cork	448,181	480,909	518,128	7.4%	7.7%

The population of Coomlogane DED recorded during the 2011 Census was 903 persons. The population density of the DED at this time was approximately 18.5 persons per square kilometre, based on a total DED area of 48.6 square kilometres. This is much lower than the population density of County Cork as a whole during the 2011 Census, which equates to 69 persons per square kilometre, based on the County area of 7,500 square kilometres.

The population of Coomlogane DED fell by 10.25% between the 2002 and 2006 Censuses. This rose to a growth of 8.5% between the 2006 and 2011 Censuses, which is above the average rate of population change (7.7%) recorded within the Country during the same period.

The number of households recorded within Coomlogane DED during the 2011 Census was 454 households. The proposed replanting site is located adjacent to the regional road R582. The overall level of residential development within a kilometre of this site

is low, with intermittent houses located along the local roads. The nearest major dwelling to the proposed replanting site is Millstreet, located approximately 1.5km to the south-east.

11.3.1.2 Employment

Socio-economic grouping divides the population into categories depending on the level of skill or educational attainment required, as described in Section 11.1.1.2 above. Figure 11.3 below presents the Employment by Socio-Economic Group figures for Coomlogane DED and Co. Cork, as recorded during the 2011 Census.

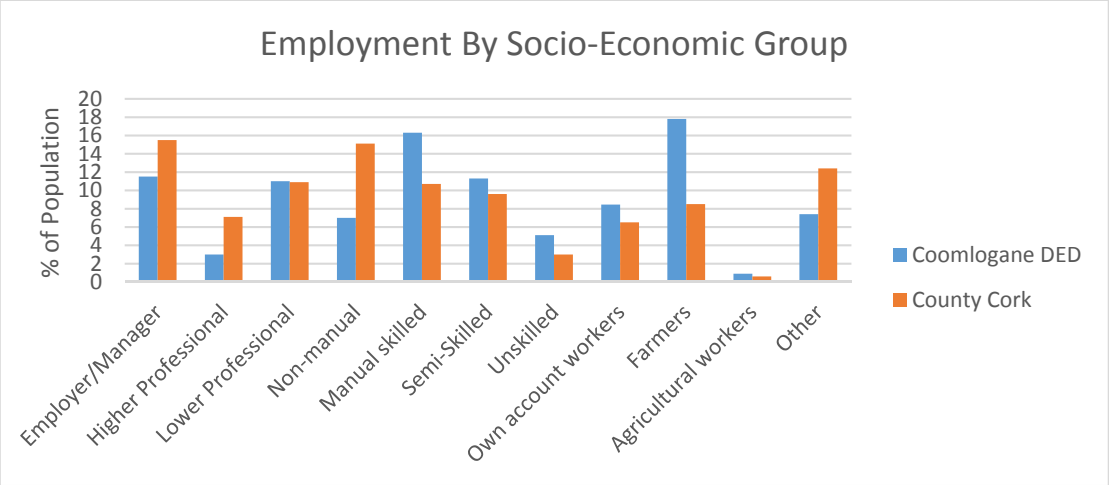

Figure 11.3 Employment by Socio-Economic Group (Source: CSO)

Overall, the socio-economic grouping results for Coomlogane DED differ slightly with those recorded within the County as a whole. The highest level of employment within the DED are within the 'Farmer', 'Manual Skilled' and 'Semi Skilled' categories.

The CSO figures for socio-economic grouping have a limitation of including the entire population, rather than just those who are in the labour force. It is likely that this is what gives rise to the high proportion of the population shown to be in the 'Other' category.

11.3.1.3 Land-use

The current land-use on the proposed replanting site is agriculture. The site is located within a rural, working landscape in which agriculture and forestry form the primary land-uses. The site is bordered to the south, west and north by agricultural grasslands. Conifer plantations border most of the eastern side, with existing coniferous forests further south. Peat extraction is also a common land-use within the wider area.

11.3.1.4 Community Facilities and Amenities

There are no community facilities or amenities located within or close to the proposed replanting site. The nearest schools and community facilities to the proposed planting site are located in the village of Millstreet, located approximately 1.5 kilometres south-east of the site.

The nearest designated walking route to the proposed replanting site is the Duhallow Way, which is a linear track part of the Blackwater Way. The track itself is 168km long and at its nearest point passes within 1.5km of the replanting site.

11.3.1.5 Tourism

Ireland is divided into seven tourism regions. The South-West region, in which the site of the proposed replanting site is located, comprises Counties Cork and Kerry. This region benefited from approximately 17% of the total number of overseas tourists to Ireland and approximately 16% of the total tourism income generated in Ireland in 2015, as per the latest figures available from Fáilte Ireland *('Tourism facts 2015'*, Fáilte Ireland, 2015).

There are no tourist attractions pertaining specifically to the proposed replanting site. The nearest tourist attraction is the Duhallow Way as stated above.

11.3.2 Impact Assessment and Proposed Mitigation Measures

11.3.2.1 'Do-Nothing' Scenario

The lands have been Technically Approved and will be afforested should the Meenbog wind farm proceed or not.

11.3.2.2 Population

Afforestation of the replanting lands at Claraghatlea North will have no impact on population trends or population density in the vicinity of the site.

11.3.2.3 Employment

The preparation and planting of the proposed replanting lands will provide short-term employment for three people; one person to operate an excavator for installation of drainage features, and two people to plant the site by hand.

In the longer-term, maintenance and felling of the site will provide part-term employment for two people.

11.3.2.4 Health and Safety

Health and safety in forestry is the concern of all those involved, including forest owners, managers, supervisors, operators, recreational users and trespassers *('Code of Best Forest Practice'*, Forest Service, 2000). Forest practice must ensure that operations do not endanger workers and others. In the absence of the correct health and safety measures, forestry-related activities have the potential to have a significant negative effect on the health and safety of workers and members of the public, on and in the vicinity of the site.

The Forest Service's *'Code of Best Forest Practice'* states that the Safety, Health and Welfare at Work Act 1989 and the Safety, Health and Welfare at Work (General Application) Regulations 1993 place responsibilities on all involved in work activities, and set out a basis for managing health and safety in all workplaces. Forest owners have legal responsibilities to ensure that the workplace and all articles and substances situated there are safe and free from health risk. This involves informing contractors of potential hazards, work agreements and monitoring. Employers, self-employed and employees all have clear responsibility to ensure safe working practices for themselves and others.

All Forest Service guidelines and Health and Safety legislation will be adhered to during all forestry-related activities at the proposed replanting lands. The residual potential for a significant negative impact on worker and public health and safety is therefore reduced to minimal.

11.3.2.5 Land-use

Afforestation of the proposed replanting site will result in a long-term change in use of the site, from agriculture to forestry. This change in land-use is in keeping with the character of the surrounding landscape, as forestry is already an established land-use in the area. The impact of the change in land-use is therefore neutral, i.e. a change which does not affect the quality of the environment.

11.3.2.6 Residential Amenity

Planting at the site will have a short-term, slight negative impact on the residential amenity of the dwellinsg located closest to the proposed replanting site. This impact will be the result of the visual impact of site activity/disturbance. However, it is a requirement of the Technical Approval for the site that the owners of these houses will be consulted in advance of planting in order to resolve any concerns they may have prior to works being carried out.

11.3.2.7 Community Facilities and Amenities

There are no community facilities or amenities located on or in the immediate vicinity of the proposed replanting lands. No recreational walks pass directly through the site, and there will be no impact to this or any other community amenities within the area. All appropriate health and safety measures, including signage, will be adopted at the site to ensure the safety of workers and the general public.

11.3.2.8 Tourism

Afforestation of the proposed replanting lands will have no impact on tourism. There are no tourist facilities or attractions located on or in the immediate vicinity of the proposed replanting lands. Forestry is an established land-use in this area, and a common feature in the landscape.

11.3.3 Significance of the Effects

Based on the above, there will be no significant effects, on human beings, population or health, associated with afforestation the at this site.

11.4 Replanting Area 4: Glantane Beg, Co. Cork

11.4.1 Baseline Environment

11.4.1.1 Population

The proposed replanting site at Glantane Beg is located approximately 5.6 kilometres north-east of Rathmore town. The site is located within the District Electoral Division (DED) of Cullen. Population data for the Cullen DED has been sourced from the results of the Census of Ireland 2011, as provided on the Central Statistics Office website, www.cso.ie. Population data for Cullen DED and Co. Cork are presented in Table 11.5.

Table11.4 Population 2002 – 2011 (Source: CSO)

Area	Population			% Population Change	
	2002	2006	2011	2002-2006	2006-2011
Cullen DED	434	416	429	-4.1%	3.1%
Co. Cork	448,181	480,909	518,128	7.4%	7.7%

The population of Cullen DED recorded during the 2011 Census was 429 persons. The population density of the DED at this time was approximately 25 persons per square kilometre, based on a total DED area of 17.4 square kilometres. This is much lower

than the population density of County Cork as a whole during the 2011 Census, which equates to 69 persons per square kilometre, based on the County area of 7,500 square kilometres.

The population of Cullen DED fell by 4.1% between the 2002 and 2006 Censuses. This rose to a growth of 3.1% between the 2006 and 2011 Censuses, which is above the average rate of population change (7.7%) recorded within the Country during the same period.

The number of households recorded within Cullen DED during the 2011 Census was 206 households. The proposed replanting site is located adjacent to the local roads around Glantane Beg. The overall level of residential development within a kilometre of this site is low, with intermittent farms and some houses located along the local roads. The nearest major dwelling to the proposed replanting site is Rathmore, located approximately 5.6km to the south-west.

11.4.1.2 Employment

Socio-economic grouping divides the population into categories depending on the level of skill or educational attainment required, as described in Section 11.1.1.2 above. Figure 11.5 below presents the Employment by Socio-Economic Group figures for Cullen DED and Co. Cork, as recorded during the 2011 Census.

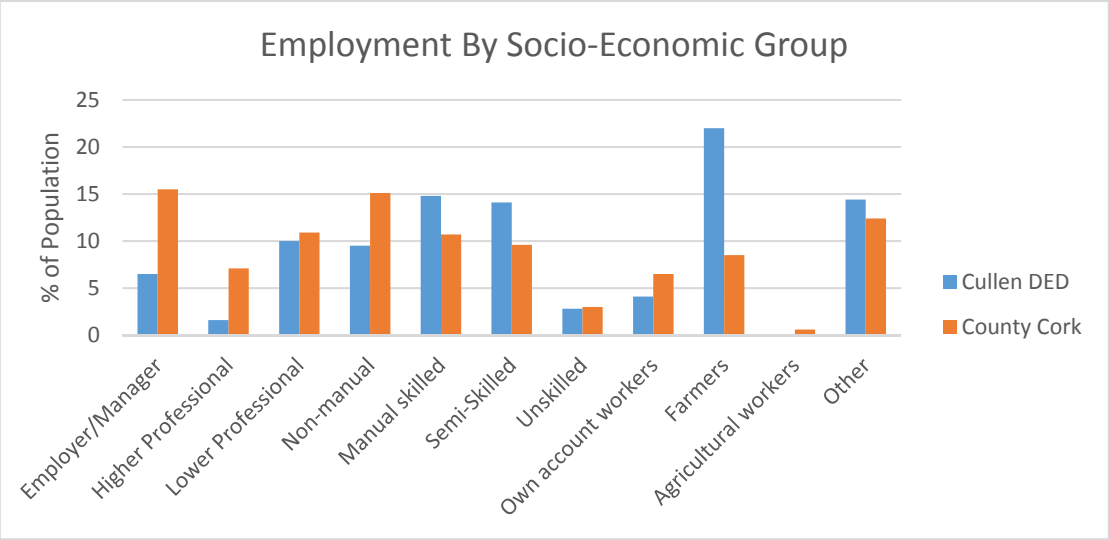

Figure 11.4 Employment by Socio-Economic Group (Source: CSO)

Overall, the socio-economic grouping results for Cullen DED differ slightly with those recorded within the County as a whole apart from farming which is more than double the County number. The highest level of employment within the DED are within the 'Farmer', 'Manual Skilled' and 'Other' categories.

The CSO figures for socio-economic grouping have a limitation of including the entire population, rather than just those who are in the labour force. It is likely that this is what gives rise to the high proportion of the population shown to be in the 'Other' category.

11.4.1.3 Land-use

The current land-use on the proposed replanting site is forestry. The site is located within a rural, working landscape in which agriculture and forestry form the primary land-uses. The site is bordered to the west and south by agricultural grasslands but is

situated in the corner of an established conifer plantation. Peat extraction is also a common land-use within the wider area.

11.4.1.4 Community Facilities and Amenities

There are no community facilities or amenities located within or close to the proposed replanting site. The nearest schools and community facilities to the proposed planting site are located in the village of Rathmore, located approximately 5.6 kilometres south-west of the site.

11.4.1.5 Tourism

Ireland is divided into seven tourism regions. The South-West region, in which the site of the proposed replanting site is located, comprises Counties Cork and Kerry. This region benefited from approximately 17% of the total number of overseas tourists to Ireland and approximately 16% of the total tourism income generated in Ireland in 2015, as per the latest figures available from Fáilte Ireland *('Tourism facts 2015'*, Fáilte Ireland, 2015).

There are no tourist attractions pertaining specifically to the proposed replanting site.

11.4.2 Impact Assessment and Proposed Mitigation Measures

11.4.2.1 'Do-Nothing' Scenario

The lands have been Technically Approved and will be afforested should the Meenbog wind farm proceed or not.

11.4.2.2 Population

Afforestation of the replanting lands at Glantane Beg will have no impact on population trends or population density in the vicinity of the site.

11.4.2.3 Employment

The preparation and planting of the proposed replanting lands will provide short-term employment for three people; one person to operate an excavator for installation of drainage features, and two people to plant the site by hand.

In the longer-term, maintenance and felling of the site will provide part-term employment for two people.

11.4.2.4 Health and Safety

Health and safety in forestry is the concern of all those involved, including forest owners, managers, supervisors, operators, recreational users and trespassers *('Code of Best Forest Practice'*, Forest Service, 2000). Forest practice must ensure that operations do not endanger workers and others. In the absence of the correct health and safety measures, forestry-related activities have the potential to have a significant negative effect on the health and safety of workers and members of the public, on and in the vicinity of the site.

The Forest Service's *'Code of Best Forest Practice'* states that the Safety, Health and Welfare at Work Act 1989 and the Safety, Health and Welfare at Work (General Application) Regulations 1993 place responsibilities on all involved in work activities, and set out a basis for managing health and safety in all workplaces. Forest owners have legal responsibilities to ensure that the workplace and all articles and substances situated there are safe and free from health risk. This involves informing contractors

of potential hazards, work agreements and monitoring. Employers, self-employed and employees all have clear responsibility to ensure safe working practices for themselves and others.

All Forest Service guidelines and Health and Safety legislation will be adhered to during all forestry-related activities at the proposed replanting lands. The residual potential for a significant negative impact on worker and public health and safety is therefore reduced to minimal.

11.4.2.5 Land-use

Afforestation of the proposed replanting site will not result in any long-term change in use of the site. As the site has been forested before and is surrounded by forestry there will be no noticeable change.

11.4.2.6 Residential Amenity

Planting at the site will have a short-term, slight negative impact on the residential amenity of the dwellinsg located closest to the proposed replanting site. This impact will be the result of the visual impact of site activity/disturbance. However, it is a requirement of the Technical Approval for the site that the owners of these houses will be consulted in advance of planting in order to resolve any concerns they may have prior to works being carried out.

11.4.2.7 Community Facilities and Amenities

There are no community facilities or amenities located on or in the immediate vicinity of the proposed replanting lands. No recreational walks pass directly through the site, and there will be no impact to this or any other community amenities within the area. All appropriate health and safety measures, including signage, will be adopted at the site to ensure the safety of workers and the general public.

11.4.2.8 Tourism

Afforestation of the proposed replanting lands will have no impact on tourism. There are no tourist facilities or attractions located on or in the immediate vicinity of the proposed replanting lands. Forestry is an established land-use in this area, and a common feature in the landscape.

11.4.3 Significance of the Effects

Based on the above, there will be no significant effects, on human beings, population or health, associated with afforestation the at this site.

12 MATERIAL ASSETS

Material Assets are resources that are valued and intrinsic to specific places. Economic assets of natural heritage include non-renewable resources such as minerals or soils, and renewable resources such as wind and water. These assets are dealt with in Sections 6, 7 and 8 of this report. Cultural assets are discussed in Section 9. Transportation infrastructure and land-use practices, which are economic assets of human origin, are discussed in this section of the report.

12.1 Replanting Area 1: Ballyduff Beg, Co. Clare

12.1.1 Transportation

Traffic movements associated with the preparation and planting of the site will be minimal. Preparation of the site will require the use of an excavator for drainage, and travel to the site by the driver. Planting of the site will be by hand, and will be carried out by one to two people over a two-week period approximately.

Forestry felling can occur within 0.8-1 km of access points (roads and tracks) to the main forest body. Due to the small size of the proposed replanting area, additional access tracks or roads will not be required. This site is located adjacent an existing road network with existing entrances which will not require upgrading or alteration.

12.1.2 Land-Use

Land-use on the site will change from pastoral agriculture to coniferous forestry. Forestry, like agriculture, is an extractive industry, i.e. it produces a raw material which is then processed to add value. The use of the proposed replanting lands for coniferous forestry will have a positive effect on the economic assets of the site.

12.1.3 'Do-Nothing' Scenario

The lands have been Technically Approved and will be afforested should the Meenbog wind farm proceed or not.

12.1.4 Significance of the Effects

Based on the above, there will be no significant effects, on traffic, associated with afforestation the at this site.

12.2 Replanting Area 2: Mologha, Co. Clare

12.2.1 Transportation

Traffic movements associated with the preparation and planting of the site will be minimal. Preparation of the site will require the use of an excavator for drainage, and travel to the site by the driver. Planting of the site will be by hand, and will be carried out by one to two people over a two-week period approximately.

Forestry felling can occur within 0.8-1 km of access points (roads and tracks) to the main forest body. Due to the small size of the proposed replanting area, additional access tracks or roads will not be required. This site is located adjacent an existing road network with existing entrances which will not require upgrading or alteration.

12.2.2 Land-Use

Land-use on the site will change from pastoral agriculture to coniferous forestry. Forestry, like agriculture, is an extractive industry, i.e. it produces a raw material which is then processed to add value. The use of the proposed replanting lands for coniferous forestry will have a positiveeffect on the economic assets of the site.

12.2.3 'Do-Nothing' Scenario

The lands have been Technically Approved and will be afforested should the Meenbog wind farm proceed or not.

12.2.4 Significance of the Effects

Based on the above, there will be no significant effects, on traffic, associated with afforestation the at this site.

12.3 Replanting Area 3: Claraghatlea North, Co. Cork

12.3.1 Transportation

Traffic movements associated with the preparation and planting of the site will be minimal. Preparation of the site will require the use of an excavator for drainage, and travel to the site by the driver. Planting of the site will be by hand, and will be carried out by one to two people over a two-week period.

Forestry felling can occur within 0.8-1 km of access points (roads and tracks) to the main forest body. Due to the small size of the proposed replanting area, additional access tracks or roads will not be required. This site is located adjacent an existing road network with existing entrances which will not require upgrading or alteration.

12.3.2 Land-Use

Land-use on the site will change from pastoral agriculture to coniferous forestry. Forestry, like agriculture, is an extractive industry, i.e. it produces a raw material which is then processed to add value. The use of the proposed replanting lands for coniferous forestry will have a positive effect on the economic assets of the site.

12.3.3 'Do-Nothing' Scenario

The lands have been Technically Approved and will be afforested should the Meenbog wind farm proceed or not.

12.3.4 Significance of the Effects

Based on the above, there will be no significant effects, on traffic, associated with afforestation the at this site.

12.4 Replanting Area 4: Glantane Beg, Co. Cork

12.4.1 Transportation

Traffic movements associated with the preparation and planting of the site will be minimal. Preparation of the site will require the use of an excavator for drainage, and travel to the site by the driver. Planting of the site will be by hand, and will be carried out by one to two people over a two-week period.

Forestry felling can occur within 0.8-1 km of access points (roads and tracks) to the main forest body. Due to the small size of the proposed replanting area, additional

access tracks or roads will not be required. This site is located adjacent an existing road network with existing entrances which will not require upgrading or alteration.

12.4.2 Land-Use

Land-use on the site will change from pastoral agriculture to coniferous forestry. Forestry, like agriculture, is an extractive industry, i.e. it produces a raw material which is then processed to add value. The use of the proposed replanting lands for coniferous forestry will have a positive effect on the economic assets of the site.

12.4.3 'Do-Nothing' Scenario

The lands have been Technically Approved and will be afforested should the Meenbog wind farm proceed or not.

12.4.4 Significance of the Effects

Based on the above, there will be no significant effects, on traffic, associated with afforestation the at this site.

Appendix 1

Technical Approval Documents

Department of
Agriculture,
Food and the Marine
An Roinn
Talmhaíochta,
Bia agus Mara

JOHN O'REILLY
GREEN BELT LTD
MAIN STREET
VIRGINIA
CO CAVAN

RECEIVED
18 DEC 2015

M. Maroney

17/12/2015

Copy
JP + Miko

Technical Approval - Afforestation

Forest Owner	FO127900U
Contract Number	CN73319
Townland	Ballyduff beg
County	Clare
Approved Area (ha)	14.15
Fencing Length (lm)	1,600.00

This is a technical approval only and is not a grant approval.You should note that the project will not be eligible for grant aid unless prior financial approval has been given in writing in advance of commencement of planting. Also, to qualify for Afforestation grant and premiums applicants must own, lease or be in joint management of the lands proposed for planting. You should consult with your registered forester about applying for financial approval under the Scheme.

I refer to your application (Form 1) requesting approval of Afforestation as described above and shown on the enclosed map. Your application has been assessed and technical approval is hereby issued on the basis that the works will be undertaken in accordance with the prescription set out in Appendix A attached herewith.

This scheme is financed by the State and payment of the grant, if financial approval is given, is subject to the following conditions:

1. Availability of funds in each financial year.

2. Submission of a fully completed and signed Form 2 (Application for Payment) and the following documents to support this application.

Proof of Ownership (including removal of any constraints on ownership)
Valid Mandate
Current Tax Clearance Certificate(s)
C2 Certificate
Provenance Certificates
Fencing Map
Biodiversity Map
Certified Species Map

* Conditions pg 2
* letter from Archaeology

3. Satisfactory completion of the work not later than 31/12/2017.

4. Compliance with Operational Proposals and Specifications enclosed.

5. Compliance with Departmental guidelines and requirements for Landscape, Water Quality, Harvesting, Biodiversity and Archaeology.

6. Compliance with Ecological Survey and Management Plan as submitted (if applicable).

An Roinn Talmhaíochta,
Bia agus Mara
Department of Agriculture,
Food and the Marine

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Food and the Marine
An Roinn
Talmhaíochta,
Bia agus Mara

7. The work is carried out by the registered company or forester specified on the original application. If it is intended to have a different company or forester undertake the work, it will be necessary to submit a new application (Form 1) to the Forest Service.

8. All applications are subject to the provisions of the penalty schedules as set out in the Afforestation Grant and Premium Scheme document.

9. All applications are subject to Cross Compliance checks with other grant schemes.

10. Grant payment may be subject to the netting policy of the Department of Agriculture, Food and the Marine.

11. This approval is issued subject to the terms and conditions of the Forestry Standards and Procedures Manual.

12. Your acceptance that the responsibility for the ultimate success of the plantation rests with you, the applicant. Plantations which fail to establish successfully will result in grant and premium recoupment.

13. Additional Environmental & Silvicultural Conditions

- Plot 2 is unenclosed and has been changed to GPC1.,
- Plot 4 is excluded because it does not meet the minimum width of 20m from planted tree to planted tree.,
- Adhere to attached archaeological conditions.,
- Adhere to forestry & archaeology guidelines ,
- All guidelines to apply

Specific Archaeological Conditions:
5m unplanted buffers to be established around any remains of the lime kiln on the site.
Otherwise no specific /extra archaeological conditions recommended over and above adherence to normal standards of the Forestry and Archaeology Guidelines.
See archaeological report and illustrative map for further details

You are required to notify the Department of Agriculture,Food and the Marine in writing if any of the details of your application have changed. Changes to your application may invalidate any approval given.

IMPORTANT

As no submissions from third parties were received by the Department concerning this application, development in accordance with this approval may proceed without further notice subject to financial approval.

Please feel free to contact this office, quoting your Contract Number, regarding progress of your application. LoCall 1890-200 509.

Yours sincerely

JOANNE ROBINSON
Approval Section
Forest Service

An Roinn Talmhaíochta,
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Department of Agriculture,
Food and the Marine

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APPENDIX A

Department of Agriculture, Food and the Marine

Department of Agriculture, Food and the Marine
An Roinn Talmhaíochta, Bia agus Mara

Operational Proposals for Approval of Afforestation

Forest Owner Number	FO127900U
Contract Number	CN73319
Townland	Ballyduff beg
County	Clare
Area Approved	14.15(ha)
Fencing Length (LM)	1,600.00

All applications must be developed in accordance with detailed standards and procedures as described in the current Forestry Schemes Manual. Certain specific operational proposals particular to this application are described below. No change is permitted to these proposals and species approved unless approved in advance by the Department. The Department may insist that proposed changes constitutes a new application.

Operational Proposal Details

Agro Forestry (GPC 11)		
1.	Tree Shelters	Not Entered
2.	Plant Size and Stocking	Not Entered
Drainage		
1.	Drainage	Required
2.	Drainage Comment	in conjunction with mounding
Fertiliser		
1.	Zero	Not Entered
2.	350 Kg Granulated Rock Phosphate	Not Entered
3.	250 Kg Granulated Rock Phosphate	Yes
4.	Split Application	Not Entered
5.	Other Details	Not Entered
Firebreaks/Res.		
1.	Firebreaks/Res	Not Required
Forestry for Fibre (GPCs: 12a and 12b))		
1.	Is Land Free Drainage arable or pasture soils	Not Entered
2.	Are there surface water gleys without a peat layer	Not Entered
3.	Do you intend to use improved genetic material	Not Entered
4.	Details	Not Entered
Ground Prep.		
1.	Woody Weed Removal	Yes
2.	Ripping	Not Entered
3.	Pit Plant	Not Entered
4.	Mole Drainage	Not Entered
5.	Mounding	Yes
6.	Ploughing	Not Entered
9.	Other Details	Not Entered
Planting Method		
1.	Angle Notch	Not Entered
2.	Pit	Not Entered
3.	Machine	Not Entered

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4.	Slit	Yes
5.	Other Details	Not Entered
Road Access		
1.	Road Access	Provided
Standard Stocking		
1.	Standard Stocking	Yes
2.	Details	Not Entered
Weed Control		
1.	Herbicide Control yr0	Yes
2.	Herbicide Control yr1	Yes
3.	Herbicide Control yr2	Yes
3.	Herbicide Control yr4	Not Entered
4.	Manual	Yes
4.	Herbicide Control yr3	Yes

Fencing Details (metres)	Stock	1600	Stock-Sheep	0
	Stock-Rabbit	0	Upgrade to Deer	0
	Deer-Rabbit	0	Deer	0
	Upgrade Existing Fence(s)	N		
	Upgrade Details: None Entered			

Species Approved

The species approved in this proposal relate to the digitised certified species map attached.

Species Approved for Afforestation

Plot	Area	GPC	Land Type	Species	Species Area	Yield Class	Mixture Type	Exclusion	Exclusion Type
1	.07	GPC 3	CHF	SS	11.23	20	Groups	.07	ESB
				ADB	1.25	10			
1	.66	GPC 3	CHF	SS	11.23	20	Groups	.66	ESB
				ADB	1.25	10			
1	12.44	GPC 3	CHF	SS	11.23	20	Groups		
				ADB	1.25	10			
2	.67	GPC 1	CHF	SS	.8	20	Groups	.67	ESB
				ADB	.09	10			
2	1.07	GPC 1	CHF	SS	.8	20	Groups		
				ADB	.09	10			
3	.64	GPC 3	Bio				None		

Department of Agriculture, Food and the Marine,
Agriculture House,
Kildare Street,
Dublin DO2 WK12.

8th December 2015

Felling Section,
Forest Service,
Department of Agriculture, Food and the Marine,
Johnstown Castle Estate,
Co. Wexford.

Re: CN73319 Ballyduff Beg, Co. Clare

Dear Sir / Madam,

I am writing to you with regard to the application for approval for the afforestation in respect of certain lands at Ballyduff Beg, Co. Clare.

The area proposed for afforestation does not contain any Recorded Monuments *per se* but there are several in the surrounding area. The closest monument is a graveyard known as Templeduff burial ground (CL032-002002) c.220m to the northwest and an earthwork (CL032-057) lies c.270m to the southeast. In addition to these monuments a lime kiln is shown on the site on the late 19th century OS map.

It is recommended that the conditions outlined below be attached to this application.

For the purposes of the requirements of the EIA screening form (as per the European Communities (Forest Consent and Assessment) Regulations 2010, as amended) this constitutes:

	Yes	No	N/A
- Adherence to the normal standards of the Forestry and Archaeology Guidelines	X		
- Specific conditions regarding buffer zones etc	X		
- Archaeological Monitoring during ground preparation or drainage works		X	
- Archaeological Assessment		X	
- Refusal in part		X	
- Refusal		X	

For the purposes of the IFORIS summary notes this constitutes:

Archaeological Conditions: Extra

Yours sincerely,

Melanie McQuade

Melanie McQuade
Archaeologist

CN73319

Ballyduff Beg, Co. Clare

Archaeological conditions

The area proposed for afforestation does not contain any Recorded Monuments *per se* but there are several in the surrounding area. The closest monument is a graveyard known as Templeduff burial ground (CL032-002002) c.220m to the northwest and an earthwork (CL032-057) lies c.270m to the southeast. In addition to these monuments a lime kiln is shown on the site on the late 19th century OS map.

It is of concern that every effort is made to protect this monument and that there would be an appropriate response should any previously unrecorded archaeology be discovered during the course of the works.

Consequently, the following conditions should be adhered to during the proposed works:

1. As always, at all times during the proposed operations the terms of the 'Forestry and Archaeology Guidelines' and 'Forest Harvesting and the Environment Guidelines' should be adhered to.

2. A 5m unplanted buffer should be established around any remains of the historic lime kiln (see accompanying map for illustration).

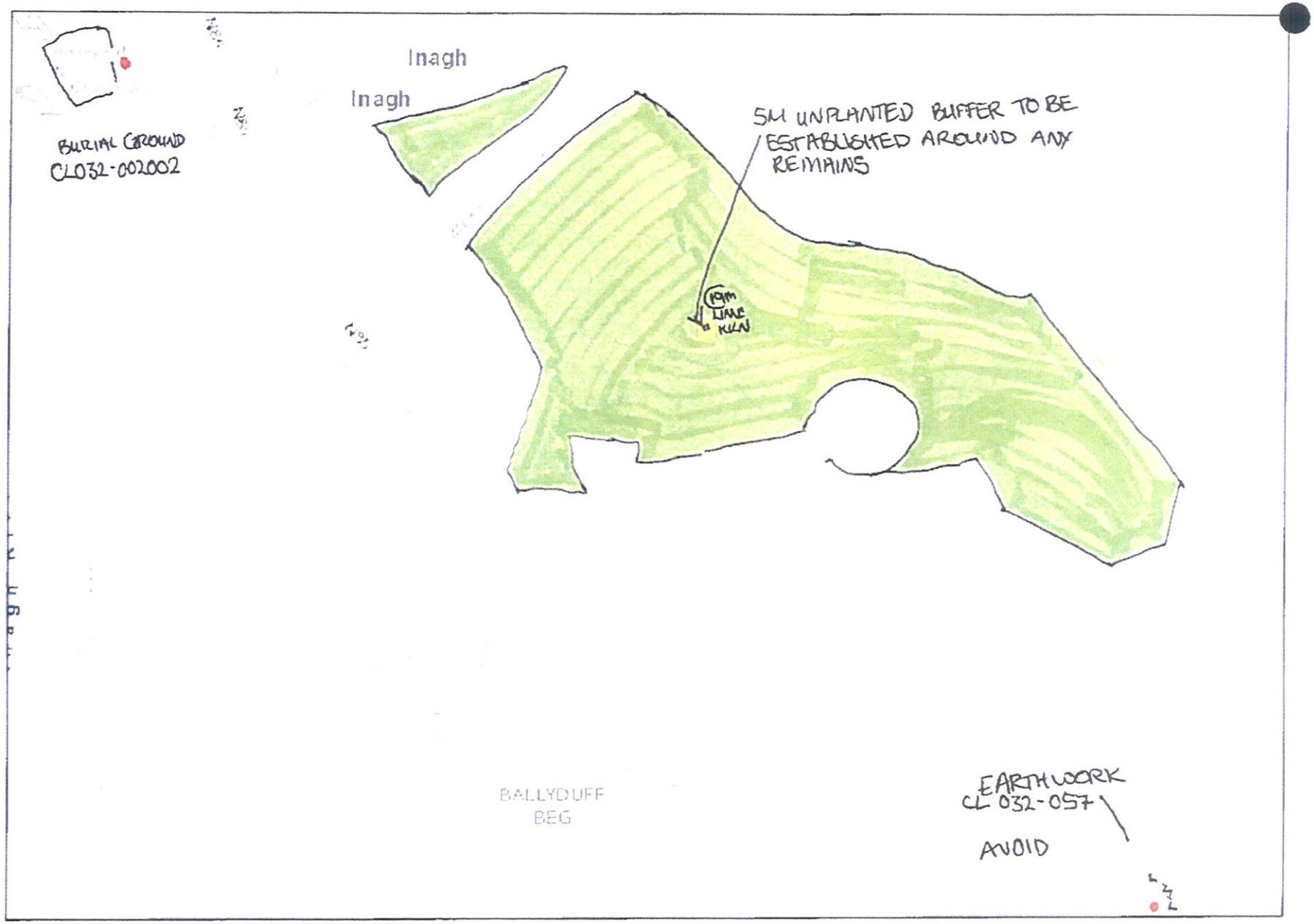
3. Any unrecorded archaeological site or anefact discovered during the course of the works must be left undisturbed and the relevant authorities notified immediately.

4. A minimum exclusion zone of 20m, preferably 100m or more, must be created until any such site has been properly investigated, with the applicant and/or his consultant forester bearing any associated costs.

5 Otherwise, no known archaeological objections.

Melanie McQuade
Forest Service Inspectorate
Department of Agriculture, Food and the Marine
Agriculture House
Kildare Street
Dublin DO2 WK12
Ph.:01-6072231

CN73319 - Ballyduff Beg, Co. Clare - affor



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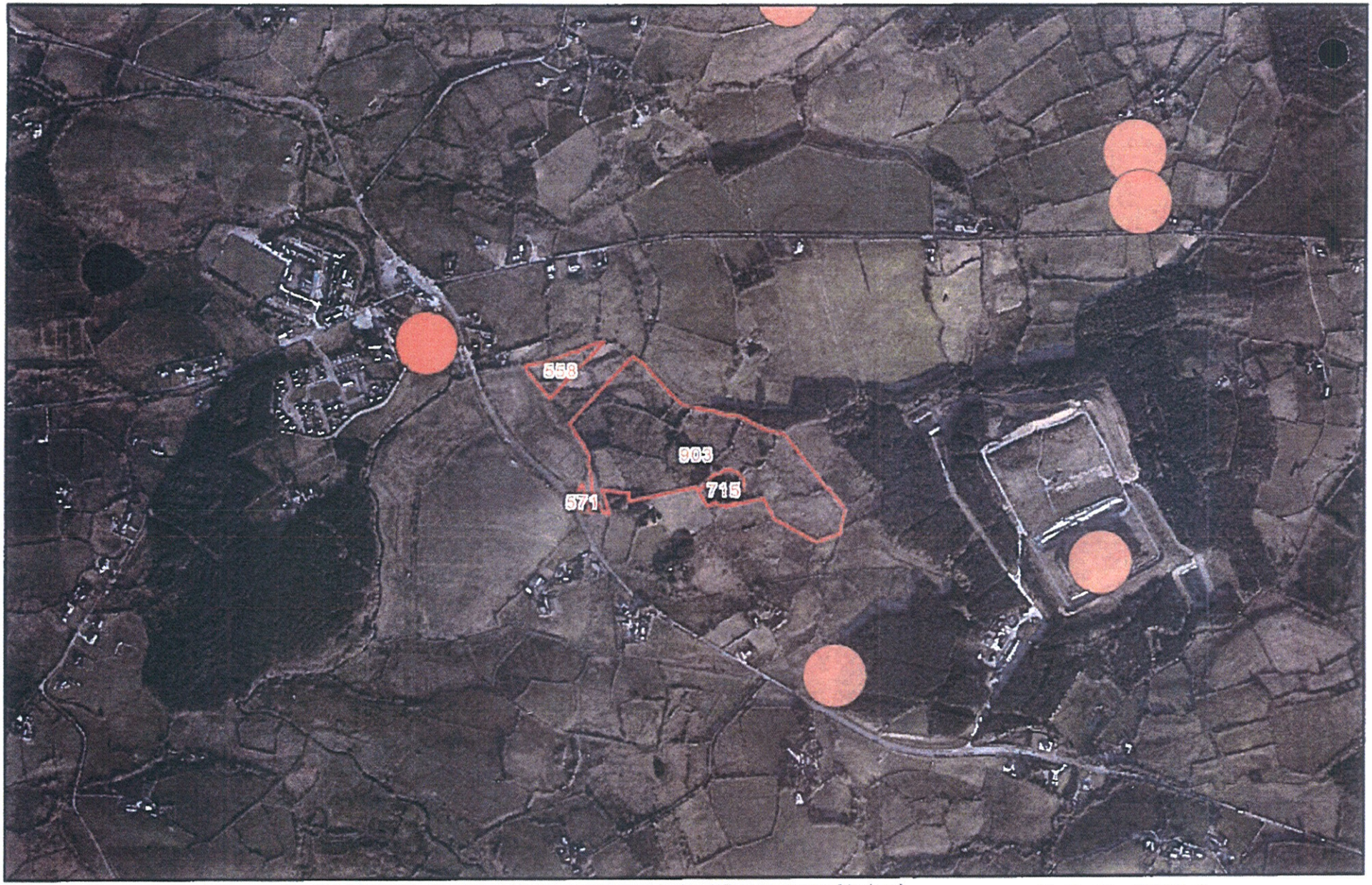
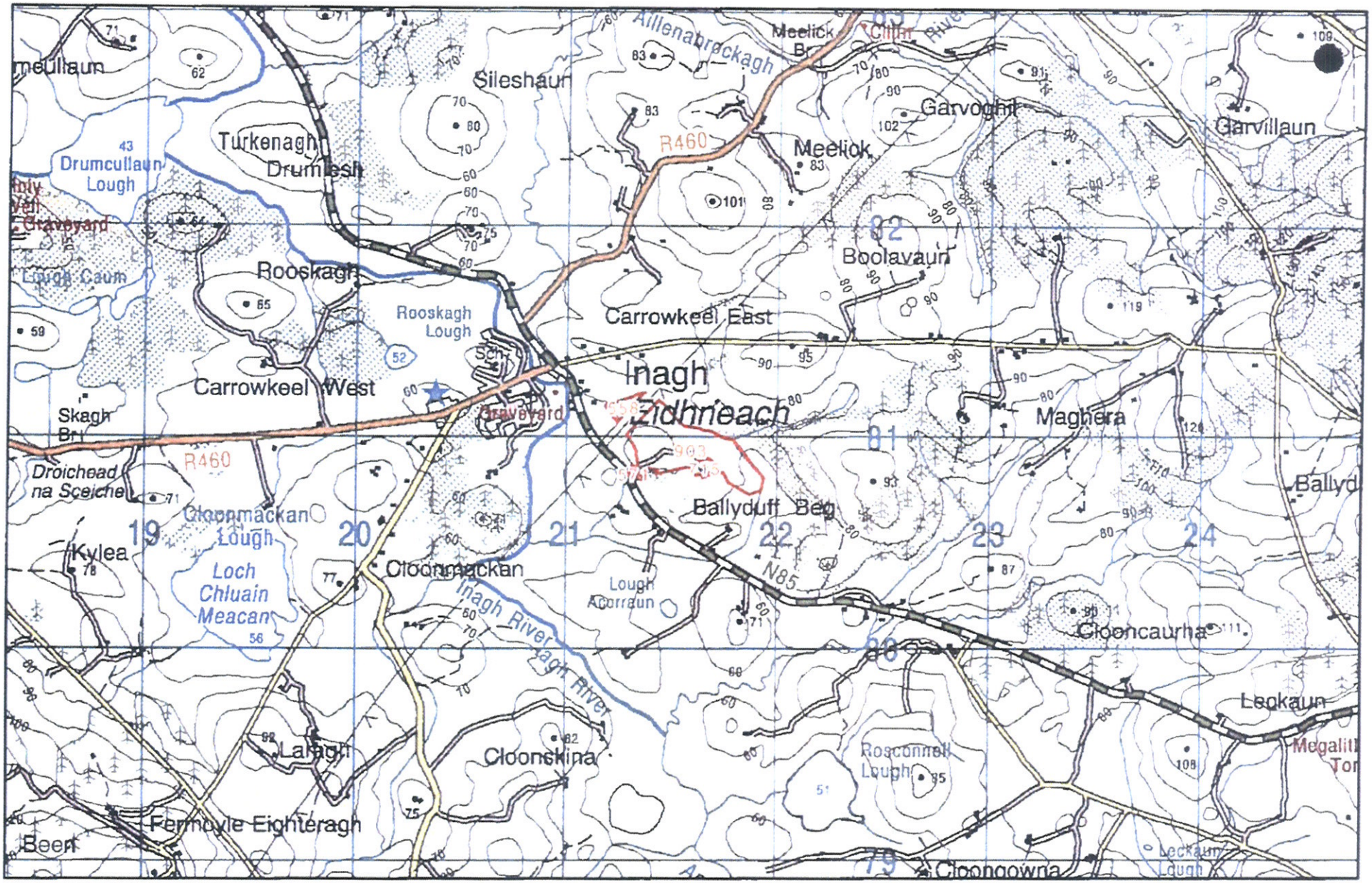


Scale 1: 7500.0

Contract: CN73319



Scale 1: 15000.0

Contract: CN73319

Certified Species Information

Contract No: CN73319
Townland: BALLYDUFF BEG
County: CE
6 " OS No: CE32

Plot No	GPC	Parcel No	GPC Area(h)	Land Use Type	Species Area	Species	Mixture Type	Excl. Area(h)	Excl. Type
1	GPC 3	39898832	0.0	CHF	12.48	SS, ADB	G	0.66	ESB
1	GPC 3	39898800	12.44	CHF	0.0	SS, ADB	G	0.0	
1	GPC 3	39898806	0.0	CHF	0.0	SS, ADB	G	0.07	ESB
2	GPC 1	39898769	1.07	CHF	0.89	SS, ADB	G	0.0	
2	GPC 1	39898822	0.0	CHF	0.0	SS, ADB	G	0.67	ESB
3	GPC 3	39492715	0.64	Bio	0.0		N	0.0	
	Totals		14.15		13.37			1.4	

Remarks :

Area Surveyed By : **Date:**
Species Certified By : **Date:**

Scale 1: **7000.0**

Contract: **CN73319**

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04/12/2015

Approval for Non Grant Aided Afforestation

Forest Owner	FO128320H
Contract Number	CN72550
Townland	Molougha
County	Clare
Approved Area (Ha)	12.19
Fencing Length (LM)	1,300.00

I refer to your application (Form 1) requesting approval for Afforestation. Your application has been assessed and approval is hereby issued on the basis that the works will be undertaken in accordance with the prescription set out in Appendix A attached herewith.

You should note that the project will NOT be eligible for grant aid.

The following conditions apply to this application:
Satisfactory completion of the work not later than 30-JUN-17

Environmental & Silvicultural Considerations
Site not inspected, desk audit only. Adhere to all Biodiversity and setback rules.,
Fence along the planting line around the dwelling. If the owner wishes to us the setback area for other purposes, they may do so.,
Public Road Setback, Broadleaves 10m, Conifers 20m,
Dwelling Houses/Buildings Setback 60m

You are required to notify the Department of Agriculture, Food and Marine in writing if any of the details of your application have changed.

IMPORTANT

As no submissions from third parties were received by the Department concerning this application, development in accordance with this may proceed without further notice.

Please feel free to contact this office, quoting your Contract Number, regarding progress of your application. LoCall 1890-200-509.

Yours sincerely

JOANNE ROBINSON
Approval Section
Forest Service

An Roinn Talmhaíochta,
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Department of Agriculture,
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APPENDIX A

Department of Agriculture, Food and the Marine

Department of Agriculture, Food and the Marine
An Roinn Talmhaíochta, Bia agus Mara

Operational Proposals for Approval of Afforestation

Forest Owner Number	FO128320H
Contract Number	CN72550
Townland	Molougha
County	Clare
Area Approved	13.06(ha)
Fencing Length (LM)	1,300.00

All applications must be developed in accordance with detailed standards and procedures as described in the current Forestry Schemes Manual. Certain specific operational proposals particular to this application are described below. No change is permitted to these proposals and species approved unless approved in advance by the Department. The Department may insist that proposed changes constitutes a new application.

Operational Proposal Details

Agro Forestry (GPC 11)		
1.	Tree Shelters	Not Entered
2.	Plant Size and Stocking	Not Entered
Drainage		
1.	Drainage	Required
2.	Drainage Comment	In conjunction with mounding
Fertiliser		
1.	Zero	Not Entered
2.	350 Kg Granulated Rock Phosphate	Not Entered
3.	250 Kg Granulated Rock Phosphate	Yes
4.	Split Application	Not Entered
5.	Other Details	Not Entered
Firebreaks/Res.		
1.	Firebreaks/Res	Not Required
Forestry for Fibre (GPCs: 12a and 12b))		
1.	Is Land Free Drainage arable or pasture soils	Not Entered
2.	Are there surface water gleys without a peat layer	Not Entered
3.	Do you intend to use improved genetic material	Not Entered
4.	Details	Not Entered
Ground Prep.		
1.	Woody Weed Removal	Yes
2.	Ripping	Not Entered
3.	Pit Plant	Not Entered
4.	Mole Drainage	Not Entered
5.	Mounding	Yes
6.	Ploughing	Not Entered
9.	Other Details	Not Entered
Planting Method		
1.	Angle Notch	Not Entered
2.	Pit	Not Entered
3.	Machine	Not Entered

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4.	Slit	Yes
5.	Other Details	Not Entered
Road Access		
1.	Road Access	Provided
Standard Stocking		
1.	Standard Stocking	Yes
2.	Details	Not Entered
Weed Control		
1.	Herbicide Control yr0	Yes
2.	Herbicide Control yr1	Yes
3.	Herbicide Control yr2	Yes
3.	Herbicide Control yr4	Not Entered
4.	Manual	Yes
4.	Herbicide Control yr3	Yes

Fencing Details (metres)	Stock	1300	Stock-Sheep	0
	Stock-Rabbit	0	Upgrade to Deer	0
	Deer-Rabbit	0	Deer	0
	Upgrade Existing Fence(s)	N		
	Upgrade Details: None Entered			

Species Approved

The species approved in this proposal relate to the digitised certified species map attached.

Species Approved for Afforestation

Plot	Area	GPC	Land Type	Species	Species Area	Yield Class	Mixture Type	Exclusion	Exclusion Type
1	9.13	GPC 3	CHF	SS	5.4	20	Groups		
				ADB	.6	10			
2	2.73	GPC 3	CHF	SS	2.7	20	Groups		
				ADB	.3	10			
3	1.2	GPC 3	CHF	SS	.9	20	Groups		
				ADB	.1	10			

Scale 1: **7500.0**

Contract: **CN72550**

Certified Species Information

Contract No: CN72550
Townland: MOLOUGHA
County: CE
6 " OS No: CE67

Plot No	GPC	Parcel No	GPC Area(h)	Land Use Type	Species Area	Species	Mixture Type	Excl. Area(h)	Excl. Type
1	GPC 3	38516127	9.13	CHF	6.0	SS, ADB	G	0.0	
2	GPC 3	39633732	2.73	CHF	3.0	SS, ADB	G	0.0	
3	GPC 3	39633803	1.2	CHF	1.0	SS, ADB	G	0.0	
	Totals		13.06		10.0			0.0	

Remarks :

Area Surveyed By : **Date:**
Species Certified By : **Date:**

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An Roinn Talmhaíochta, Bia agus Mara

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01/10/2015

Approval for Non Grant Aided Afforestation

Forest Owner	FO128320H
Contract Number	CN72236
Townland	Claraghatlea north
County	Cork
Approved Area (Ha)	18.77
Fencing Length (LM)	1,200.00

I refer to your application (Form 1) requesting approval for Afforestation. Your application has been assessed and approval is hereby issued on the basis that the works will be undertaken in accordance with the prescription set out in Appendix A attached herewith.

You should note that the project will NOT be eligible for grant aid.

The following conditions apply to this application:
Satisfactory completion of the work not later than 30-JUN-17

Environmental & Silvicultural Considerations
Plot 1 is too wet and poorly drained for scots pine. Plant plot 1 with GPC 6 (oak/birch),
In plot 2 plant 2-3 rows of alder/birch along the hedges, ditches and boundaries and 5 rows along all streams. Keep back 15m from streams.,
Adequately drain. Ensure adequate silt traps and compliance with water quality guidelines.,
Adhere to forestry & water quality guidelines,
All guidelines to apply

You are required to notify the Department of Agriculture, Food and Marine in writing if any of the details of your application have changed.

IMPORTANT

As no submissions from third parties were received by the Department concerning this application, development in accordance with this may proceed without further notice.

Please feel free to contact this office, quoting your Contract Number, regarding progress of your application. LoCall 1890-200-509.

Yours sincerely

JOANNE ROBINSON
Approval Section
Forest Service

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APPENDIX A

Department of Agriculture, Food and the Marine

Department of Agriculture, Food and the Marine
An Roinn Talmhaíochta, Bia agus Mara

Operational Proposals for Approval of Afforestation

Forest Owner Number	FO128320H
Contract Number	CN72236
Townland	Claraghatlea north
County	Cork
Area Approved	18.77(ha)
Fencing Length (LM)	1,200.00

All applications must be developed in accordance with detailed standards and procedures as described in the current Forestry Schemes Manual. Certain specific operational proposals particular to this application are described below. No change is permitted to these proposals and species approved unless approved in advance by the Department. The Department may insist that proposed changes constitutes a new application.

Operational Proposal Details

Agro Forestry (GPC 11)		
1.	Tree Shelters	Not Entered
2.	Plant Size and Stocking	Not Entered
Drainage		
1.	Drainage	Required
2.	Drainage Comment	Full compliance with Forestry and Water Quality Guidelines
Fertiliser		
1.	Zero	Yes
2.	350 Kg Granulated Rock Phosphate	Not Entered
3.	250 Kg Granulated Rock Phosphate	Not Entered
4.	Split Application	Not Entered
5.	Other Details	Not Entered
Firebreaks/Res.		
1.	Firebreaks/Res	Not Required
Forestry for Fibre (GPCs: 12a and 12b))		
1.	Is Land Free Drainage arable or pasture soils	Not Entered
2.	Are there surface water gleys without a peat layer	Not Entered
3.	Do you intend to use improved genetic material	Not Entered
4.	Details	Not Entered
Ground Prep.		
1.	Woody Weed Removal	Not Entered
2.	Ripping	Not Entered
3.	Pit Plant	Not Entered
4.	Mole Drainage	Not Entered
5.	Mounding	Yes
6.	Ploughing	Not Entered
9.	Other Details	Not Entered
Planting Method		
1.	Angle Notch	Yes
2.	Pit	Not Entered
3.	Machine	Not Entered

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4.	Slit	Not Entered
5.	Other Details	Not Entered
Road Access		
1.	Road Access	Provided
Standard Stocking		
1.	Standard Stocking	Yes
2.	Details	Not Entered
Weed Control		
1.	Herbicide Control yr0	Yes
2.	Herbicide Control yr1	Yes
3.	Herbicide Control yr2	Yes
3.	Herbicide Control yr4	Not Entered
4.	Manual	Yes
4.	Herbicide Control yr3	Yes

Fencing Details (metres)	Stock	1200	Stock-Sheep	0
	Stock-Rabbit	0	Upgrade to Deer	0
	Deer-Rabbit	0	Deer	0
	Upgrade Existing Fence(s)	0		
	Upgrade Details: None Entered			

Species Approved

The species approved in this proposal relate to the digitised certified species map attached.

Species Approved for Afforestation

Plot	Area	GPC	Land Type	Species	Species Area	Yield Class	Mixture Type	Exclusion	Exclusion Type
1	2.59	GPC 6	BHF	PO	2.33	6	Integrated Mix		
				BI	.26	4			
2	16.18	GPC 3	CHF	SS	14.56	22	Integrated Mix		
				ADB	1.62	4			

Additional Silvicultural and Environmental Conditions

In addition to the Department's environmental and silvicultural guidelines the following specific conditions apply to this proposal:

Silvicultural and Environmental Conditions

Plot 1 is too wet and poorly drained for scots pine. Plant plot 1 with GPC 6 (oak/birch),
In plot 2 plant 2-3 rows of alder/birch along the hedges, ditches and boundaries and 5 rows along all streams. Keep back 15m from streams.,
Adequately drain. Ensure adequate silt traps and compliance with water quality guidelines.,
Adhere to forestry & water quality guidelines,
All guidelines to apply

Scale 1: **10500.0**

Contract: **CN72236**

Certified Species Information

Contract No: CN72236
Townland: CLARAGHATLEA NORTH
County: C
6 " OS No: CK39

Plot No	GPC	Parcel No	GPC Area(h)	Land Use Type	Species Area	Species	Mixture Type	Excl. Area(h)	Excl. Type
1	GPC 6	37848703	2.59	BHF	2.59	PO, BI	I	0.0	
2	GPC 3	37848755	16.18	CHF	16.18	SS, ADB	I	0.0	
	Totals		18.77		18.77			0.0	

Remarks :

Area Surveyed By : **Date:**
Species Certified By : **Date:**

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04/08/2015

Approval for Non Grant Aided Afforestation

Forest Owner	FO128320H
Contract Number	CN72161
Townland	Glantane beg
County	Cork
Approved Area (Ha)	2.93
Fencing Length (LM)	220.00

I refer to your application (Form 1) requesting approval for Afforestation. Your application has been assessed and approval is hereby issued on the basis that the works will be undertaken in accordance with the prescription set out in Appendix A attached herewith.

You should note that the project will NOT be eligible for grant aid.

The following conditions apply to this application:
Satisfactory completion of the work not later than 30-JUN-17

Environmental & Silvicultural Considerations
Plant 5 rows of birch,alder,rowan,scots pine along road setback and 15m back from streams along the northern and southern boundaries.,
Adequately drain the site. Connect mound drains to field drains via silt traps and collector drains.,
All guidelines to apply

You are required to notify the Department of Agriculture, Food and Marine in writing if any of the details of your application have changed.

IMPORTANT

As no submissions from third parties were received by the Department concerning this application, development in accordance with this may proceed without further notice.

Please feel free to contact this office, quoting your Contract Number, regarding progress of your application. LoCall 1890-200-509.

Yours sincerely

JOANNE ROBINSON
Approval Section
Forest Service

An Roinn Talmhaíochta,
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APPENDIX A

Department of Agriculture, Food and the Marine

Department of Agriculture, Food and the Marine
An Roinn Talmhaíochta, Bia agus Mara

Operational Proposals for Approval of Afforestation

Forest Owner Number	FO128320H
Contract Number	CN72161
Townland	Glantane beg
County	Cork
Area Approved	2.93(ha)
Fencing Length (LM)	220.00

All applications must be developed in accordance with detailed standards and procedures as described in the current Forestry Schemes Manual. Certain specific operational proposals particular to this application are described below. No change is permitted to these proposals and species approved unless approved in advance by the Department. The Department may insist that proposed changes constitutes a new application.

Operational Proposal Details

Agro Forestry (GPC 11)		
1.	Tree Shelters	Not Entered
2.	Plant Size and Stocking	Not Entered
Drainage		
1.	Drainage	Required
2.	Drainage Comment	Full compliance with the Forestry and Water Quality Guidelines.
Fertiliser		
1.	Zero	Yes
2.	350 Kg Granulated Rock Phosphate	Not Entered
3.	250 Kg Granulated Rock Phosphate	Not Entered
4.	Split Application	Not Entered
5.	Other Details	Not Entered
Firebreaks/Res.		
1.	Firebreaks/Res	Not Required
Forestry for Fibre (GPCs: 12a and 12b))		
1.	Is Land Free Drainage arable or pasture soils	Not Entered
2.	Are there surface water gleys without a peat layer	Not Entered
3.	Do you intend to use improved genetic material	Not Entered
4.	Details	Not Entered
Ground Prep.		
1.	Woody Weed Removal	Not Entered
2.	Ripping	Not Entered
3.	Pit Plant	Not Entered
4.	Mole Drainage	Not Entered
5.	Mounding	Yes
6.	Ploughing	Not Entered
9.	Other Details	Not Entered
Planting Method		
1.	Angle Notch	Yes
2.	Pit	Not Entered
3.	Machine	Not Entered

An Roinn Talmhaíochta, Bia agus Mara
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4.	Slit	Not Entered
5.	Other Details	Not Entered
Road Access		
1.	Road Access	Provided
Standard Stocking		
1.	Standard Stocking	Yes
2.	Details	Not Entered
Weed Control		
1.	Herbicide Control yr0	Yes
2.	Herbicide Control yr1	Yes
3.	Herbicide Control yr2	Yes
3.	Herbicide Control yr4	Not Entered
4.	Manual	Yes
4.	Herbicide Control yr3	Yes

Fencing Details (metres)	Stock	220	Stock-Sheep	0
	Stock-Rabbit	0	Upgrade to Deer	0
	Deer-Rabbit	0	Deer	0
	Upgrade Existing Fence(s)	0		
	Upgrade Details: None Entered			

Species Approved

The species approved in this proposal relate to the digitised certified species map attached.

Species Approved for Afforestation

Plot	Area	GPC	Land Type	Species	Species Area	Yield Class	Mixture Type	Exclusion	Exclusion Type
1	2.93	GPC 3	CHF	SS	2.64	22	Integrated Mix		
				ADB	.29	4			

Additional Silvicultural and Environmental Conditions

In addition to the Department's environmental and silvicultural guidelines the following specific conditions apply to this proposal:

Silvicultural and Environmental Conditions

Plant 5 rows of birch,alder,rowan,scots pine along road setback and 15m back from streams along the northern and southern boundaries.,
Adequately drain the site. Connect mound drains to field drains via silt traps and collector drains.,
All guidelines to apply

Certified Species Information

Contract No: CN72161
Townland: GLANTANE BEG
County: C
6 " OS No: CK29

Plot No	GPC	Parcel No	GPC Area(h)	Land Use Type	Species Area	Species	Mixture Type	Excl. Area(h)	Excl. Type
1	GPC 3	37681342	2.93	CHF	2.93	SS, ADB	I	0.0	
	Totals		2.93		2.93			0.0	

Remarks :

Area Surveyed By : **Date:**
Species Certified By : **Date:**

Scale 1: **5000.0**

Contract: **CN72161**

Appendix 2

Appropriate Assessment Screening Documents

Appropriate Assessment Screening Report

Proposed Replanting at Ballyduff Beg, Co. Clare

McCarthy Keville O'Sullivan

Planning & Environmental Consultants

DOCUMENT DETAILS

Client:	Planree Ltd.
Project title:	Proposed Replanting at Ballyduff Beg, Co. Clare

Project Number:	160502
Document Title:	Appropriate Assessment Screening Report
Doc. File Name:	160502 –AASR – 2017.11.09 – F
Prepared By:	McCarthy Keville O'Sullivan Ltd. Planning & Environmental Consultants Block 1, G.F.S.C. Moneenageisha Road, Galway

Document Issue:

Rev	Status	Issue Date	Document File Name	Author(s)	Approved By:
01	Draft	09/11/2017	160502 – Replanting AASR Ballyduff Beg– 2017.04.04 – D1	EJ	PR
02	Final	10/11/2017	160502 – Replanting AASR Ballyduff Beg– 2017.11.10 – F	EJ	PR

Table of Contents

1 GENERAL INTRODUCTION

This report has been prepared to provide the information necessary to allow the competent authority to conduct an Article 6(3) Screening for Appropriate Assessment for the proposed construction of a new dwelling house, and wastewater treatment system along with all associated ancillary works **Ballyduff Beg, Co. Clare** (Grid Ref: E 121440 N 181000).

The report provides the information necessary to allow the competent authority to conduct an Article 6(3) Appropriate Assessment Screening of the proposed afforestation.

Screening for Appropriate Assessment is required under Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (the Habitats Directive). Where a plan or project is not directly connected with or necessary to the management of a European site and where it cannot be excluded, on the basis of objective information that a project or plan, either alone or in combination with other projects or plans, would have a significant effect on a European Site, then same shall be subject to an appropriate assessment of its implications for the European site in view of the site's conservation objectives. The current project is not directly connected with, or necessary for, the management of any European Site consequently the project has been subject to the Appropriate Assessment Screening process.

The assessment in this report is based on a desk study and field surveys undertaken during 2017. It specifically assesses the potential for the proposed afforestation to impact on European sites and the ecology of the area.

This report has been prepared in accordance with the European Commission guidance document *Assessment of Plans and Projects Significantly affecting Natura 2000 Sites: Methodological Guidance on the provisions of Article 6(3) and 6(4) of the Habitats Directive 92/43/EEC* (EC, 2001) and the Department of the Environment's Guidance on the Appropriate Assessment of Plans and Projects in Ireland (December 2009, amended February 2010).

In addition to the guidelines referenced above, the following relevant guidance was considered in preparation of this report:

(1) DoEHLG (2010) Appropriate Assessment of Plans and Projects in Ireland Guidance for Planning Authorities. Department of the Environment, Heritage and Local Government,
(2) European Communities (2000) Managing Natura 2000 Sites: the provisions of Article 6 of the 'Habitats' Directive 92/43/EEC, Office for Official Publications of the European Communities, Luxembourg. European Commission,
(3) 92/43/EEC, Office for Official Publications of the European Communities, Luxembourg. European Commission,
(4) EC (2007) Guidance document on Article 6(4) of the 'Habitats Directive' 92/43/EEC – *Clarification of the concepts of: alternative solutions, imperative reasons of overriding public interest, compensatory measures, overall coherence, opinion of the commission*. European Commission
(4) EC (2013) Interpretation Manual of European Union Habitats. Version EUR 28. European Commission,

(5) EPA (2002) Guidelines on the information to be contained in Environmental Impact Statements. Environmental Protection Agency,
(6) EPA (2003), Advice Notes on current practice in the preparation of Environmental Impact Statements. Environmental Protection Agency, and
(7) CIEEM (2016) Institute of Ecology and Environmental Management Guidelines for Ecological Impact Assessment. (9) EC (2001) Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC

1.1 Background to Appropriate Assessment

1.1.1 Screening for Appropriate Assessment

Screening is the process of determining whether or not an Appropriate Assessment is required for a plan or project. Under Part XAB of the Planning and Development Act, 2000 as amended, Screening must be carried out by the Competent Authority to assess, in view of best scientific knowledge, if a land use plan or proposed development, individually or in combination with another plan or project, is likely to have a significant effect on a European site. The Competent Authority's determination as to whether or not an Appropriate Assessment is required must be made on the basis of objective information and should be recorded. The competent authority may request information to be supplied to enable it to carry out screening.

1.1.2 Appropriate Assessment (Natura Impact Statement)

The term Natura Impact Statement (NIS), is defined in legislation[1]. An NIS, where required, should present the data, information and analysis necessary to reach a definitive determination as to 1) the implications of the plan or project, alone or in combination with other plans and projects, for a European site in view of its conservation objectives, and 2) whether there will be adverse effects on the integrity of a European site. The NIS should be underpinned by best scientific knowledge, objective information and by the precautionary principle.

[1] As defined in Section 177T of the Planning and Development Act, 2000 as amended, an NIS means a statement, for the purposes of Article 6 of the Habitats Directive, of the implications of a proposed development, on its own and in combination with other plans and projects, for a European site in view of its conservation objectives. It is required to include a report of a scientific examination of evidence and data, carried out by competent persons to identify and classify any implications for the European site in view of its conservation objectives

2 DESCRIPTION OF THE PROPOSED AFFORESTATION

2.1 General Project Description

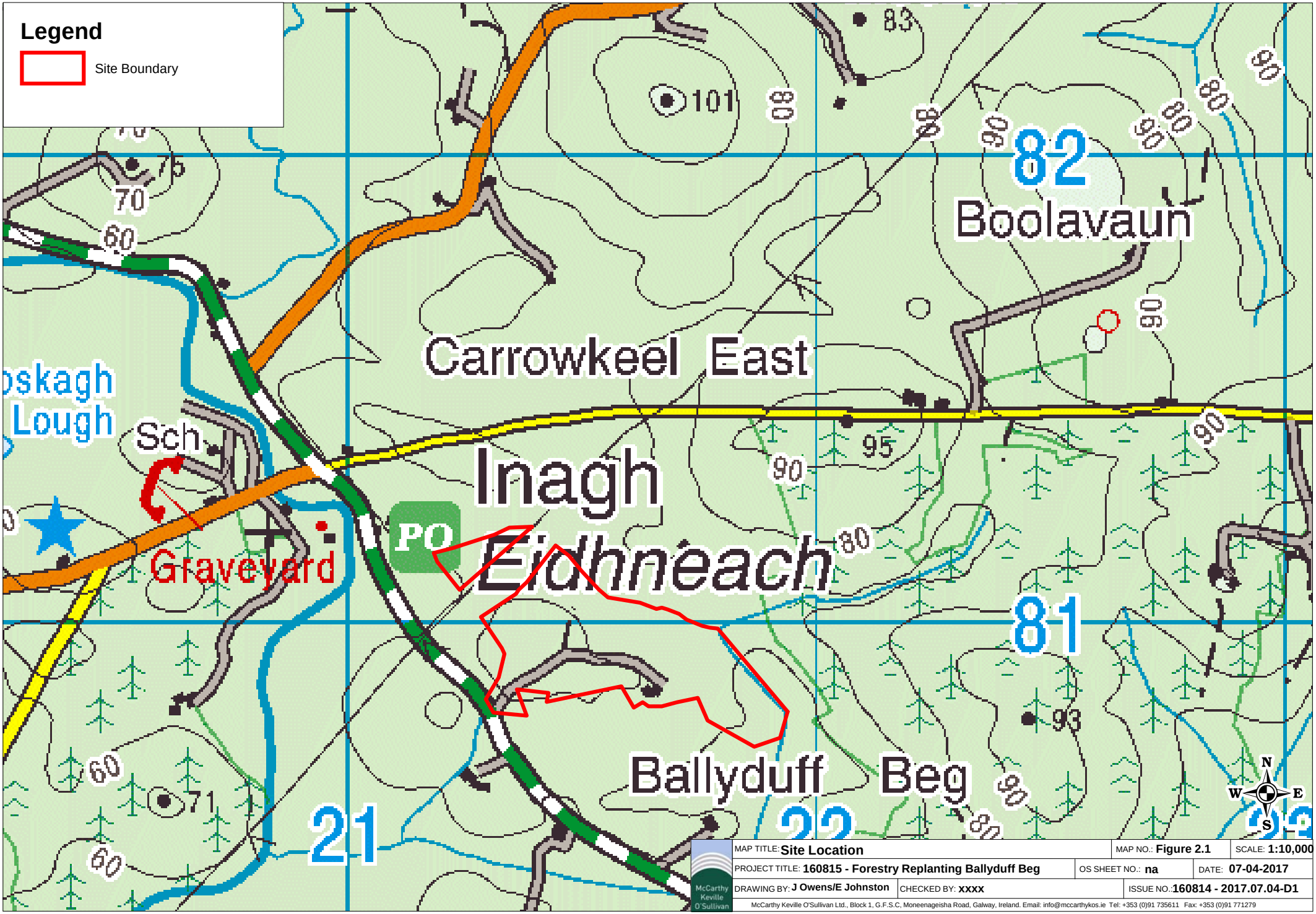
The land addressed in this document has been granted Technical Approval by the Forest Service for afforestation. Copies of the Technical Approval documents are presented in Appendix 1.

The afforestation and subsequent harvesting will conform to current best practice Forest Service regulations, policies and strategic guidance documents as well as Coillte produced guidance documents, to ensure that newly planted trees remain viable and afforestation provide minimal potential impacts to the receiving environment.

Planting will be carried out by hand, and in accordance with the 'Forestry Schemes Manual' (Forest Service, 2011), which provides guidance in relation to ground cultivation, stocking and spacing, plant handling, planting dates, fertiliser application, fencing, fire, and weed control. Certain specific silvicultural and environmental conditions are also set out in the Forest Service Technical Approvals for the site, which will be adhered to. Drainage and sediment control on site will conform to Forest Service best practice.

Invasive Species
The following measures address potential impacts associated with the construction phase of the project:

- Good site hygiene will be employed to prevent the spread of invasive species with vehicle thoroughly washed prior to leaving any site which potentially supported invasive species.



MAP TITLE: **Site Location**		MAP NO.: **Figure 2.1**	SCALE: **1:10,000**
PROJECT TITLE: **160815 - Forestry Replanting Ballyduff Beg**		OS SHEET NO.: **na**	DATE: **07-04-2017**
DRAWING BY: **J Owens/E Johnston**	CHECKED BY: **xxxx**	ISSUE NO.: **160814 - 2017.07.04-D1**	

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3 METHODOLOGY AND LIMITATIONS

Assessing the impacts of any project and associated activities requires an understanding of the ecological baseline conditions prior to and at the time of the project proceeding. Ecological Baseline conditions are those existing in the absence of proposed activities (CIEEM 2016).

The following paragraphs outline the methodologies utilised to establish the baseline ecological condition of the proposed afforestation site.

Initially the potential for the site to support protected habitats and species was assessed by means of a desk study. Literature pertinent to the site and surrounding area was reviewed as was information pertaining to legislation/designations and other notable ecological records.

A field survey of the site, including a habitat survey, was carried out by suitably qualified ecologist from McCarthy Keville O'Sullivan, Erin Johnston (BSc., MSc, PhD) in March 2017. The site was assessed and the habitats the site were classified per the guidelines set out in 'A Guide to Habitats in Ireland' (Fossitt, 2000), which classifies habitats based on the vegetation present and management history. In addition, the field survey was designed to detect the presence, or likely presence, of a range of protected species.

Seasonal factors that affect distribution patterns and habits of species were taken into account when conducting the surveys. The potential of the site to support certain populations (in particular those of conservation importance that may not have been recorded during the field survey due to their seasonal absence or nocturnal/cryptic habits) was assessed.

The nature of the site was such that all habitats and species of interest were readily identifiable based on the site survey. Using the information gained during this site visit, together with published information on the site and its environs, it is considered that a comprehensive ecological assessment was achieved.

4 FIELD SURVEY

4.1 Habitats

The site consisted of agricultural fields subject to ongoing drainage and land management, containing semi-improved Wet Grassland (GS4). Field boundaries consisted of Hedgerows (WL1), narrow strips of Scrub (WS1) and Treelines (WL2).

The southern portion of the site consisted of Wet Grassland (GS4) (Plate 5.1) Species recorded within this section included Knapweed (*Centaurea nigra*), Greater Plantain (*Plantago major*), Self-Heal (*Prunella vulgaris*), Red Clover (*Trifolium pratense*), Creeping Buttercup (*Ranunculus repens*), Meadow Buttercup (*Ranunculus acris*), Mouse-Eared Chickweed (*Cerastium vulgatum*), Glaucous Sedge (*Carex flacca*) and Rushes (*Juncus sp.*).
The remainder of the site is comprised of Wet Grassland (GS4) (Plate 5.2) which is dominated extensively by rushes (*Juncus* spp.). Grass species recorded throughout the site included Creeping Bent (*Agrostis stolonifera*), Yorkshire Fog (*Holcus lanatus*), and Purple Moor grass (*Molinia caerulea*). Other species recorded in this area included Creeping Buttercup (*Ranunculus repens*), Meadow buttercup (*Ranunculus acris*), Meadow Sweet (*Filipendula ulmaria*), Silverweed (*Potentilla anserine*), Marsh Bedstraw (*Galium palustre*), Ragwort (*Senecio jacobaea*), Brambles (*Rubus fructicosus*), and Common Sorrell (*Rumex acetosa*).

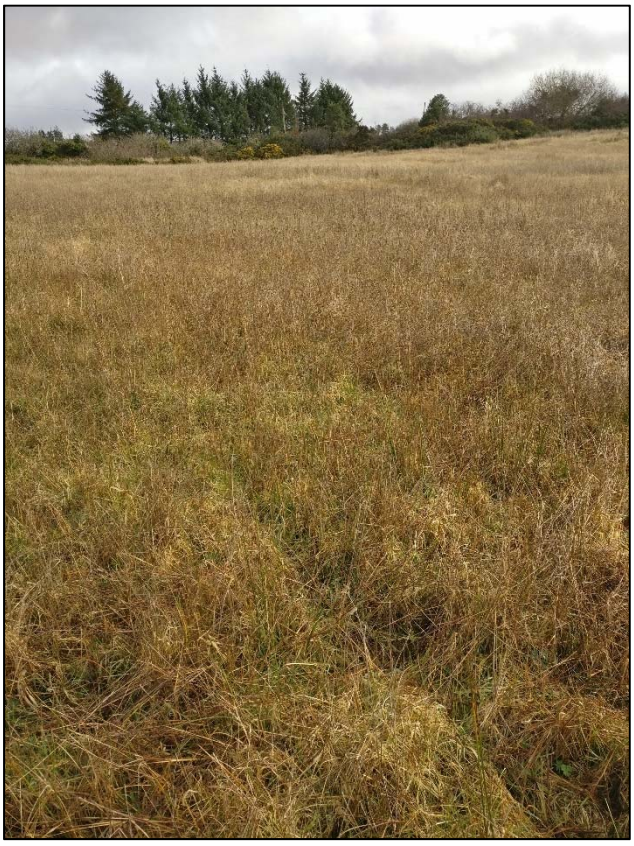


Plate 5.1 Wet Grassland (GS4) on the study site.

Plate 5.2 Wet Grassland (GS4) on the study site.

The field boundaries within the site are composed of Hedgerows (WL1), narrow strips of Scrub (WS1) and Treelines (WL2). Species recorded within these habitats included Gorse (*Ulex europaeus*), Willow (*Salix spp.*), Hawthorn (*Crataegus monogyna*), Blackthorn (*Prunus spinosa*), Hazel (*Corylus avellana*), Cotoneaster (*Cotoneaster spp.*), Laurel (*Prunus laurocerasus*), and Pine (*Pinus spp.*). Other species included Bramble, Ivy (*Hedera helix*), Bracken (*Pteridium aquilinum*), Hard Fern (*Blechnum spicant*).

Plate 5.2 Line of Scrub (WS1) bordering Wet grassland (GS4) with Treelines (WL1) in the background

No species or habitats which correspond to those that are listed in the EU Habitats Directive were identified during the site visit

5 APPROPRIATE ASSESSMENT SCREENING

5.1 Background to European Sites

The Habitats Directive (together with the Birds Directive) forms the cornerstone of Europe's nature conservation policy. It is built around two pillars: The Natura 2000 network of protected sites and a strict system of species protection. All in all, the directive protects over 1,000 animal and plant species and over 200 "habitat types" (e.g. special types of forests, meadows, wetlands, etc.), which are of European importance.

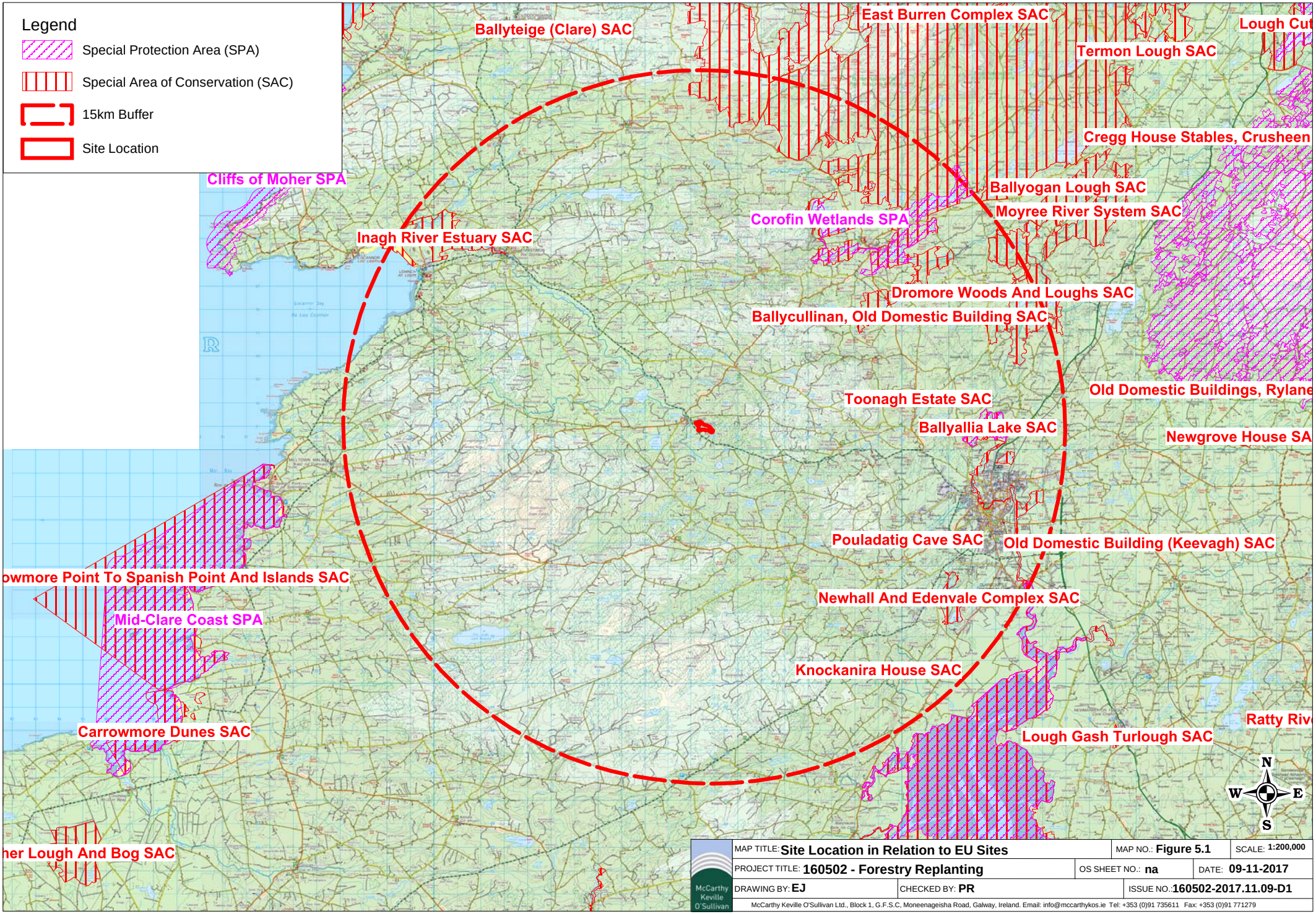
With the introduction of the EU Habitats Directive (92/43/EEC) and Birds Directive (79/409/EEC) which were transposed into Irish law as S.I. No. 94/1997 *European Communities (Birds and Natural Habitats) Regulations* 1997, the European Union formally recognised the significance of protecting rare and endangered species of flora and fauna, and also, more importantly, their habitats. The 1997 Regulations and their amendments were subsequently revised and consolidated in S.I. No. 477/2011- *European Communities (Birds and Natural Habitats) Regulations* 2011. This legislation requires the establishment and conservation of a network of sites of particular conservation value that are to be termed 'European Sites'.

5.2 European Sites in the likely Zone of Impact of the Proposed Afforestation

The most up to date GIS spatial datasets for European designated sites were downloaded from the NPWS website (www.npws.ie) on the 10.11.2017. Using the GIS software, MapInfo (Version 10.0), European sites within the likely zone of influence of the project were identified. The following rationale was used to identify the zone of influence. Initially, sites within a 15 kilometer radius of the proposed works were identified as per DoEHLG Guidance (2010). In addition, using the precautionary principle, European Sites located outside the 15km buffer zone were also taken into account and assessed. In this case, no potential for impacts outside the 15km buffer was identified.

Figure 5.1 show the location of the proposed works in relation to all European sites within the Likely Zone of Influence as identified per the criteria described above.

Table 5.1, lists all European Sites that were considered to be within the Likely Zone of Influence. The site synopses and conservation objectives of these sites, as per the NPWS website (www.npws.ie), were considered at the time of preparation of this report (10/11/2017). Details of these sites, including their distance from the proposed afforestation, are provided in Table 5.1.



MAP TITLE: **Site Location in Relation to EU Sites**	MAP NO.: **Figure 5.1**	SCALE: **1:200,000**	
PROJECT TITLE: **160502 - Forestry Replanting**	OS SHEET NO.: **na**	DATE: **09-11-2017**	
DRAWING BY: **EJ**	CHECKED BY: **PR**	ISSUE NO.: **160502-2017.11.09-D1**	

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Table 5.1 Designated sites within the Likely Zone of Influence

European Site	Distance from the site of the proposed afforestation (km)	Qualify Interests/Special Conservation Interests for which the European Site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie on the 03/04/2017)	Conservation Objectives
Special Areas of Conservation (SAC)			
Ballycullinan Lake SAC (000016)	7.5km	• Calcareous fens with Cladium mariscus and species of the Caricion davallianae [7210]	The generic conservation objectives for this site are *To maintain or restore the favourable conservation condition of the Annex I habitat(s) and/or the Annex II species for which the SAC has been selected*
East Burren Complex SAC (001926)	8.2km	• Hard oligo-mesotrophic waters with benthic vegetation of Chara spp. [3140] • Turloughs [3180] • Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation [3260] • Alpine and Boreal heaths [4060] • Juniperus communis formations on heaths or calcareous grasslands [5130] • Calaminarian grasslands of the Violetalia calaminariae [6130] • Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites) [6210] • Lowland hay meadows (Alopecurus pratensis, Sanguisorba officinalis) [6510] • Calcareous fens with Cladium mariscus and species of the Caricion davallianae [7210] • Petrifying springs with tufa formation (Cratoneurion) [7220] • Alkaline fens [7230]	The generic conservation objectives for this site are *To maintain or restore the favourable conservation condition of the Annex I habitat(s) and/or the Annex II species for which the SAC has been selected*

		• Limestone pavements [8240] • Caves not open to the public [8310] • Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae) [91E0] • Euphydryas aurinia (Marsh Fritillary) [1065] • Rhinolophus hipposideros (Lesser Horseshoe Bat) [1303] • Lutra lutra (Otter) [1355]	
Toonagh Estate SAC (002247)	8.6km	• Rhinolophus hipposideros (Lesser Horseshoe Bat) [1303]	The generic conservation objectives for this site are *"To maintain or restore the favourable conservation condition of the Annex I habitat(s) and/or the Annex II species for which the SAC has been selected"*
Ballycullinan, Old Domestic Building SAC (002246)	9.1km	• Rhinolophus hipposideros (Lesser Horseshoe Bat) [1303]	The generic conservation objectives for this site are *"To maintain or restore the favourable conservation condition of the Annex I habitat(s) and/or the Annex II species for which the SAC has been selected"*
Pouladatig Cave SAC (000037)	9.3km	• Caves not open to the public [8310] • *Rhinolophus hipposideros* (Lesser Horseshoe Bat) [1303]	The generic conservation objectives for this site are *"To maintain or restore the favourable conservation condition of the Annex I habitat(s) and/or the Annex II species for which the SAC has been selected"*
Ballyallia Lake SAC (000014)	10.6km	• Natural eutrophic lakes with *Magnopotamion* or *Hydrocharition* - type vegetation [3150]	The generic conservation objectives for this site are *"To maintain or restore the favourable conservation condition of the Annex I*

			habitat(s) and/or the Annex II species for which the SAC has been selected"
Inagh River Estuary SAC (000036)	10.8km	• Salicornia and other annuals colonising mud and sand [1310] • Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [1330] • Mediterranean salt meadows (*Juncetalia maritimi*) [1410] • Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes) [2120] • Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130]	Detailed conservation objectives for this site are available at www.npws.ie
Lower River Shannon SAC (002165)	11.1km	• Sandbanks which are slightly covered by sea water all the time [1110] • Estuaries [1130] • Mudflats and sandflats not covered by seawater at low tide [1140] • Coastal lagoons [1150] • Large shallow inlets and bays [1160] • Reefs [1170] • Perennial vegetation of stony banks [1220] • Vegetated sea cliffs of the Atlantic and Baltic coasts [1230] • Salicornia and other annuals colonising mud and sand [1310] • Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [1330] • Mediterranean salt meadows (*Juncetalia maritimi*) [1410] • Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation [3260] • Molinia meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*) [6410]	Detailed conservation objectives for this site are available at www.npws.ie

		• Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion albae*) [91E0] • *Margaritifera margaritifera* (Freshwater Pearl Mussel) [1029] • *Petromyzon marinus* (Sea Lamprey) [1095] • *Lampetra planeri* (Brook Lamprey) [1096] • *Lampetra fluviatilis* (River Lamprey) [1099] • *Salmo salar* (Salmon) [1106] • *Tursiops truncatus* (Common Bottlenose Dolphin) [1349] • *Lutra lutra* (Otter) [1355]	
Newhall and Edenvale Complex SAC (002091)	11.6km	• Caves not open to the public [8310] • *Rhinolophus hipposideros* (Lesser Horseshoe Bat) [1303]	The generic conservation objectives for this site are *"To maintain or restore the favourable conservation condition of the Annex I habitat(s) and/or the Annex II species for which the SAC has been selected"*
Old Farm Buildings, Ballymacrogan SAC (002245)	12.0km	• *Rhinolophus hipposideros* (Lesser Horseshoe Bat) [1303]	The generic conservation objectives for this site are *"To maintain or restore the favourable conservation condition of the Annex I habitat(s) and/or the Annex II species for which the SAC has been selected"*
Dromore Woods and Loughs SAC (000032)	12.3km	• Natural eutrophic lakes with Magnopotamion or Hydrocharition - type vegetation [3150] • Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels [6430] • Limestone pavements [8240] • Rhinolophus hipposideros (Lesser Horseshoe Bat) [1303] • Lutra lutra (Otter) [1355]	The generic conservation objectives for this site are "*To maintain or restore the favourable conservation condition of the Annex I habitat(s) and/or the Annex II species for which the SAC has been selected*"

Knockanira House SAC (002318)	12.4km	*Rhinolophus hipposideros* (Lesser Horseshoe Bat) [1303]	The generic conservation objectives for this site are *To maintain or restore the favourable conservation condition of the Annex I habitat(s) and/or the Annex II species for which the SAC has been selected*
Moneen Mountain SAC (000054)	12.6km	• Turloughs [3180] • Alpine and Boreal heaths [4060] • Juniperus communis formations on heaths or calcareous grasslands [5130] • Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites) [6210] • Petrifying springs with tufa formation (Cratoneurion) [7220] • Limestone pavements [8240] • Euphydryas aurinia (Marsh Fritillary) [1065] • Rhinolophus hipposideros (Lesser Horseshoe Bat) [1303]	The generic conservation objectives for this site are *To maintain or restore the favourable conservation condition of the Annex I habitat(s) and/or the Annex II species for which the SAC has been selected*
Special Protection Area (SPA)			
Corofin Wetlands SPA (004220)	8.2km	• Little Grebe (*Tachybaptus ruficollis*) [A004] • Whooper Swan (*Cygnus cygnus*) [A038] • Wigeon (*Anas penelope*) [A050] • Teal (*Anas crecca*) [A052] • Black-tailed Godwit (*Limosa limosa*) [A156] Wetland and Waterbirds [A999]	The generic conservation objectives for this site are "*To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA*" And "*To maintain or restore the favourable conservation condition of the wetland habitat at Corofin Wetlands SPA as a*

			resource for the regularly-occurring migratory waterbirds that utilise it."
Ballyallia Lough SPA (004041)	10.6km	• Wigeon (*Anas penelope*) [A050] • Gadwall (*Anas strepera*) [A051] • Teal (*Anas crecca*) [A052] • Mallard (*Anas platyrhynchos*) [A053] • Shoveler (*Anas clypeata*) [A056] • Coot (*Fulica atra*) [A125] • Black-tailed Godwit (*Limosa limosa*) [A156] • Wetland and Waterbirds [A999]	The generic conservation objectives for this site are "*To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA*" And "*To maintain or restore the favourable conservation condition of the wetland habitat at Ballyallia Lough SPA as a resource for the regularly-occurring migratory waterbirds that utilise it.*"
River Shannon and River Fergus Estuaries SPA (004077)	14.8km	• Cormorant (*Phalacrocorax carbo*) [A017] • Whooper Swan (*Cygnus cygnus*) [A038] • Light-bellied Brent Goose (*Branta bernicla hrota*) [A046] • Shelduck (*Tadorna tadorna*) [A048] • Wigeon (*Anas penelope*) [A050] • Teal (*Anas crecca*) [A052] • Pintail (*Anas acuta*) [A054] • Shoveler (*Anas clypeata*) [A056] • Scaup (*Aythya marila*) [A062] • Ringed Plover (*Charadrius hiaticula*) [A137] • Golden Plover (*Pluvialis apricaria*) [A140] • Grey Plover (*Pluvialis squatarola*) [A141] • Lapwing (*Vanellus vanellus*) [A142] • Knot (*Calidris canutus*) [A143] • Dunlin (*Calidris alpina*) [A149] • Black-tailed Godwit (*Limosa limosa*) [A156] • Bar-tailed Godwit (*Limosa lapponica*) [A157]	Detailed conservation objectives for this site are available at www.npws.ie

		• Curlew (*Numenius arquata*) [A160] • Redshank (*Tringa totanus*) [A162] • Greenshank (*Tringa nebularia*) [A164] • Black-headed Gull (*Chroicocephalus ridibundus*) [A179] • Wetland and Waterbirds [A999]	

6 ARTICLE 6(3) SCREENING ASSESSMENT

6.1 Article 6(3) Assessment Criteria

The Screening Assessment criteria examined in the impact assessment section of this screening document follow the suggested screening matrix structure detailed in *Assessment of Plans and Projects Significantly Affecting Natura 2000 Sites: Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive* (EC 2001).

6.1.1 Description of the Individual Elements of the Project with Potential to give Rise to Impacts on the European Site

The project involves the afforestation of land as described in detail previously. Elements of the works in the construction phase with the potential to give rise to impacts on nearby European sites include the following:

- Site preparation works including excavation works for drainage
- Subsequent felling of mature trees

6.1.2 Description of any Likely Direct, Indirect or Secondary Impacts of the Project on the European Site

Any likely direct, indirect or secondary impacts of the proposed afforestation, both alone and in combination with other plans or projects, on the European Sites by virtue of the following criteria: size and scale, land-take, distance from the European Sites or key features of the site, resource requirements (such as water abstraction), emissions (disposal to land, water or air), excavation requirements, transportation requirements and duration of construction, operation, decommissioning are presented in Table 6.1.

Table 6.1 Likely Impacts of the Project on the European Sites

Likely Direct, Indirect or Secondary Impacts of the Project on the European Sites	
Size and Scale	No direct or indirect impacts on any European sites are predicted.
Land-take	There will be no land take within any European Site associated with the proposed afforestation and therefore no resultant impacts are likely.

Likely Direct, Indirect or Secondary Impacts of the Project on the European Sites	
Distance from the European Site or Key Features of the Site	The proposed afforestation site does not overlap with the boundaries of any European sites. The nearest European sites 7.5km from the site boundary. There are no pathways for indirect impacts identified. No potential for impacts in regard to distance from the Proposed afforestation was identified in relation to any European Sites within the Zone of likely Impact.
Resource Requirements	The proposed afforestation will not exploit any resources within any European sites.
Emissions	The closest European site, European site, Ballycullian Lake SAC (000016) is located 7.5km from the proposed afforestation site. No hydrological connectivity was identified between the proposed afforestation site and any SAC. Given this distance, the lack of hydrological connectivity, and that all works are to be carried out to best practice guideline specification, no impact on this or any European Site are anticipated.
Excavation Requirements	There will be no works undertaken within any European Site and therefore no direct impacts relating to excavation are predicted. Small scale excavations will be required on the site for the installation of drainage ditches throughout the site. No hydrological connectivity was identified between the proposed afforestation site and the nearest European Site (Ballycullian Lake SAC). Given the scale of the works, the best practice pollution prevention measures, and the distance to the nearest European sites no impact on these European Sites are anticipated due to excavation.

Likely Direct, Indirect or Secondary Impacts of the Project on the European Sites	
Transportation Requirements	As the proposed afforestation is located entirely outside any European Site, there will be no direct impacts on any such site. All transportation requirements to the afforestation will be conducted within the existing public road network No pathway for direct or indirect impacts on any European Site as a result of the transportation requirements associated with this project was identified.
Duration of Construction, Operation, Decommissioning	No potential impacts that relate directly to the duration of each phase of the afforestation were identified. Impacts resulting from Emissions are possible during site preparation and felling, but are considered above with no additional potential for impacts arising specifically as a result of the duration of each phase identified.
Cumulative Impacts with other Projects or Plans	The proposed afforestation was considered in combination with other development and activities in the area that could result in cumulative impacts on the identified European Sites. The proposed development site is situated in the townland of Ballyduff Beg, Co. Clare. This area is characterised by improved agricultural grasslands, and domestic dwellings. There are no large scale developments proposed or existing in close proximity to the project. One planning applications made in the townland in the last five years was identified. This was for the construction of an agricultural building and ancillary works (File Number: 15712). The proposed works will not result in any impacts on any European Site and therefore cannot contribute to any wider cumulative impact.

6.1.3 Description of any Likely Changes to the European Site

Any likely changes to the European Sites are described in Table 6.2 with reference to the following criteria: reduction of habitat area, disturbance to key species, habitat or species fragmentation, reduction in species density, changes in key indicators of conservation value (e.g. water quality etc.) and climate change.

Table 6.2 Likely Changes to the European Sites

Likely Changes to the European Sites	
Reduction of Habitat Area	There will be no loss of Annex I habitat or loss of supporting habitat for SCI/QI species of European sites.
Disturbance to Key Species	Given that all the works associated with the proposed afforestation are wholly located outside the boundaries of any European site, and the nearest sites are buffered from the afforestation site by existing urban infrastructure, there will be no significant impacts on key species.
Habitat or Species Fragmentation	There will be no habitat or species fragmentation within any European Site associated with the proposed afforestation.
Reduction in Species Density	Given the habitats upon which the proposed afforestation is located and the lack of proposed works within any European Site, no reduction in species density is anticipated as a result of the proposed works.
Changes in Key Indicators of Conservation Value	Given the nature, scale and location of the proposed works, it is considered unlikely that there will be any changes to the key indicators of conservation value of any of European sites.
Climate Change	Given the nature and scale of the proposed afforestation, it is considered unlikely that there will be any significant resultant impact on climate change.

6.1.4 Description of any Likely Impacts on any European Site

Potential pathways for impacts and effects on the European sites in the preceding sections have been examined and none were found to have a significant impact as a result of the proposed afforestation.

Direct Impacts and **Indirect Impacts** on European Sites are not anticipated. Table 6.3 describes the nature of any impacts in terms of the structure and function of the identified European Sites.

Table 6.3. Assessment of Potential Impacts on the Structure and Function of European Sites

Likely Changes to the European Sites	
Interference with the key relationships that define the structure of a European Site	No potential for impact on the key relationships that define the **Structure** of any European Sites have been identified.
Interference with key relationships that define the function of the European site	No potential for impact on the key relationships that define the **Function** of any European Sites have been identified.

6.1.5 Indicators of Significance as a Result of the Identification of Effects

Indicators of significance are provided in Table 6.4 for any impacts identified above in terms of loss, fragmentation, disruption, disturbance and changes to key elements of the site, such as water quality.

Table 6.4Indicators of Significance as a Result of the Identification of Effects

Indicators of Significance as a Result of the Identification of Effects	
Loss	There will be no reduction in Annex I habitat area within any European Sites as a result of the proposed afforestation. There will be no net loss of supporting habitat of QI/SCI species.
Fragmentation	There will be no habitat or species fragmentation within any European Site associated with the proposed afforestation.
Disruption	There will be no disruption to the ecological processes within any European Sites as a result of the proposed afforestation
Disturbance	There will be no disturbance within any European Sites as a result of the proposed afforestation
Changes to Key Elements of the Site	There will be no changes to key elements within any Natura 2000 site as a result of the proposed afforestation.

7 ARTICLE 6(3) SCREENING STATEMENT AND CONCLUSIONS

The findings of this Screening Report are presented below

7.1 Assessment of Significance of Effects

Is the project directly connected with or necessary to the management of the site?

The project is not directly connected with or necessary to the management of any European Site.

Are there any other projects or plans that together with the project being assessed could affect the site?

A search in relation to plans and projects that may have the potential to result in cumulative impacts on European sites was conducted. The proposed afforestation will have no individual or cumulative impacts on any European site in any regard.

Describe how the project is likely to affect the Natura 2000 sites

The project will not significantly affect any European Sites. Complete impact source-pathway receptor chains for direct or indirect impacts were not identified.

Explain why these effects are not considered significant

- There will be no negative direct or indirect impacts or reduction in Annex I habitat area within any European Site.
- There will be no reduction in key habitats supporting populations of Annex I bird species and no reduction in the populations of any Annex I species.
- There will be no reduction in key habitats supporting populations of Annex II species and no reduction in the populations of any Annex II species.
- The works themselves will involve little disturbance or disruption to the ecological processes in the area during either construction or operation.

7.2 Data Collected to Carry Out Assessment

In preparation of the report, the following sources were used to gather information:

- Review of NPWS Site Synopses and Conservation Objectives for European sites and pNHA sites.
- Site Visit
- Desk study of relevant ecological information.
- Report including desk study and appropriate assessment prepared by Erin Johnston (BSc, MSc, PhD), and reviewed by John Hynes (B Sc. M.Sc), McCarthy Keville O'Sullivan Ltd.

7.3 Concluding Statement

The proposed afforestation, by itself or in combination with other plans and projects, in light of best scientific knowledge in the field, will not, in view of the sites' conservation objectives, have significant effects on any European Site.

There is no requirement for Appropriate Assessment.

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Appendix 1

Technical Approval Documents

Department of
Agriculture,
Food and the Marine
An Roinn
Talmhaíochta,
Bia agus Mara

JOHN O'REILLY
GREEN BELT LTD
MAIN STREET
VIRGINIA
CO CAVAN

RECEIVED
18 DEC 2015

M. Maroney

17/12/2015

Copy
JP + Miko

Technical Approval - Afforestation

Forest Owner	FO127900U
Contract Number	CN73319
Townland	Ballyduff beg
County	Clare
Approved Area (ha)	14.15
Fencing Length (lm)	1,600.00

This is a technical approval only and is not a grant approval.You should note that the project will not be eligible for grant aid unless prior financial approval has been given in writing in advance of commencement of planting. Also, to qualify for Afforestation grant and premiums applicants must own, lease or be in joint management of the lands proposed for planting. You should consult with your registered forester about applying for financial approval under the Scheme.

I refer to your application (Form 1) requesting approval of Afforestation as described above and shown on the enclosed map. Your application has been assessed and technical approval is hereby issued on the basis that the works will be undertaken in accordance with the prescription set out in Appendix A attached herewith.

This scheme is financed by the State and payment of the grant, if financial approval is given, is subject to the following conditions:

1. Availability of funds in each financial year.

2. Submission of a fully completed and signed Form 2 (Application for Payment) and the following documents to support this application.

Proof of Ownership (including removal of any constraints on ownership)
Valid Mandate
Current Tax Clearance Certificate(s)
C2 Certificate
Provenance Certificates
Fencing Map
Biodiversity Map
Certified Species Map

* Conditions pg 2
* letter from Archaeology

3. Satisfactory completion of the work not later than 31/12/2017.

4. Compliance with Operational Proposals and Specifications enclosed.

5. Compliance with Departmental guidelines and requirements for Landscape, Water Quality, Harvesting, Biodiversity and Archaeology.

6. Compliance with Ecological Survey and Management Plan as submitted (if applicable).

An Roinn Talmhaíochta,
Bia agus Mara
Department of Agriculture,
Food and the Marine

Eastát Chaisleán Sheonach
Contae Loch Gorman
Y35 PN52
Éire

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www.agriculture.gov.ie

Department of
Agriculture,
Food and the Marine
An Roinn
Talmhaíochta,
Bia agus Mara

7. The work is carried out by the registered company or forester specified on the original application. If it is intended to have a different company or forester undertake the work, it will be necessary to submit a new application (Form 1) to the Forest Service.

8. All applications are subject to the provisions of the penalty schedules as set out in the Afforestation Grant and Premium Scheme document.

9. All applications are subject to Cross Compliance checks with other grant schemes.

10. Grant payment may be subject to the netting policy of the Department of Agriculture, Food and the Marine.

11. This approval is issued subject to the terms and conditions of the Forestry Standards and Procedures Manual.

12. Your acceptance that the responsibility for the ultimate success of the plantation rests with you, the applicant. Plantations which fail to establish successfully will result in grant and premium recoupment.

13. Additional Environmental & Silvicultural Conditions

- Plot 2 is unenclosed and has been changed to GPC1.,
- Plot 4 is excluded because it does not meet the minimum width of 20m from planted tree to planted tree.,
- Adhere to attached archaeological conditions.,
- Adhere to forestry & archaeology guidelines ,
- All guidelines to apply

Specific Archaeological Conditions:
5m unplanted buffers to be established around any remains of the lime kiln on the site.
Otherwise no specific /extra archaeological conditions recommended over and above adherence to normal standards of the Forestry and Archaeology Guidelines.
See archaeological report and illustrative map for further details

You are required to notify the Department of Agriculture,Food and the Marine in writing if any of the details of your application have changed. Changes to your application may invalidate any approval given.

IMPORTANT

As no submissions from third parties were received by the Department concerning this application, development in accordance with this approval may proceed without further notice subject to financial approval.

Please feel free to contact this office, quoting your Contract Number, regarding progress of your application. LoCall 1890-200 509.

Yours sincerely

JOANNE ROBINSON
Approval Section
Forest Service

An Roinn Talmhaíochta,
Bia agus Mara
Department of Agriculture,
Food and the Marine

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APPENDIX A

Department of Agriculture, Food and the Marine

Department of Agriculture, Food and the Marine
An Roinn Talmhaíochta, Bia agus Mara

Operational Proposals for Approval of Afforestation

Forest Owner Number	FO127900U
Contract Number	CN73319
Townland	Ballyduff beg
County	Clare
Area Approved	14.15(ha)
Fencing Length (LM)	1,600.00

All applications must be developed in accordance with detailed standards and procedures as described in the current Forestry Schemes Manual. Certain specific operational proposals particular to this application are described below. No change is permitted to these proposals and species approved unless approved in advance by the Department. The Department may insist that proposed changes constitutes a new application.

Operational Proposal Details

Agro Forestry (GPC 11)		
1.	Tree Shelters	Not Entered
2.	Plant Size and Stocking	Not Entered
Drainage		
1.	Drainage	Required
2.	Drainage Comment	in conjunction with mounding
Fertiliser		
1.	Zero	Not Entered
2.	350 Kg Granulated Rock Phosphate	Not Entered
3.	250 Kg Granulated Rock Phosphate	Yes
4.	Split Application	Not Entered
5.	Other Details	Not Entered
Firebreaks/Res.		
1.	Firebreaks/Res	Not Required
Forestry for Fibre (GPCs: 12a and 12b))		
1.	Is Land Free Drainage arable or pasture soils	Not Entered
2.	Are there surface water gleys without a peat layer	Not Entered
3.	Do you intend to use improved genetic material	Not Entered
4.	Details	Not Entered
Ground Prep.		
1.	Woody Weed Removal	Yes
2.	Ripping	Not Entered
3.	Pit Plant	Not Entered
4.	Mole Drainage	Not Entered
5.	Mounding	Yes
6.	Ploughing	Not Entered
9.	Other Details	Not Entered
Planting Method		
1.	Angle Notch	Not Entered
2.	Pit	Not Entered
3.	Machine	Not Entered

An Roinn Talmhaíochta, Bia agus Mara
Department of Agriculture, Food and the Marine
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4.	Slit	Yes
5.	Other Details	Not Entered
Road Access		
1.	Road Access	Provided
Standard Stocking		
1.	Standard Stocking	Yes
2.	Details	Not Entered
Weed Control		
1.	Herbicide Control yr0	Yes
2.	Herbicide Control yr1	Yes
3.	Herbicide Control yr2	Yes
3.	Herbicide Control yr4	Not Entered
4.	Manual	Yes
4.	Herbicide Control yr3	Yes

Fencing Details (metres)	Stock	1600	Stock-Sheep	0
	Stock-Rabbit	0	Upgrade to Deer	0
	Deer-Rabbit	0	Deer	0
	Upgrade Existing Fence(s)	N		
	Upgrade Details: None Entered			

Species Approved

The species approved in this proposal relate to the digitised certified species map attached.

Species Approved for Afforestation

Plot	Area	GPC	Land Type	Species	Species Area	Yield Class	Mixture Type	Exclusion	Exclusion Type
1	.07	GPC 3	CHF	SS	11.23	20	Groups	.07	ESB
				ADB	1.25	10			
1	.66	GPC 3	CHF	SS	11.23	20	Groups	.66	ESB
				ADB	1.25	10			
1	12.44	GPC 3	CHF	SS	11.23	20	Groups		
				ADB	1.25	10			
2	.67	GPC 1	CHF	SS	.8	20	Groups	.67	ESB
				ADB	.09	10			
2	1.07	GPC 1	CHF	SS	.8	20	Groups		
				ADB	.09	10			
3	.64	GPC 3	Bio				None		

Department of Agriculture, Food and the Marine,
Agriculture House,
Kildare Street,
Dublin DO2 WK12.

8th December 2015

Felling Section,
Forest Service,
Department of Agriculture, Food and the Marine,
Johnstown Castle Estate,
Co. Wexford.

Re: CN73319 Ballyduff Beg, Co. Clare

Dear Sir / Madam,

I am writing to you with regard to the application for approval for the afforestation in respect of certain lands at Ballyduff Beg, Co. Clare.

The area proposed for afforestation does not contain any Recorded Monuments *per se* but there are several in the surrounding area. The closest monument is a graveyard known as Templeduff burial ground (CL032-002002) c.220m to the northwest and an earthwork (CL032-057) lies c.270m to the southeast. In addition to these monuments a lime kiln is shown on the site on the late 19th century OS map.

It is recommended that the conditions outlined below be attached to this application.

For the purposes of the requirements of the EIA screening form (as per the European Communities (Forest Consent and Assessment) Regulations 2010, as amended) this constitutes:

	Yes	No	N/A
- Adherence to the normal standards of the Forestry and Archaeology Guidelines	X		
- Specific conditions regarding buffer zones etc	X		
- Archaeological Monitoring during ground preparation or drainage works		X	
- Archaeological Assessment		X	
- Refusal in part		X	
- Refusal		X	

For the purposes of the IFORIS summary notes this constitutes:

Archaeological Conditions: Extra

Yours sincerely,

Melanie McQuade

Melanie McQuade
Archaeologist

CN73319

Ballyduff Beg, Co. Clare

Archaeological conditions

The area proposed for afforestation does not contain any Recorded Monuments *per se* but there are several in the surrounding area. The closest monument is a graveyard known as Templeduff burial ground (CL032-002002) c.220m to the northwest and an earthwork (CL032-057) lies c.270m to the southeast. In addition to these monuments a lime kiln is shown on the site on the late 19th century OS map.

It is of concern that every effort is made to protect this monument and that there would be an appropriate response should any previously unrecorded archaeology be discovered during the course of the works.

Consequently, the following conditions should be adhered to during the proposed works:

1. As always, at all times during the proposed operations the terms of the 'Forestry and Archaeology Guidelines' and 'Forest Harvesting and the Environment Guidelines' should be adhered to.

2. A 5m unplanted buffer should be established around any remains of the historic lime kiln (see accompanying map for illustration).

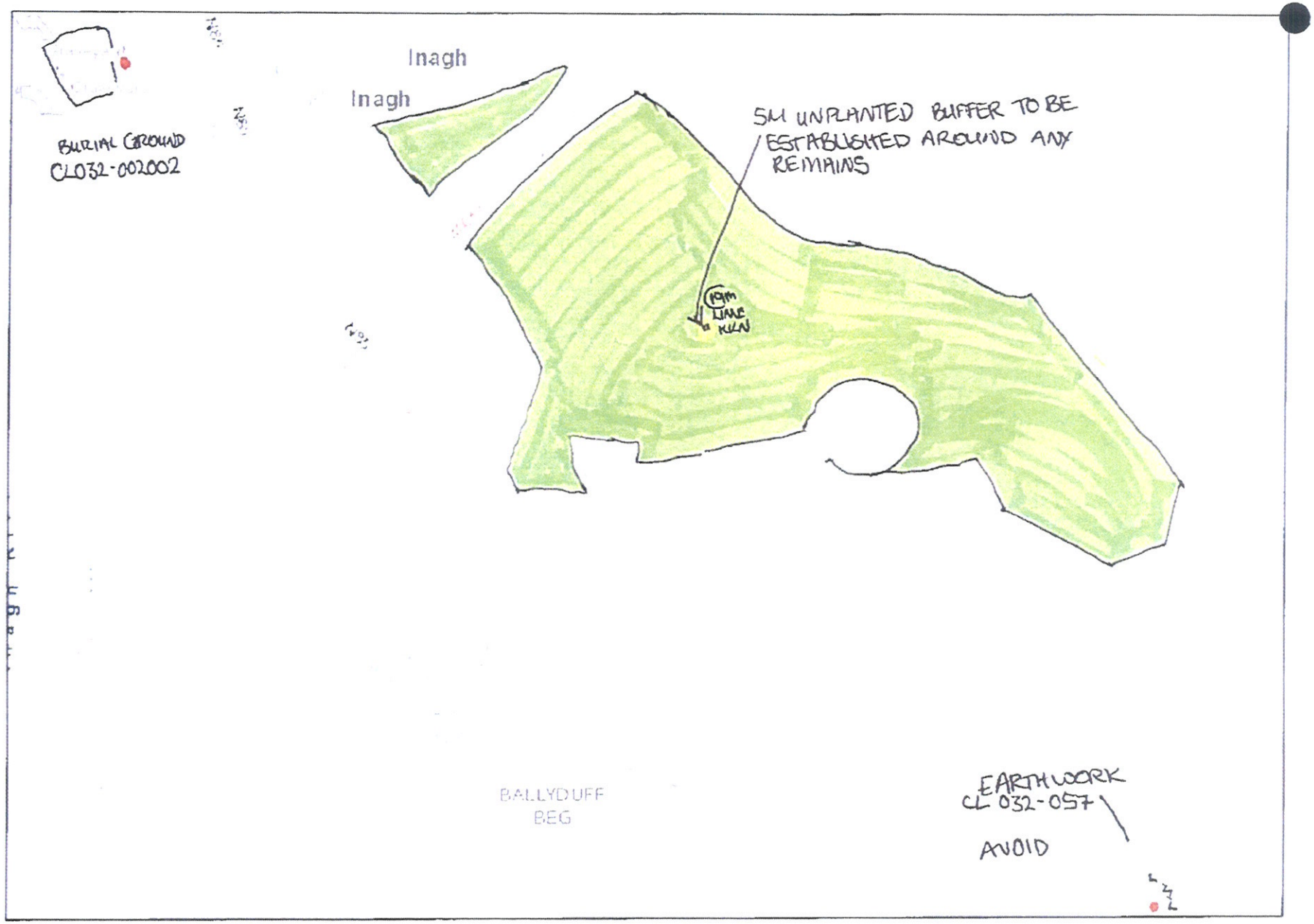
3. Any unrecorded archaeological site or anefact discovered during the course of the works must be left undisturbed and the relevant authorities notified immediately.

4. A minimum exclusion zone of 20m, preferably 100m or more, must be created until any such site has been properly investigated, with the applicant and/or his consultant forester bearing any associated costs.

5 Otherwise, no known archaeological objections.

Melanie McQuade
Forest Service Inspectorate
Department of Agriculture, Food and the Marine
Agriculture House
Kildare Street
Dublin DO2 WK12
Ph.:01-6072231

CN73319 - Ballyduff Beg, Co. Clare - affor



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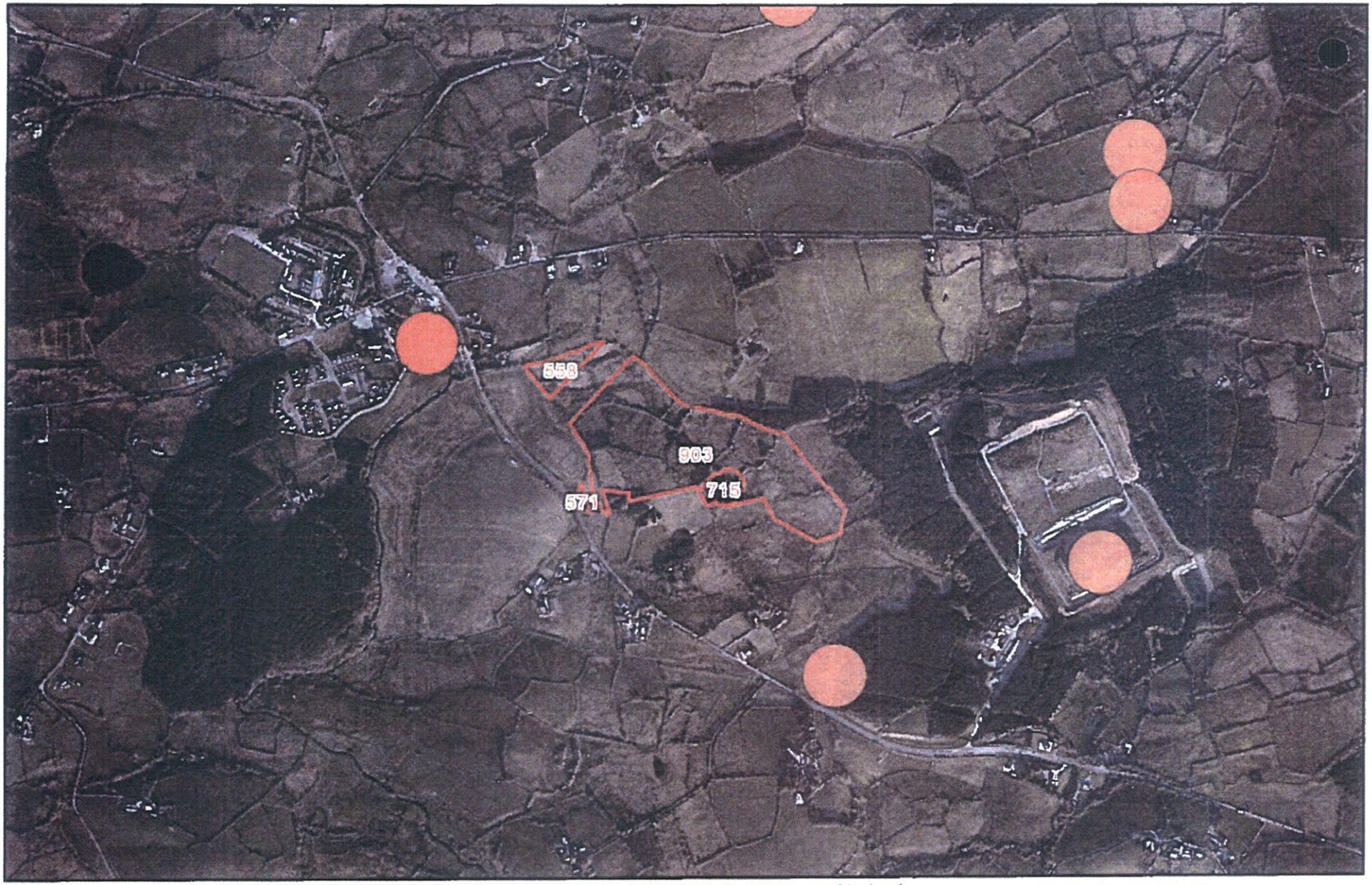
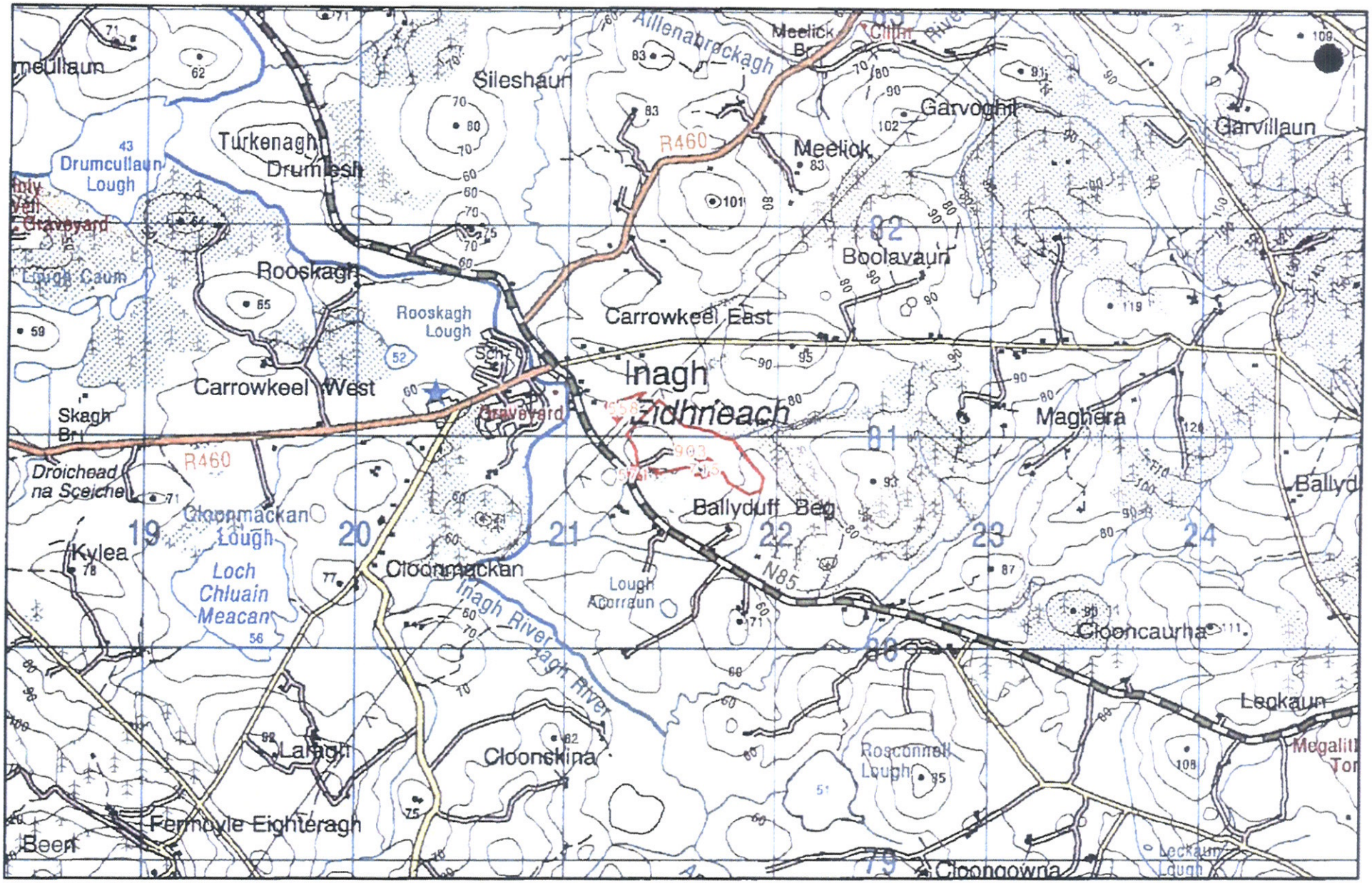


Scale 1: 7500.0

Contract: CN73319



Scale 1: 15000.0

Contract: CN73319

Certified Species Information

Contract No: CN73319
Townland: BALLYDUFF BEG
County: CE
6 " OS No: CE32

Plot No	GPC	Parcel No	GPC Area(h)	Land Use Type	Species Area	Species	Mixture Type	Excl. Area(h)	Excl. Type
1	GPC 3	39898832	0.0	CHF	12.48	SS, ADB	G	0.66	ESB
1	GPC 3	39898800	12.44	CHF	0.0	SS, ADB	G	0.0	
1	GPC 3	39898806	0.0	CHF	0.0	SS, ADB	G	0.07	ESB
2	GPC 1	39898769	1.07	CHF	0.89	SS, ADB	G	0.0	
2	GPC 1	39898822	0.0	CHF	0.0	SS, ADB	G	0.67	ESB
3	GPC 3	39492715	0.64	Bio	0.0		N	0.0	
	Totals		14.15		13.37			1.4	

Remarks :

Area Surveyed By : **Date:**
Species Certified By : **Date:**

Scale 1: **7000.0**

Contract: **CN73319**

Appropriate Assessment Screening Report

Proposed Replanting at Molougha, Co. Clare

McCarthy Keville O'Sullivan

Planning & Environmental Consultants

DOCUMENT DETAILS

Client:	Planree Ltd.
Project title:	Proposed Replanting at Molougha, Co. Clare

Project Number:	160502
Document Title:	Appropriate Assessment Screening Report
Doc. File Name:	160502 –AASR – 2017.11.10 – F
Prepared By:	McCarthy Keville O'Sullivan Ltd. Planning & Environmental Consultants Block 1, G.F.S.C. Moneenageisha Road, Galway

Document Issue:

Rev	Status	Issue Date	Document File Name	Author(s)	Approved By:
01	Draft	10/11/2017	160502 – Replanting AASR Ballyduff Beg– 2017.04.04 – D1	EJ	PR
02	Final	10/11/2017	160502 – Replanting AASR Molougha– 2017.11.10 – F	EJ	PR

Table of Contents

1 GENERAL INTRODUCTION

This report has been prepared to provide the information necessary to allow the competent authority to conduct an Article 6(3) Screening for Appropriate Assessment for the proposed construction of a new dwelling house, and wastewater treatment system along with all associated ancillary works **Molougha, Co. Clare** (E 104419 N 155310).

The report provides the information necessary to allow the competent authority to conduct an Article 6(3) Appropriate Assessment Screening of the proposed afforestation.

Screening for Appropriate Assessment is required under Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (the Habitats Directive). Where a plan or project is not directly connected with or necessary to the management of a European site and where it cannot be excluded, on the basis of objective information that a project or plan, either alone or in combination with other projects or plans, would have a significant effect on a European Site, then same shall be subject to an appropriate assessment of its implications for the European site in view of the site's conservation objectives. The current project is not directly connected with, or necessary for, the management of any European Site consequently the project has been subject to the Appropriate Assessment Screening process.

The assessment in this report is based on a desk study and field surveys undertaken during March 2017. It specifically assesses the potential for the proposed afforestation to impact on European sites and the ecology of the area.

This report has been prepared in accordance with the European Commission guidance document *Assessment of Plans and Projects Significantly affecting Natura 2000 Sites: Methodological Guidance on the provisions of Article 6(3) and 6(4) of the Habitats Directive 92/43/EEC* (EC, 2001) and the Department of the Environment's Guidance on the Appropriate Assessment of Plans and Projects in Ireland (December 2009, amended February 2010).

In addition to the guidelines referenced above, the following relevant guidance was considered in preparation of this report:

(1) DoEHLG (2010) Appropriate Assessment of Plans and Projects in Ireland Guidance for Planning Authorities. Department of the Environment, Heritage and Local Government,
(2) European Communities (2000) Managing Natura 2000 Sites: the provisions of Article 6 of the 'Habitats' Directive 92/43/EEC, Office for Official Publications of the European Communities, Luxembourg. European Commission,
(3) 92/43/EEC, Office for Official Publications of the European Communities, Luxembourg. European Commission,
(4) EC (2007) Guidance document on Article 6(4) of the 'Habitats Directive' 92/43/EEC – *Clarification of the concepts of: alternative solutions, imperative reasons of overriding public interest, compensatory measures, overall coherence, opinion of the commission*. European Commission
(4) EC (2013) Interpretation Manual of European Union Habitats. Version EUR 28. European Commission,

(5) EPA (2002) Guidelines on the information to be contained in Environmental Impact Statements. Environmental Protection Agency,
(6) EPA (2003), Advice Notes on current practice in the preparation of Environmental Impact Statements. Environmental Protection Agency, and
(7) CIEEM (2016) Institute of Ecology and Environmental Management Guidelines for Ecological Impact Assessment. (9) EC (2001) Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC

1.1 Background to Appropriate Assessment

1.1.1 Screening for Appropriate Assessment

Screening is the process of determining whether or not an Appropriate Assessment is required for a plan or project. Under Part XAB of the Planning and Development Act, 2000 as amended, Screening must be carried out by the Competent Authority to assess, in view of best scientific knowledge, if a land use plan or proposed development, individually or in combination with another plan or project, is likely to have a significant effect on a European site. The Competent Authority's determination as to whether or not an Appropriate Assessment is required must be made on the basis of objective information and should be recorded. The competent authority may request information to be supplied to enable it to carry out screening.

1.1.2 Appropriate Assessment (Natura Impact Statement)

The term Natura Impact Statement (NIS), is defined in legislation[1]. An NIS, where required, should present the data, information and analysis necessary to reach a definitive determination as to 1) the implications of the plan or project, alone or in combination with other plans and projects, for a European site in view of its conservation objectives, and 2) whether there will be adverse effects on the integrity of a European site. The NIS should be underpinned by best scientific knowledge, objective information and by the precautionary principle.

[1] As defined in Section 177T of the Planning and Development Act, 2000 as amended, an NIS means a statement, for the purposes of Article 6 of the Habitats Directive, of the implications of a proposed development, on its own and in combination with other plans and projects, for a European site in view of its conservation objectives. It is required to include a report of a scientific examination of evidence and data, carried out by competent persons to identify and classify any implications for the European site in view of its conservation objectives

2 DESCRIPTION OF THE PROPOSED AFFORESTATION

2.1 General Project Description

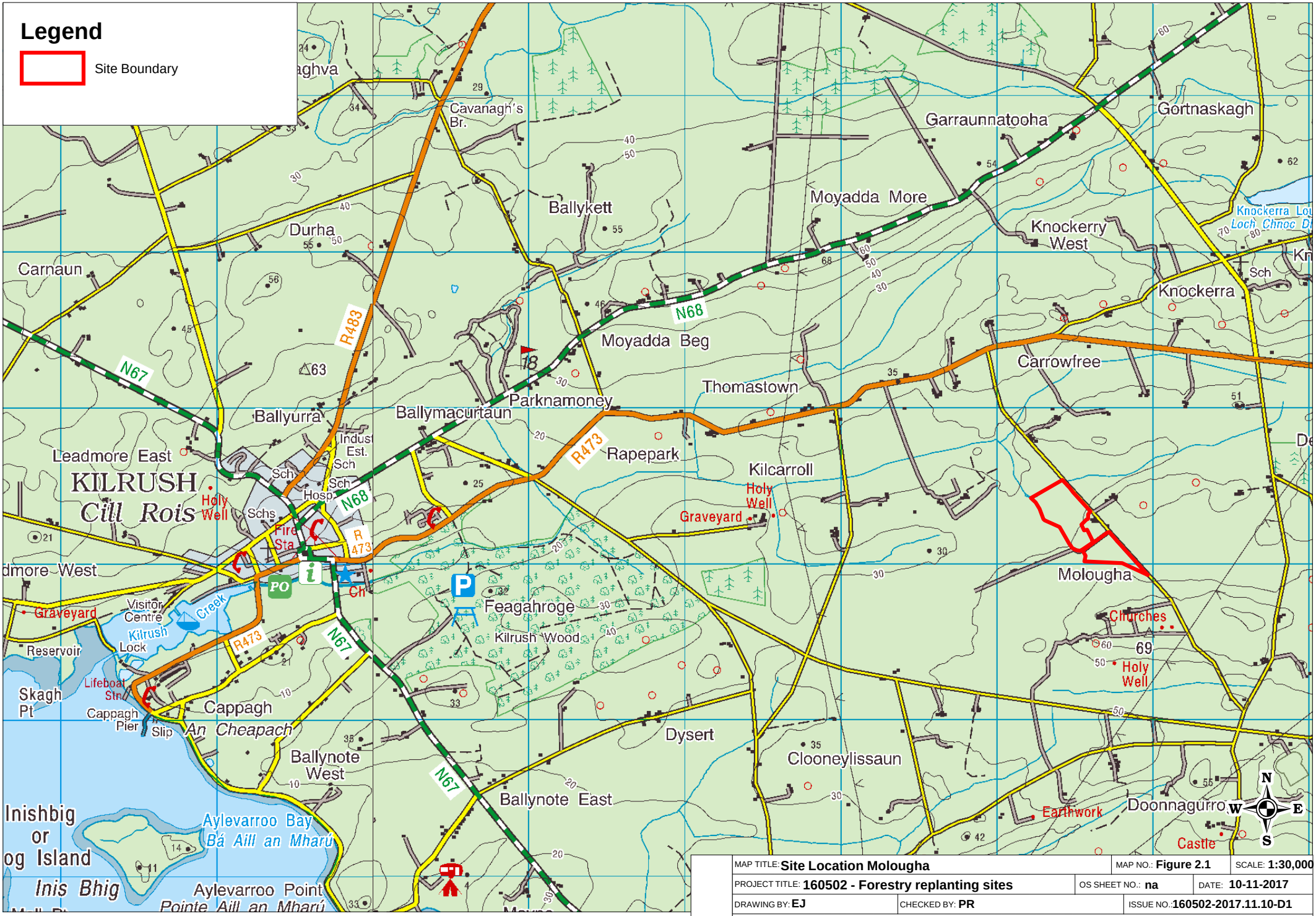
The land addressed in this document has been granted Technical Approval by the Forest Service for afforestation. Copies of the Technical Approval documents are presented in Appendix 1.

The afforestation and subsequent harvesting will conform to current best practice Forest Service regulations, policies and strategic guidance documents as well as Coillte produced guidance documents, to ensure that newly planted trees remain viable and afforestation provide minimal potential impacts to the receiving environment.

Planting will be carried out by hand, and in accordance with the 'Forestry Schemes Manual' (Forest Service, 2011), which provides guidance in relation to ground cultivation, stocking and spacing, plant handling, planting dates, fertiliser application, fencing, fire, and weed control. Certain specific silvicultural and environmental conditions are also set out in the Forest Service Technical Approvals for the site, which will be adhered to. Drainage and sediment control on site will conform to Forest Service best practice.

Invasive Species
The following measures address potential impacts associated with the construction phase of the project:

- Good site hygiene will be employed to prevent the spread of invasive species with vehicle thoroughly washed prior to leaving any site which potentially supported invasive species.



MAP TITLE: **Site Location Mologha**		MAP NO.: **Figure 2.1**	SCALE: **1:30,000**
PROJECT TITLE: **160502 - Forestry replanting sites**		OS SHEET NO.: **na**	DATE: **10-11-2017**
DRAWING BY: **EJ**	CHECKED BY: **PR**	ISSUE NO.: **160502-2017.11.10-D1**	

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3 METHODOLOGY AND LIMITATIONS

Assessing the impacts of any project and associated activities requires an understanding of the ecological baseline conditions prior to and at the time of the project proceeding. Ecological Baseline conditions are those existing in the absence of proposed activities (CIEEM 2016).

The following paragraphs outline the methodologies utilised to establish the baseline ecological condition of the proposed afforestation site.

Initially the potential for the site to support protected habitats and species was assessed by means of a desk study. Literature pertinent to the site and surrounding area was reviewed as was information pertaining to legislation/designations and other notable ecological records.

A field survey of the site, including a habitat survey, was carried out by suitably qualified ecologist from McCarthy Keville O'Sullivan, Erin Johnston (BSc., MSc, PhD) in March 2017. The site was assessed and the habitats the site were classified per the guidelines set out in 'A Guide to Habitats in Ireland' (Fossitt, 2000), which classifies habitats based on the vegetation present and management history. In addition, the field survey was designed to detect the presence, or likely presence, of a range of protected species.

Seasonal factors that affect distribution patterns and habits of species were taken into account when conducting the surveys. The potential of the site to support certain populations (in particular those of conservation importance that may not have been recorded during the field survey due to their seasonal absence or nocturnal/cryptic habits) was assessed.

The nature of the site was such that all habitats and species of interest were readily identifiable based on the site survey. Using the information gained during this site visit, together with published information on the site and its environs, it is considered that a comprehensive ecological assessment was achieved.

4 FIELD SURVEY

4.1 Habitats

The site is divided into two portions by a road (BL3). Both sections are composed of Wet Grassland (GS4), heavily grazed in places at the time of visiting. The grassland was dominated by rushes (*Juncus* spp.). Grass species recorded including Perennial Ryegrass (*Lolium perenne*), Creeping Bent (*Agrostis stolonifera*), and Yorkshire Fog (*Holcus lanatus*). Other species recorded in this habitat include Creeping Buttercup (*Ranunculus repens*), Meadow buttercup (*Ranunculus acris*), Ragwort (*Senecio jacobaea*), Common Sorrell (*Rumex acetosa*), Broad Dock (*Rumex obtusifolius*) and Bramble (*Rubus fruticosus*)

The field boundaries within the site are comprised of Hedgerows (WL1), lines of scrub (WS1) and Treelines (WL2). These boundaries were associated with drainage ditches. Species recorded within these habitats include Willow (*Salix spp.*), Ash (*Fraxinus excelsior*), Hazel (*Corylus avellana*) and Hawthorn (*Crataegus monogyna*), along with Brambles. Drainage ditches (FW4) were typically filled with standing water and overgrown with brambles and rushes.

Plate 5.1 Typical Wet Grassland (GS4) found throughout on the study site.

Plate 5.3 Grazed and Poached Wet Grassland with Hedgerows (WL1) to the left and treeline (WL2) in the distance

Plate 5.3 Hedgerow Field boundaries (WL1) and Road (BL3) which splits the two sections of the study site

4.1.1 Invasive Species

No invasive species listed on the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations, 2011 were identified within the site boundaries during the field survey.

4.1.2 Significance of Habitats

No habitats which correspond to those that are listed in the EU Habitats Directive were identified during the site visit. The Wet Grassland that is present throughout the site, given its highly modified nature, is considered of Local Importance (Lower Value) as it may provide some areas which are of some local importance for local wildlife. The Scrub, Treelines, are classified as Local Importance (Higher Value) as they may offer a higher level of biodiversity within the context of the local environment, along with shelter and foraging habitat for a range of species, providing links between habitats of higher ecological value in the landscape.

5 APPROPRIATE ASSESSMENT SCREENING

5.1 Background to European Sites

The Habitats Directive (together with the Birds Directive) forms the cornerstone of Europe's nature conservation policy. It is built around two pillars: The Natura 2000 network of protected sites and a strict system of species protection. All in all, the directive protects over 1,000 animal and plant species and over 200 "habitat types" (e.g. special types of forests, meadows, wetlands, etc.), which are of European importance.

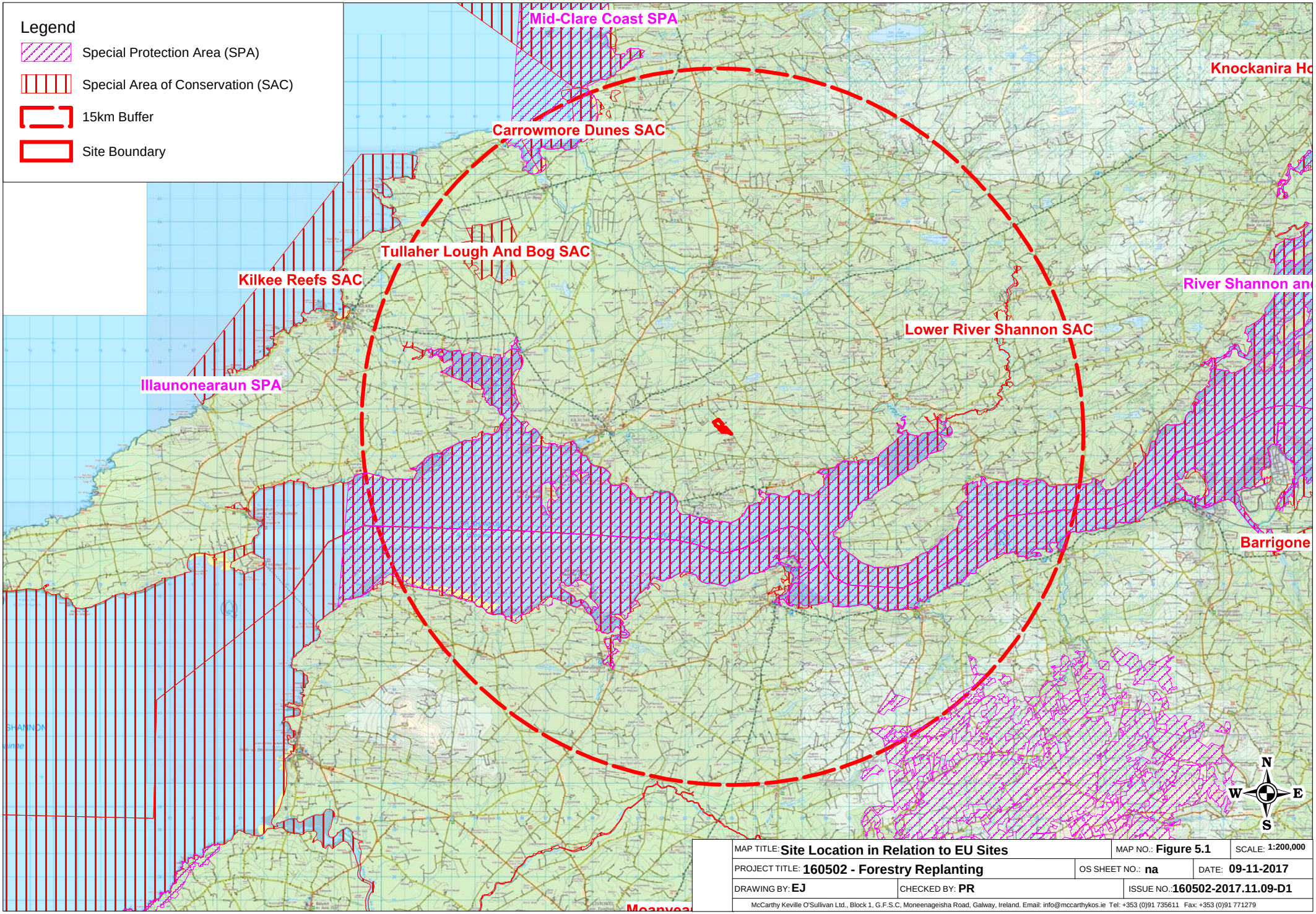
With the introduction of the EU Habitats Directive (92/43/EEC) and Birds Directive (79/409/EEC) which were transposed into Irish law as S.I. No. 94/1997 *European Communities (Birds and Natural Habitats) Regulations* 1997, the European Union formally recognised the significance of protecting rare and endangered species of flora and fauna, and also, more importantly, their habitats. The 1997 Regulations and their amendments were subsequently revised and consolidated in S.I. No. 477/2011- *European Communities (Birds and Natural Habitats) Regulations* 2011. This legislation requires the establishment and conservation of a network of sites of particular conservation value that are to be termed 'European Sites'.

5.2 European Sites in the likely Zone of Impact of the Proposed Afforestation

The most up to date GIS spatial datasets for European designated sites were downloaded from the NPWS website (www.npws.ie) on the 10.11.2017. Using the GIS software, MapInfo (Version 10.0), European sites within the likely zone of influence of the project were identified. The following rationale was used to identify the zone of influence. Initially, sites within a 15 kilometer radius of the proposed works were identified as per DoEHLG Guidance (2010). In addition, using the precautionary principle, European Sites located outside the 15km buffer zone were also taken into account and assessed. In this case, no potential for impacts outside the 15km buffer was identified.

Figure 5.1 show the location of the proposed works in relation to all European sites within the Likely Zone of Influence as identified per the criteria described above.

Table 5.1, lists all European Sites that were considered to be within the Likely Zone of Influence. The site synopses and conservation objectives of these sites, as per the NPWS website (www.npws.ie), were considered at the time of preparation of this report (10/11/2017). Details of these sites, including their distance from the proposed afforestation, are provided in Table 5.1.



MAP TITLE: **Site Location in Relation to EU Sites**		MAP NO.: **Figure 5.1**	SCALE: **1:200,000**
PROJECT TITLE: **160502 - Forestry Replanting**		OS SHEET NO.: **na**	DATE: **09-11-2017**
DRAWING BY: **EJ**	CHECKED BY: **PR**	ISSUE NO.: **160502-2017.11.09-D1**	

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Table 5.1 Designated sites within the Likely Zone of Influence

European Site	Distance from the site of the proposed development (km)	Qualify Interests/Special Conservation Interests for which the European Site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie on the 05/04/2017)	Conservation Objectives
Special Protection Areas (SPA)			
River Shannon and River Fergus Estuaries SPA (004077)	2.7km	• Cormorant (Phalacrocorax carbo) [A017] • Whooper Swan (Cygnus cygnus) [A038] • Light-bellied Brent Goose (Branta bernicla hrota) [A046] • Shelduck (Tadorna tadorna) [A048] • Wigeon (Anas penelope) [A050] • Teal (Anas crecca) [A052] • Pintail (Anas acuta) [A054] • Shoveler (Anas clypeata) [A056] • Scaup (Aythya marila) [A062] • Ringed Plover (Charadrius hiaticula) [A137] • Golden Plover (Pluvialis apricaria) [A140] • Grey Plover (Pluvialis squatarola) [A141] • Lapwing (Vanellus vanellus) [A142] • Knot (Calidris canutus) [A143] • Dunlin (Calidris alpina) [A149] • Black-tailed Godwit (Limosa limosa) [A156] • Bar-tailed Godwit (Limosa lapponica) [A157] • Curlew (Numenius arquata) [A160] • Redshank (Tringa totanus) [A162] • Greenshank (Tringa nebularia) [A164] • Black-headed Gull (Chroicocephalus ridibundus) [A179] • Wetland and Waterbirds [A999]	Detailed conservation objectives for this site are available online at www.npws.ie
Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA (004161)	12.9km	• Hen Harrier (Circus cyaneus) [A082]	*The generic conservation objectives for this site are*

			"To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA"
Mid-Clare Coast SPA (004182)	13.0km	• Cormorant (Phalacrocorax carbo) [A017] • Barnacle Goose (Branta leucopsis) [A045] • Ringed Plover (Charadrius hiaticula) [A137] • Sanderling (Calidris alba) [A144] • Purple Sandpiper (Calidris maritima) [A148] • Dunlin (Calidris alpina) [A149] • Turnstone (Arenaria interpres) [A169] • Wetland and Waterbirds [A999]	Detailed conservation objectives for this site are available online at www.npws.ie
Special Areas of Conservation (SAC)			
Lower River Shannon SAC (002165)	2.7km	▪ Sandbanks which are slightly covered by sea water all the time [1110] ▪ Estuaries [1130] ▪ Mudflats and sandflats not covered by seawater at low tide [1140] ▪ Coastal lagoons [1150] ▪ Large shallow inlets and bays [1160] ▪ Reefs [1170] ▪ Perennial vegetation of stony banks [1220] ▪ Vegetated sea cliffs of the Atlantic and Baltic coasts [1230] ▪ Salicornia and other annuals colonising mud and sand [1310] ▪ Atlantic salt meadows (Glauco-Puccinellietalia maritimae) [1330] ▪ Mediterranean salt meadows (Juncetalia maritimi) [1410] ▪ Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation [3260]	Detailed conservation objectives for this site are available online at www.npws.ie

		▪ Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae) [6410] ▪ Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae) [91E0] ▪ Margaritifera margaritifera (Freshwater Pearl Mussel) [1029] ▪ Petromyzon marinus (Sea Lamprey) [1095] ▪ Lampetra planeri (Brook Lamprey) [1096] ▪ Lampetra fluviatilis (River Lamprey) [1099] ▪ Salmo salar (Salmon) [1106] ▪ Tursiops truncatus (Common Bottlenose Dolphin) [1349] ▪ Lutra lutra (Otter) [1355]	
Tullaher Lough and Bog SAC (002343)	10.5km	▪ Active raised bogs [7110] ▪ Degraded raised bogs still capable of natural regeneration [7120] ▪ Transition mires and quaking bogs [7140] ▪ Depressions on peat substrates of the Rhynchosporion [7150]	Detailed conservation objectives for this site are available online at www.npws.ie
Carrowmore Dunes SAC (002250)	13.0km	• Reefs [1170] • Embryonic shifting dunes [2110] • Shifting dunes along the shoreline with Ammophila arenaria (white dunes) [2120] • Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130] • Vertigo angustior (Narrow-mouthed Whorl Snail) [1014]	Detailed conservation objectives for this site are available online at www.npws.ie

6 ARTICLE 6(3) SCREENING ASSESSMENT

6.1 Article 6(3) Assessment Criteria

The Screening Assessment criteria examined in the impact assessment section of this screening document follow the suggested screening matrix structure detailed in *Assessment of Plans and Projects Significantly Affecting Natura 2000 Sites: Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive* (EC 2001).

6.1.1 Description of the Individual Elements of the Project with Potential to give Rise to Impacts on the European Site

The project involves the afforestation of land as described in detail previously. Elements of the works in the construction phase with the potential to give rise to impacts on nearby European sites include the following:

- Site preparation works including excavation works for drainage
- Subsequent felling of mature trees

6.1.2 Description of any Likely Direct, Indirect or Secondary Impacts of the Project on the European Site

Any likely direct, indirect or secondary impacts of the proposed afforestation, both alone and in combination with other plans or projects, on the European Sites by virtue of the following criteria: size and scale, land-take, distance from the European Sites or key features of the site, resource requirements (such as water abstraction), emissions (disposal to land, water or air), excavation requirements, transportation requirements and duration of construction, operation, decommissioning are presented in Table 6.1.

Table 6.1 Likely Impacts of the Project on the European Sites

Likely Direct, Indirect or Secondary Impacts of the Project on the European Sites	
Size and Scale	The project consists of the afforestation of 12.5ha of modified agricultural land, and includes the creation of drainage ditches on site. It is not considered that the size and scale of the project will contribute to any significant impacts on any European sites.
Land-take	There will be no land take within any European Site associated with the proposed afforestation and therefore there will be no resultant impacts.
Distance from the European Sites or Key Features of the Site	The closest European sites, River Shannon and River Fergus Estuaries SPA (004077), and the Lower River Shannon SAC (002165) both located 2.7km from the proposed afforestation site. Given the distance from the site, the nature, and scale of the works, and the best practice measures incorporated it is unlikely that the works will impact on any European Site due to distance.

Likely Direct, Indirect or Secondary Impacts of the Project on the European Sites	
Resource Requirements	There will be no exploitation of any resources within any European Site as part of the proposed development and therefore impacts in this regard on any of the sites within the Likely Zone of Impact can be discounted.
Emissions	The closest European sites, River Shannon and River Fergus Estuaries SPA (004077), and the Lower River Shannon SAC (002165) both located 2.7km from the proposed afforestation site. Given this distance, and that all works are to be carried out to best practice guideline specification, no impact on this or any European Site are anticipated.
Excavation Requirements	There will be no works undertaken within any European Site and therefore no direct impacts relating to excavation are predicted. Small scale excavations will be required on the site for the installation of drainage ditches throughout the site. No hydrological connectivity was identified between the proposed afforestation site and the nearest European sites, River Shannon and River Fergus Estuaries SPA (004077), and the Lower River Shannon SAC (002165). Given the scale of the works, the best practice pollution prevention measures, and the distance to the nearest European sites no impact on these European Sites are anticipated due to excavation.
Transportation Requirements	As the proposed afforestation is located entirely outside any European Site, there will be no direct impacts on any such site in relation to transportation requirements. Transport to and within the proposed afforestation site will be by existing roads. Therefore, no indirect effects on any European Sites are predicted as a result of transportation requirements.
Duration of Construction, Operation, Decommissioning	No potential impacts that relate directly to the duration of each phase of the afforestation were identified. Impacts resulting from Emissions are possible during site preparation and felling, but are considered above with no additional potential for impacts arising specifically as a result of the duration of each phase identified.
Cumulative Impacts with other Projects or Plans	The proposed development was considered in combination with other developments and activities in the area that could result in cumulative impacts on the identified European Sites. The proposed development site is situated in the townland of Mologha, Co. Clare. This area is characterised by improved agricultural grasslands, and domestic dwellings. There are no large-scale developments proposed or existing in close proximity to the project. No planning applications made in the townland in the last five years were identified. The proposed works will not result in any impacts on any European Site and therefore cannot contribute to any wider cumulative impact.

6.1.3 Description of any Likely Changes to the European Site

Any likely changes to the European Sites are described in Table 6.2 with reference to the following criteria: reduction of habitat area, disturbance to key species, habitat or species fragmentation, reduction in species density, changes in key indicators of conservation value (e.g. water quality etc.) and climate change.

Table 6.2 Likely Changes to the European Sites

Likely Changes to the European Sites	
Reduction of Habitat Area	The closest European sites, River Shannon and River Fergus Estuaries SPA (004077), and the Lower River Shannon SAC (002165), located 2.7km from the proposed development site. Therefore, there will be no loss of habitat within any European sites. No potential for disturbance to any habitats, for which any European Sites considered in the screening assessment are designated, have been identified.
Disturbance to Key Species	Based on the desk study, and field surveys, no significant disturbance of key species is anticipated. No potential for disturbance to any key species, for which any European Sites considered in the screening assessment are designated, have been identified.
Habitat or Species Fragmentation	There will be no habitat or species fragmentation within any European Site associated with the proposed afforestation or in combination with other developments in the surrounding area.
Reduction in Species Density	European Sites are not considered to be at any risk of a reduction of species density given the nature of the QI's or SCI's, scale and the nature of the proposed works, and the distance to the afforestation site.
Changes in Key Indicators of Conservation Value	European Sites are not considered to be at any risk from changes in key indicators of conservation value given the nature of the QI's or SCI's, scale and the nature of the proposed works, and the distance to the afforestation site.
Climate Change	Given the scale and nature of the proposed works, it is unlikely that these works will contribute significantly to climate change.

6.1.4 Description of any Likely Impacts on any European Site

Potential pathways for impacts and effects on the European sites in the preceding sections have been examined and none were found to have a significant impact as a result of the proposed afforestation.

Direct Impacts and **Indirect Impacts** on European Sites are not anticipated. Table 6.3 describes the nature of any impacts in terms of the structure and function of the identified European Sites.

Table 6.3. Assessment of Potential Impacts on the Structure and Function of European Sites

Likely Changes to the European Sites	
Interference with the key relationships that define the structure of a European Site	No potential for impact on the key relationships that define the **Structure** of any European Sites have been identified.
Interference with key relationships that define the function of the European site	No potential for impact on the key relationships that define the **Function** of any European Sites have been identified.

6.1.5 Indicators of Significance as a Result of the Identification of Effects

Indicators of significance are provided in Table 6.4 for any impacts identified above in terms of loss, fragmentation, disruption, disturbance and changes to key elements of the site, such as water quality.

Table 6.4Indicators of Significance as a Result of the Identification of Effects

Indicators of Significance as a Result of the Identification of Effects	
Loss	There will be no reduction in Annex I habitat area within any European Sites as a result of the proposed afforestation. There will be no net loss of supporting habitat of QI/SCI species.
Fragmentation	There will be no habitat or species fragmentation within any European Site associated with the proposed afforestation.
Disruption	There will be no disruption to the ecological processes within any European Sites as a result of the proposed afforestation
Disturbance	There will be no disturbance within any European Sites as a result of the proposed afforestation
Changes to Key Elements of the Site	There will be no changes to key elements within any Natura 2000 site as a result of the proposed afforestation.

7 ARTICLE 6(3) SCREENING STATEMENT AND CONCLUSIONS

The findings of this Screening Report are presented below

7.1 Assessment of Significance of Effects

Is the project directly connected with or necessary to the management of the site?

The project is not directly connected with or necessary to the management of any European Site.

Are there any other projects or plans that together with the project being assessed could affect the site?

A search in relation to plans and projects that may have the potential to result in cumulative impacts on European sites was conducted. The proposed afforestation will have no individual or cumulative impacts on any European site in any regard.

Describe how the project is likely to affect the Natura 2000 sites

The project will not significantly affect any European Sites. Complete impact source-pathway receptor chains for direct or indirect impacts were not identified.

Explain why these effects are not considered significant

- There will be no negative direct or indirect impacts or reduction in Annex I habitat area within any European Site.
- There will be no reduction in key habitats supporting populations of Annex I bird species and no reduction in the populations of any Annex I species.
- There will be no reduction in key habitats supporting populations of Annex II species and no reduction in the populations of any Annex II species.
- The works themselves will involve little disturbance or disruption to the ecological processes in the area during either construction or operation.

7.2 Data Collected to Carry Out Assessment

In preparation of the report, the following sources were used to gather information:

- Review of NPWS Site Synopses and Conservation Objectives for European sites and pNHA sites.
- Site Visit
- Desk study of relevant ecological information.
- Report including desk study and appropriate assessment prepared by Erin Johnston (BSc, MSc, PhD), and reviewed by John Hynes (B Sc. M.Sc), McCarthy Keville O'Sullivan Ltd.

7.3 Concluding Statement

The proposed afforestation, by itself or in combination with other plans and projects, in light of best scientific knowledge in the field, will not, in view of the sites' conservation objectives, have significant effects on any European Site.

There is no requirement for Appropriate Assessment.

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Appendix 1

Technical Approval Documents

ENERCO ENERGY LTD

Department of
Agriculture,
Food and the Marine
An Roinn
Talmhaíochta,
Bia agus Mara

ENERCO ENERGY LTD
LISSARDA BUSINESS PARK
LISSARDA
CO CORK

S

04/12/2015

Approval for Non Grant Aided Afforestation

Forest Owner	FO128320H
Contract Number	CN72550
Townland	Molougha
County	Clare
Approved Area (Ha)	12.19
Fencing Length (LM)	1,300.00

I refer to your application (Form 1) requesting approval for Afforestation. Your application has been assessed and approval is hereby issued on the basis that the works will be undertaken in accordance with the prescription set out in Appendix A attached herewith.

You should note that the project will NOT be eligible for grant aid.

The following conditions apply to this application:
Satisfactory completion of the work not later than 30-JUN-17

Environmental & Silvicultural Considerations
Site not inspected, desk audit only. Adhere to all Biodiversity and setback rules.,
Fence along the planting line around the dwelling. If the owner wishes to us the setback area for other purposes, they may do so.,
Public Road Setback, Broadleaves 10m, Conifers 20m,
Dwelling Houses/Buildings Setback 60m

You are required to notify the Department of Agriculture, Food and Marine in writing if any of the details of your application have changed.

IMPORTANT

As no submissions from third parties were received by the Department concerning this application, development in accordance with this may proceed without further notice.

Please feel free to contact this office, quoting your Contract Number, regarding progress of your application. LoCall 1890-200-509.

Yours sincerely

JOANNE ROBINSON
Approval Section
Forest Service

An Roinn Talmhaíochta,
Bia agus Mara
Department of Agriculture,
Food and the Marine

Eastát Chaisleán Sheonach
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APPENDIX A

Department of Agriculture, Food and the Marine

Department of Agriculture, Food and the Marine
An Roinn Talmhaíochta, Bia agus Mara

Operational Proposals for Approval of Afforestation

Forest Owner Number	FO128320H
Contract Number	CN72550
Townland	Molougha
County	Clare
Area Approved	13.06(ha)
Fencing Length (LM)	1,300.00

All applications must be developed in accordance with detailed standards and procedures as described in the current Forestry Schemes Manual. Certain specific operational proposals particular to this application are described below. No change is permitted to these proposals and species approved unless approved in advance by the Department. The Department may insist that proposed changes constitutes a new application.

Operational Proposal Details

Agro Forestry (GPC 11)		
1.	Tree Shelters	Not Entered
2.	Plant Size and Stocking	Not Entered
Drainage		
1.	Drainage	Required
2.	Drainage Comment	In conjunction with mounding
Fertiliser		
1.	Zero	Not Entered
2.	350 Kg Granulated Rock Phosphate	Not Entered
3.	250 Kg Granulated Rock Phosphate	Yes
4.	Split Application	Not Entered
5.	Other Details	Not Entered
Firebreaks/Res.		
1.	Firebreaks/Res	Not Required
Forestry for Fibre (GPCs: 12a and 12b))		
1.	Is Land Free Drainage arable or pasture soils	Not Entered
2.	Are there surface water gleys without a peat layer	Not Entered
3.	Do you intend to use improved genetic material	Not Entered
4.	Details	Not Entered
Ground Prep.		
1.	Woody Weed Removal	Yes
2.	Ripping	Not Entered
3.	Pit Plant	Not Entered
4.	Mole Drainage	Not Entered
5.	Mounding	Yes
6.	Ploughing	Not Entered
9.	Other Details	Not Entered
Planting Method		
1.	Angle Notch	Not Entered
2.	Pit	Not Entered
3.	Machine	Not Entered

An Roinn Talmhaíochta, Bia agus Mara
Department of Agriculture, Food and the Marine
Eastát Chaisleán Sheonach
Contae Loch Gorman
Y35 PN52
Éire
Johnstown Castle Estate
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Ireland
Telephone +353 (0)53 916 3400
Fax +353 (0)53 914 2839
info@agriculture.gov.ie
www.agriculture.gov.ie

4.	Slit	Yes
5.	Other Details	Not Entered
Road Access		
1.	Road Access	Provided
Standard Stocking		
1.	Standard Stocking	Yes
2.	Details	Not Entered
Weed Control		
1.	Herbicide Control yr0	Yes
2.	Herbicide Control yr1	Yes
3.	Herbicide Control yr2	Yes
3.	Herbicide Control yr4	Not Entered
4.	Manual	Yes
4.	Herbicide Control yr3	Yes

Fencing Details (metres)	Stock	1300	Stock-Sheep	0
	Stock-Rabbit	0	Upgrade to Deer	0
	Deer-Rabbit	0	Deer	0
	Upgrade Existing Fence(s)	N		
	Upgrade Details: None Entered			

Species Approved

The species approved in this proposal relate to the digitised certified species map attached.

Species Approved for Afforestation

Plot	Area	GPC	Land Type	Species	Species Area	Yield Class	Mixture Type	Exclusion	Exclusion Type
1	9.13	GPC 3	CHF	SS	5.4	20	Groups		
				ADB	.6	10			
2	2.73	GPC 3	CHF	SS	2.7	20	Groups		
				ADB	.3	10			
3	1.2	GPC 3	CHF	SS	.9	20	Groups		
				ADB	.1	10			

Scale 1: **7500.0**

Contract: **CN72550**

Certified Species Information

Contract No: CN72550
Townland: MOLOUGHA
County: CE
6 " OS No: CE67

Plot No	GPC	Parcel No	GPC Area(h)	Land Use Type	Species Area	Species	Mixture Type	Excl. Area(h)	Excl. Type
1	GPC 3	38516127	9.13	CHF	6.0	SS, ADB	G	0.0	
2	GPC 3	39633732	2.73	CHF	3.0	SS, ADB	G	0.0	
3	GPC 3	39633803	1.2	CHF	1.0	SS, ADB	G	0.0	
	Totals		13.06		10.0			0.0	

Remarks :

Area Surveyed By : **Date:**
Species Certified By : **Date:**

Appropriate Assessment Screening Report

Proposed Replanting at Claraghtlea North, Co. Cork

McCarthy Keville O'Sullivan

Planning & Environmental Consultants

DOCUMENT DETAILS

Client:	Planree Ltd.
Project title:	Proposed Replanting at Claraghtlea North, Co Cork

Project Number:	160502
Document Title:	Appropriate Assessment Screening Report
Doc. File Name:	160502 –AASR – 2017.11.10 – F
Prepared By:	McCarthy Keville O'Sullivan Ltd.

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McCarthy Keville O'Sullivan

Document Issue:

Rev	Status	Issue Date	Document File Name	Author(s)	Approved By:
01	Draft	10/11/2017	160502 – Replanting AASR Claraghtlea North– 2017.04.04 – D1	EJ	DMN
02	Final	10/11/2017	160502 – Replanting AASR Claraghtlea North– 2017.11.10 – F	EJ	PR

Table of Contents

1 GENERAL INTRODUCTION

This report has been prepared to provide the information necessary to allow the competent authority to conduct an Article 6(3) Screening for Appropriate Assessment for the proposed construction of a new dwelling house, and wastewater treatment system along with all associated ancillary works **Claraghtlea North, Co. Cork.**

The report provides the information necessary to allow the competent authority to conduct an Article 6(3) Appropriate Assessment Screening of the proposed afforestation.

Screening for Appropriate Assessment is required under Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (the Habitats Directive). Where a plan or project is not directly connected with or necessary to the management of a European site and where it cannot be excluded, on the basis of objective information that a project or plan, either alone or in combination with other projects or plans, would have a significant effect on a European Site, then same shall be subject to an appropriate assessment of its implications for the European site in view of the site's conservation objectives. The current project is not directly connected with, or necessary for, the management of any European Site consequently the project has been subject to the Appropriate Assessment Screening process.

The assessment in this report is based on a desk study and field surveys undertaken during March 2017. It specifically assesses the potential for the proposed afforestation to impact on European sites and the ecology of the area.

This report has been prepared in accordance with the European Commission guidance document *Assessment of Plans and Projects Significantly affecting Natura 2000 Sites: Methodological Guidance on the provisions of Article 6(3) and 6(4) of the Habitats Directive 92/43/EEC* (EC, 2001) and the Department of the Environment's Guidance on the Appropriate Assessment of Plans and Projects in Ireland (December 2009, amended February 2010).

In addition to the guidelines referenced above, the following relevant guidance was considered in preparation of this report:

(1) DoEHLG (2010) Appropriate Assessment of Plans and Projects in Ireland Guidance for Planning Authorities. Department of the Environment, Heritage and Local Government,
(2) European Communities (2000) Managing Natura 2000 Sites: the provisions of Article 6 of the 'Habitats' Directive 92/43/EEC, Office for Official Publications of the European Communities, Luxembourg. European Commission,
(3) 92/43/EEC, Office for Official Publications of the European Communities, Luxembourg. European Commission,
(4) EC (2007) Guidance document on Article 6(4) of the 'Habitats Directive' 92/43/EEC – *Clarification of the concepts of: alternative solutions, imperative reasons of overriding public interest, compensatory measures, overall coherence, opinion of the commission*. European Commission
(4) EC (2013) Interpretation Manual of European Union Habitats. Version EUR 28. European Commission,
(5) EPA (2002) Guidelines on the information to be contained in Environmental Impact Statements. Environmental Protection Agency,

(6) EPA (2003), Advice Notes on current practice in the preparation of Environmental Impact Statements. Environmental Protection Agency, and
(7) CIEEM (2016) Institute of Ecology and Environmental Management Guidelines for Ecological Impact Assessment. (9) EC (2001) Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC

1.1 Background to Appropriate Assessment

1.1.1 Screening for Appropriate Assessment

Screening is the process of determining whether or not an Appropriate Assessment is required for a plan or project. Under Part XAB of the Planning and Development Act, 2000 as amended, Screening must be carried out by the Competent Authority to assess, in view of best scientific knowledge, if a land use plan or proposed development, individually or in combination with another plan or project, is likely to have a significant effect on a European site. The Competent Authority's determination as to whether or not an Appropriate Assessment is required must be made on the basis of objective information and should be recorded. The competent authority may request information to be supplied to enable it to carry out screening.

1.1.2 Appropriate Assessment (Natura Impact Statement)

The term Natura Impact Statement (NIS), is defined in legislation[1]. An NIS, where required, should present the data, information and analysis necessary to reach a definitive determination as to 1) the implications of the plan or project, alone or in combination with other plans and projects, for a European site in view of its conservation objectives, and 2) whether there will be adverse effects on the integrity of a European site. The NIS should be underpinned by best scientific knowledge, objective information and by the precautionary principle.

[1] As defined in Section 177T of the Planning and Development Act, 2000 as amended, an NIS means a statement, for the purposes of Article 6 of the Habitats Directive, of the implications of a proposed development, on its own and in combination with other plans and projects, for a European site in view of its conservation objectives. It is required to include a report of a scientific examination of evidence and data, carried out by competent persons to identify and classify any implications for the European site in view of its conservation objectives

2 DESCRIPTION OF THE PROPOSED AFFORESTATION

2.1 General Project Description

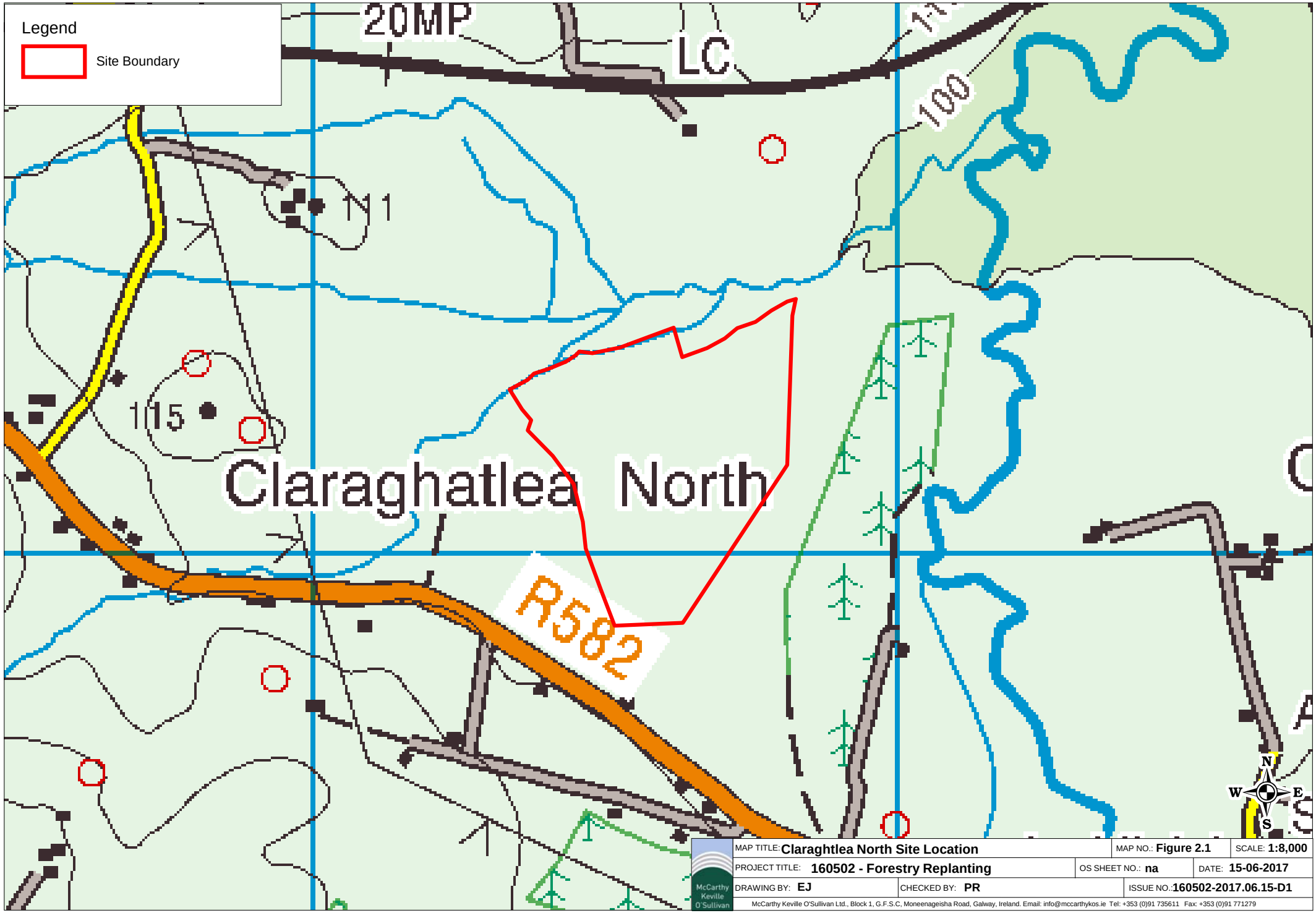
The land addressed in this document has been granted Technical Approval by the Forest Service for afforestation. Copies of the Technical Approval documents are presented in Appendix 1.

The afforestation and subsequent harvesting will conform to current best practice Forest Service regulations, policies and strategic guidance documents as well as Coillte produced guidance documents, to ensure that newly planted trees remain viable and afforestation provide minimal potential impacts to the receiving environment.

Planting will be carried out by hand, and in accordance with the 'Forestry Schemes Manual' (Forest Service, 2011), which provides guidance in relation to ground cultivation, stocking and spacing, plant handling, planting dates, fertiliser application, fencing, fire, and weed control. Certain specific silvicultural and environmental conditions are also set out in the Forest Service Technical Approvals for the site, which will be adhered to. Drainage and sediment control on site will conform to Forest Service best practice.

Invasive Species
The following measures address potential impacts associated with the construction phase of the project:

- Good site hygiene will be employed to prevent the spread of invasive species with vehicle thoroughly washed prior to leaving any site which potentially supported invasive species.



MAP TITLE: **Claraghtlea North Site Location**		MAP NO.: **Figure 2.1**	SCALE: **1:8,000**
PROJECT TITLE: **160502 - Forestry Replanting**	OS SHEET NO.: **na**	DATE: **15-06-2017**	
DRAWING BY: **EJ**	CHECKED BY: **PR**	ISSUE NO.: **160502-2017.06.15-D1**	

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3 METHODOLOGY AND LIMITATIONS

Assessing the impacts of any project and associated activities requires an understanding of the ecological baseline conditions prior to and at the time of the project proceeding. Ecological Baseline conditions are those existing in the absence of proposed activities (CIEEM 2016).

The following paragraphs outline the methodologies utilised to establish the baseline ecological condition of the proposed afforestation site.

Initially the potential for the site to support protected habitats and species was assessed by means of a desk study. Literature pertinent to the site and surrounding area was reviewed as was information pertaining to legislation/designations and other notable ecological records.

A field survey of the site, including a habitat survey, was carried out by suitably qualified ecologist from McCarthy Keville O'Sullivan, Erin Johnston (BSc., MSc, PhD) in March 2017. The site was assessed and the habitats the site were classified per the guidelines set out in 'A Guide to Habitats in Ireland' (Fossitt, 2000), which classifies habitats based on the vegetation present and management history. In addition, the field survey was designed to detect the presence, or likely presence, of a range of protected species.

Seasonal factors that affect distribution patterns and habits of species were taken into account when conducting the surveys. The potential of the site to support certain populations (in particular those of conservation importance that may not have been recorded during the field survey due to their seasonal absence or nocturnal/cryptic habits) was assessed.

The nature of the site was such that all habitats and species of interest were readily identifiable based on the site survey. Using the information gained during this site visit, together with published information on the site and its environs, it is considered that a comprehensive ecological assessment was achieved.

4 FIELD SURVEY

4.1 Habitats

The site is comprised primarily of Wet Grassland (GS4). At the time of the visit the grassland was overgrown and dominated in places almost entirely by rushes (*Juncus* spp.). Grass species recorded include Perennial Ryegrass (*Lolium perenne*), Creeping Bent (*Agrostis stolonifera*), and Yorkshire Fog (*Holcus lanatus*). Other species recorded in this habitat include Creeping Buttercup (*Ranunculus repens*), Meadow buttercup (*Ranunculus acris*), Ragwort (*Senecio jacobaea*), Common Sorrell (*Rumex acetosa*). The boundaries of the site were comprised of treelines (WL2) and hedgerows (WL1). Species recorded within these habitats include Willow (*Salix spp.*), Ash (*Fraxinus excelsior*), Gorse (*Ulex europaeus*) Hawthorn (*Crataegus monogyna*), and Brambles (*Rubus fructicosus*).

A stream (FW1) and an extensive network of drainage ditches (FW4) were found running through the site. Vegetation bordering the stream again contained rushes but included Lesser Celandine (*Ficaria verna*), Primrose (*Primula vulgaris*), Dandelion (Taraxacum vulgaria), Ragwort (Senecio jacobaea), Broadleaved Dock, and Common Sorrel. Drainage ditches were typically overgrown with rushes, and contained standing water.

Plate 5.1 Overgrown Wet Grassland (GS4) with drainage ditch (FW4) on the study site.

Plate 5.3 Wet Grassland (GA4) adjacent to stream (FW1) and SAC border with treeline (WL2) in the distance

4.1.1 Invasive Species

No invasive species listed on the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations, 2011 were identified within the site boundaries during field survey.

4.1.2 Significance of Habitats

Ecological evaluation within this section follows a methodology that is set out in Chapter 3 of the *'Guidelines for Assessment of Ecological Impacts of National Roads Schemes'* (NRA, 2009).

No habitats which correspond to those that are listed in the EU Habitats Directive were identified during the site visit. The wet grassland, and drainage ditches that are present within the site, given their highly modified nature, are considered to be of Local Importance (Lower Value). The hedgerows are considered to be of Local Importance (Higher Value) as it has a higher level of biodiversity within the context of the local environment.

5 APPROPRIATE ASSESSMENT SCREENING

5.1 Background to European Sites

The Habitats Directive (together with the Birds Directive) forms the cornerstone of Europe's nature conservation policy. It is built around two pillars: The Natura 2000 network of protected sites and a strict system of species protection. All in all, the directive protects over 1,000 animal and plant species and over 200 "habitat types" (e.g. special types of forests, meadows, wetlands, etc.), which are of European importance.

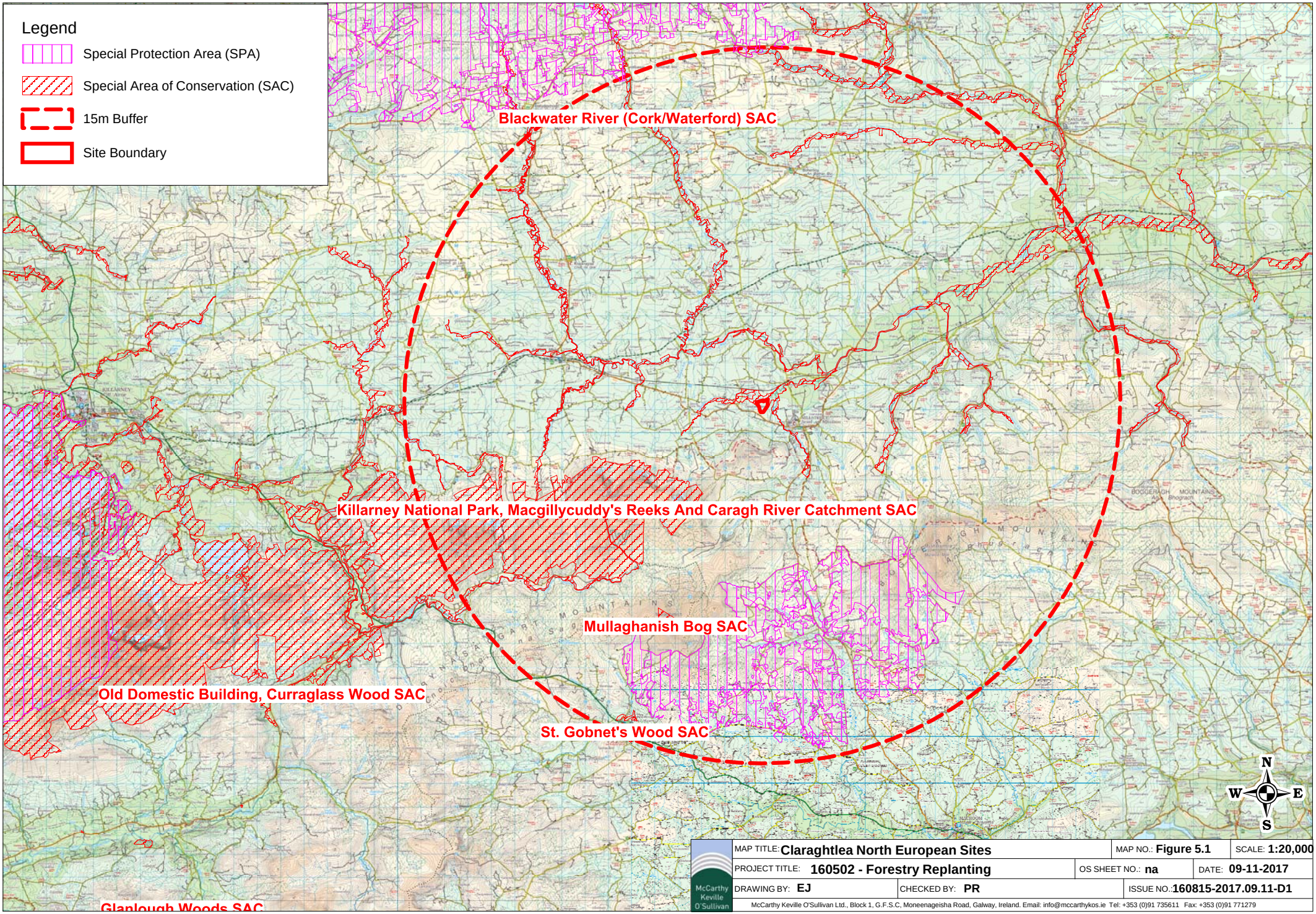
With the introduction of the EU Habitats Directive (92/43/EEC) and Birds Directive (79/409/EEC) which were transposed into Irish law as S.I. No. 94/1997 *European Communities (Birds and Natural Habitats) Regulations* 1997, the European Union formally recognised the significance of protecting rare and endangered species of flora and fauna, and also, more importantly, their habitats. The 1997 Regulations and their amendments were subsequently revised and consolidated in S.I. No. 477/2011- *European Communities (Birds and Natural Habitats) Regulations* 2011. This legislation requires the establishment and conservation of a network of sites of particular conservation value that are to be termed 'European Sites'.

5.2 European Sites in the likely Zone of Impact of the Proposed Afforestation

The most up to date GIS spatial datasets for European designated sites were downloaded from the NPWS website (www.npws.ie) on the 10.11.2017. Using the GIS software, MapInfo (Version 10.0), European sites within the likely zone of influence of the project were identified. The following rationale was used to identify the zone of influence. Initially, sites within a 15 kilometer radius of the proposed works were identified as per DoEHLG Guidance (2010). In addition, using the precautionary principle, European Sites located outside the 15km buffer zone were also taken into account and assessed. In this case, no potential for impacts outside the 15km buffer was identified.

Figure 5.1 show the location of the proposed works in relation to all European sites within the Likely Zone of Influence as identified per the criteria described above.

Table 5.1, lists all European Sites that were considered to be within the Likely Zone of Influence. The site synopses and conservation objectives of these sites, as per the NPWS website (www.npws.ie), were considered at the time of preparation of this report (10/11/2017). Details of these sites, including their distance from the proposed afforestation, are provided in Table 5.1.



MAP TITLE: **Claraghtlea North European Sites**		MAP NO.: **Figure 5.1**	SCALE: **1:20,000**
PROJECT TITLE: **160502 - Forestry Replanting**		OS SHEET NO.: **na**	DATE: **09-11-2017**
DRAWING BY: **EJ**	CHECKED BY: **PR**	ISSUE NO.: **160815-2017.09.11-D1**	

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Table 5.1 Designated sites within the Likely Zone of Influence

European Site	Distance from the site of the proposed development (km)	Qualify Interests/Special Conservation Interests for which the European Site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie on the 05/04/2017)	Conservation Objectives
Special Protection Areas (SPA)			
Mullaghanish to Musheramore Mountains SPA (004162)	6.6km	• Hen Harrier (Circus cyaneus) [A082]	The generic conservation objective for this site is: "*To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA*"
Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA (004161)	14.6km	• Hen Harrier (Circus cyaneus) [A082]	The generic conservation objective for this site is: "*To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA*"
Special Areas of Conservation (SAC)			
Blackwater River (Cork/Waterford) SAC (002170)	0km – The site shares a northern and eastern boundary with the protected area.	▪ Estuaries [1130] ▪ Mudflats and sandflats not covered by seawater at low tide [1140] ▪ Perennial vegetation of stony banks [1220] ▪ Salicornia and other annuals colonising mud and sand [1310] ▪ Atlantic salt meadows (Glauco-Puccinellietalia maritimae) [1330] ▪ Mediterranean salt meadows (Juncetalia maritimi) [1410]	Detailed conservation objectives for this site are available online at www.npws.ie

		▪ Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation [3260] ▪ Old sessile oak woods with Ilex and Blechnum in the British Isles [91A0] ▪ Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae) [91E0] ▪ Margaritifera margaritifera (Freshwater Pearl Mussel) [1029] ▪ Austropotamobius pallipes (White-clawed Crayfish) [1092] ▪ Petromyzon marinus (Sea Lamprey) [1095] ▪ Lampetra planeri (Brook Lamprey) [1096] ▪ Lampetra fluviatilis (River Lamprey) [1099] ▪ Alosa fallax fallax (Twaite Shad) [1103] ▪ Salmo salar (Salmon) [1106] ▪ Lutra lutra (Otter) [1355] ▪ Trichomans speciosum (Killarney Fern) [1421]	
Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC (000365)	4.1km	▪ Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae) [3110] ▪ Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or Isoeto-Nanojuncetea [3130] ▪ Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation [3260] ▪ Northern Atlantic wet heaths with Erica tetralix [4010]	The generic conservation objective for this site is: "*To maintain or restore the favourable conservation condition of the Annex I habitat(s) and/or the Annex II species for which the SAC has been selected*"

		▪ European dry heaths [4030] ▪ Alpine and Boreal heaths [4060] ▪ Juniperus communis formations on heaths or calcareous grasslands [5130] ▪ Calaminarian grasslands of the Violetalia calaminariae [6130] ▪ Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae) [6410] ▪ Blanket bogs (* if active bog) [7130] ▪ Depressions on peat substrates of the Rhynchosporion [7150] ▪ Old sessile oak woods with Ilex and Blechnum in the British Isles [91A0] ▪ Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae) [91E0] ▪ Taxus baccata woods of the British Isles [91J0] ▪ Geomalacus maculosus (Kerry Slug) [1024] ▪ Margaritifera margaritifera (Freshwater Pearl Mussel) [1029] ▪ Euphydryas aurinia (Marsh Fritillary) [1065] ▪ Petromyzon marinus (Sea Lamprey) [1095] ▪ Lampetra planeri (Brook Lamprey) [1096] ▪ Lampetra fluviatilis (River Lamprey) [1099] ▪ Salmo salar (Salmon) [1106] ▪ Rhinolophus hipposideros (Lesser Horseshoe Bat) [1303] ▪ Lutra lutra (Otter) [1355]	

		▪ Trichomanes speciosum (Killarney Fern) [1421] ▪ Najas flexilis (Slender Naiad) [1833] ▪ Alosa fallax killarnensis (Killarney Shad) [5046]	
Mullaghanish Bog SAC (001890)	9.4km	• Blanket bogs (* if active bog) [7130]	The generic conservation objective for this site is: "*To maintain or restore the favourable conservation condition of the Annex I habitat(s) and/or the Annex II species for which the SAC has been selected*"
St. Gobnet's Wood SAC (000106)	13.8km	• Old sessile oak woods with Ilex and Blechnum in the British Isles [91A0]	The generic conservation objective for this site is: "*To maintain or restore the favourable conservation condition of the Annex I habitat(s) and/or the Annex II species for which the SAC has been selected.*"

6 ARTICLE 6(3) SCREENING ASSESSMENT

6.1 Article 6(3) Assessment Criteria

The Screening Assessment criteria examined in the impact assessment section of this screening document follow the suggested screening matrix structure detailed in *Assessment of Plans and Projects Significantly Affecting Natura 2000 Sites: Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive* (EC 2001).

6.1.1 Description of the Individual Elements of the Project with Potential to give Rise to Impacts on the European Site

The project involves the afforestation of land as described in detail previously. Elements of the works in the construction phase with the potential to give rise to impacts on nearby European sites include the following:

- Site preparation works including excavation works for drainage
- Subsequent felling of mature trees

6.1.2 Description of any Likely Direct, Indirect or Secondary Impacts of the Project on the European Site

Any likely direct, indirect or secondary impacts of the proposed afforestation, both alone and in combination with other plans or projects, on the European Sites by virtue of the following criteria: size and scale, land-take, distance from the European Sites or key features of the site, resource requirements (such as water abstraction), emissions (disposal to land, water or air), excavation requirements, transportation requirements and duration of construction, operation, decommissioning are presented in Table 6.1.

Table 6.1 Likely Impacts of the Project on the European Sites

Likely Direct, Indirect or Secondary Impacts of the Project on the European Sites	
Size and Scale	The project consists of the afforestation of 16.1ha of modified wet grassland, and includes the creation of drainage ditches on site. It is not considered that the size and scale of the project will contribute to any significant impacts on any European sites.
Land-take	The proposed afforestation site is entirely outside of any European sites. Therefore, there will be no land-take within any European Sites.
Distance from the European Sites or Key Features of the Site	The Blackwater River (Cork/Waterford) SAC (002170) borders the site. Given the best practice measures incorporated in the proposed afforestation there will be no impact on any European Sites as a result of distance.

Likely Direct, Indirect or Secondary Impacts of the Project on the European Sites	
Resource Requirements	There will be no exploitation of any resources within any European Site as part of the proposed development and therefore impacts in this regard on any of the sites within the Likely Zone of Impact can be discounted.
Emissions	Small scale excavations will be required throughout the site for the installation of drainage ditches throughout the site. The Blackwater River (Cork/Waterford) SAC (002170) borders the site. Given the suite of best practice measures incorporated into the project, emissions from the proposed afforestation will not cause a significant negative effect to European Sites in the zone of influence. In view of best scientific knowledge and based on objective information, the proposed development will not have significant effects on any European sites as a result of surface water emissions.
Excavation Requirements	There will be no works undertaken within any European Site and therefore no direct impacts relating to excavation are predicted. Small scale excavations will be required on the site for the installation of drainage ditches throughout the site. Given the best practice pollution prevention measures incorporated, no impact on these European Sites are anticipated due to excavation.
Transportation Requirements	Transport to and within the proposed afforestation site will be by existing roads. Therefore, no indirect effects on any European Sites are predicted as a result of transportation requirements.
Duration of Construction, Operation, Decommissioning	No potential impacts that relate directly to the duration of each phase of the afforestation were identified. Impacts resulting from Emissions are possible during site preparation and felling, but are considered above with no additional potential for impacts arising specifically as a result of the duration of each phase identified.
Cumulative Impacts with other Projects or Plans	A search of the Cork County Council Planning Enquiry System for the townland of Claraghtlea North for applications made in the last 5 years revealed just one completed application. This was for the construction of an extension to a dwelling. Significant cumulative impacts are not predicted as there are no large-scale developments existing or proposed in the vicinity of the proposed development.

6.1.3 Description of any Likely Changes to the European Site

Any likely changes to the European Sites are described in Table 6.2 with reference to the following criteria: reduction of habitat area, disturbance to key species, habitat or species fragmentation, reduction in species density, changes in key indicators of conservation value (e.g. water quality etc.) and climate change.

Table 6.2 Likely Changes to the European Sites

Likely Changes to the European Sites	
Reduction of Habitat Area	The closest European sites, River Shannon and River Fergus Estuaries SPA (004077), and the Lower River Shannon SAC (002165), located 2.7km from the proposed development site. Therefore, there will be no loss of habitat within any European sites. No potential for disturbance to any habitats, for which any European Sites considered in the screening assessment are designated, have been identified.
Disturbance to Key Species	Based on the desk study, and field surveys, no significant disturbance of key species is anticipated. No potential for disturbance to any key species, for which any European Sites considered in the screening assessment are designated, have been identified.
Habitat or Species Fragmentation	There will be no habitat or species fragmentation within any European Site associated with the proposed afforestation or in combination with other developments in the surrounding area.
Reduction in Species Density	European Sites are not considered to be at any risk of a reduction of species density given the nature of the QI's or SCI's, scale and the nature of the proposed works, and the distance to the afforestation site.
Changes in Key Indicators of Conservation Value	European Sites are not considered to be at any risk from changes in key indicators of conservation value given the nature of the QI's or SCI's, scale and the nature of the proposed works, and the distance to the afforestation site.
Climate Change	Given the scale and nature of the proposed works, it is unlikely that these works will contribute significantly to climate change.

6.1.4 Description of any Likely Impacts on any European Site

Potential pathways for impacts and effects on the European sites in the preceding sections have been examined and none were found to have a significant impact as a result of the proposed afforestation.

Direct Impacts and **Indirect Impacts** on European Sites are not anticipated. Table 6.3 describes the nature of any impacts in terms of the structure and function of the identified European Sites.

Table 6.3. Assessment of Potential Impacts on the Structure and Function of European Sites

Likely Changes to the European Sites	
Interference with the key relationships that define the structure of a European Site	No potential for impact on the key relationships that define the **Structure** of any European Sites have been identified.
Interference with key relationships that define the function of the European site	No potential for impact on the key relationships that define the **Function** of any European Sites have been identified.

6.1.5 Indicators of Significance as a Result of the Identification of Effects

Indicators of significance are provided in Table 6.4 for any impacts identified above in terms of loss, fragmentation, disruption, disturbance and changes to key elements of the site, such as water quality.

Table 6.4Indicators of Significance as a Result of the Identification of Effects

Indicators of Significance as a Result of the Identification of Effects	
Loss	There will be no reduction in Annex I habitat area within any European Sites as a result of the proposed afforestation. There will be no net loss of supporting habitat of QI/SCI species.
Fragmentation	There will be no habitat or species fragmentation within any European Site associated with the proposed afforestation.
Disruption	There will be no disruption to the ecological processes within any European Sites as a result of the proposed afforestation
Disturbance	There will be no disturbance within any European Sites as a result of the proposed afforestation
Changes to Key Elements of the Site	There will be no changes to key elements within any Natura 2000 site as a result of the proposed afforestation.

7 ARTICLE 6(3) SCREENING STATEMENT AND CONCLUSIONS

The findings of this Screening Report are presented below

7.1 Assessment of Significance of Effects

Is the project directly connected with or necessary to the management of the site?

The project is not directly connected with or necessary to the management of any European Site.

Are there any other projects or plans that together with the project being assessed could affect the site?

A search in relation to plans and projects that may have the potential to result in cumulative impacts on European sites was conducted. The proposed afforestation will have no individual or cumulative impacts on any European site in any regard.

Describe how the project is likely to affect the Natura 2000 sites

The project will not significantly affect any European Sites. Complete impact source-pathway receptor chains for direct or indirect impacts were not identified.

Explain why these effects are not considered significant

- There will be no negative direct or indirect impacts or reduction in Annex I habitat area within any European Site.
- There will be no reduction in key habitats supporting populations of Annex I bird species and no reduction in the populations of any Annex I species.
- There will be no reduction in key habitats supporting populations of Annex II species and no reduction in the populations of any Annex II species.
- The works themselves will involve little disturbance or disruption to the ecological processes in the area during either construction or operation.

7.2 Data Collected to Carry Out Assessment

In preparation of the report, the following sources were used to gather information:

- Review of NPWS Site Synopses and Conservation Objectives for European sites and pNHA sites.
- Site Visit
- Desk study of relevant ecological information.
- Report including desk study and appropriate assessment prepared by Erin Johnston (BSc, MSc, PhD), and reviewed by John Hynes (B Sc. M.Sc), McCarthy Keville O'Sullivan Ltd.

7.3 Concluding Statement

The proposed afforestation, by itself or in combination with other plans and projects, in light of best scientific knowledge in the field, will not, in view of the sites' conservation objectives, have significant effects on any European Site.

There is no requirement for Appropriate Assessment.

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Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (Habitats Directive) and Directive 2009/147/EC (codified version of Directive 79/409/EEC as amended) (Birds Directive) – transposed into Irish law as European Communities (Birds and Natural Habitats) Regulations 2011 (SI 477/2011

Appendix 1

Technical Approval Documents

ENERCO ENERGY LTD

Department of Agriculture, Food and the Marine
An Roinn Talmhaíochta, Bia agus Mara

ENERCO ENERGY LTD
LISSARDA BUSINESS PARK
LISSARDA
CO CORK

01/10/2015

Approval for Non Grant Aided Afforestation

Forest Owner	FO128320H
Contract Number	CN72236
Townland	Claraghatlea north
County	Cork
Approved Area (Ha)	18.77
Fencing Length (LM)	1,200.00

I refer to your application (Form 1) requesting approval for Afforestation. Your application has been assessed and approval is hereby issued on the basis that the works will be undertaken in accordance with the prescription set out in Appendix A attached herewith.

You should note that the project will NOT be eligible for grant aid.

The following conditions apply to this application:
Satisfactory completion of the work not later than 30-JUN-17

Environmental & Silvicultural Considerations
Plot 1 is too wet and poorly drained for scots pine. Plant plot 1 with GPC 6 (oak/birch),
In plot 2 plant 2-3 rows of alder/birch along the hedges, ditches and boundaries and 5 rows along all streams. Keep back 15m from streams.,
Adequately drain. Ensure adequate silt traps and compliance with water quality guidelines.,
Adhere to forestry & water quality guidelines,
All guidelines to apply

You are required to notify the Department of Agriculture, Food and Marine in writing if any of the details of your application have changed.

IMPORTANT

As no submissions from third parties were received by the Department concerning this application, development in accordance with this may proceed without further notice.

Please feel free to contact this office, quoting your Contract Number, regarding progress of your application. LoCall 1890-200-509.

Yours sincerely

JOANNE ROBINSON
Approval Section
Forest Service

An Roinn Talmhaíochta, Bia agus Mara
Department of Agriculture, Food and the Marine
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APPENDIX A

Department of Agriculture, Food and the Marine

Department of Agriculture, Food and the Marine
An Roinn Talmhaíochta, Bia agus Mara

Operational Proposals for Approval of Afforestation

Forest Owner Number	FO128320H
Contract Number	CN72236
Townland	Claraghatlea north
County	Cork
Area Approved	18.77(ha)
Fencing Length (LM)	1,200.00

All applications must be developed in accordance with detailed standards and procedures as described in the current Forestry Schemes Manual. Certain specific operational proposals particular to this application are described below. No change is permitted to these proposals and species approved unless approved in advance by the Department. The Department may insist that proposed changes constitutes a new application.

Operational Proposal Details

Agro Forestry (GPC 11)		
1.	Tree Shelters	Not Entered
2.	Plant Size and Stocking	Not Entered
Drainage		
1.	Drainage	Required
2.	Drainage Comment	Full compliance with Forestry and Water Quality Guidelines
Fertiliser		
1.	Zero	Yes
2.	350 Kg Granulated Rock Phosphate	Not Entered
3.	250 Kg Granulated Rock Phosphate	Not Entered
4.	Split Application	Not Entered
5.	Other Details	Not Entered
Firebreaks/Res.		
1.	Firebreaks/Res	Not Required
Forestry for Fibre (GPCs: 12a and 12b))		
1.	Is Land Free Drainage arable or pasture soils	Not Entered
2.	Are there surface water gleys without a peat layer	Not Entered
3.	Do you intend to use improved genetic material	Not Entered
4.	Details	Not Entered
Ground Prep.		
1.	Woody Weed Removal	Not Entered
2.	Ripping	Not Entered
3.	Pit Plant	Not Entered
4.	Mole Drainage	Not Entered
5.	Mounding	Yes
6.	Ploughing	Not Entered
9.	Other Details	Not Entered
Planting Method		
1.	Angle Notch	Yes
2.	Pit	Not Entered
3.	Machine	Not Entered

An Roinn Talmhaíochta, Bia agus Mara
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4.	Slit	Not Entered
5.	Other Details	Not Entered
Road Access		
1.	Road Access	Provided
Standard Stocking		
1.	Standard Stocking	Yes
2.	Details	Not Entered
Weed Control		
1.	Herbicide Control yr0	Yes
2.	Herbicide Control yr1	Yes
3.	Herbicide Control yr2	Yes
3.	Herbicide Control yr4	Not Entered
4.	Manual	Yes
4.	Herbicide Control yr3	Yes

Fencing Details (metres)	Stock	1200	Stock-Sheep	0
	Stock-Rabbit	0	Upgrade to Deer	0
	Deer-Rabbit	0	Deer	0
	Upgrade Existing Fence(s)	0		
	Upgrade Details: None Entered			

Species Approved

The species approved in this proposal relate to the digitised certified species map attached.

Species Approved for Afforestation

Plot	Area	GPC	Land Type	Species	Species Area	Yield Class	Mixture Type	Exclusion	Exclusion Type
1	2.59	GPC 6	BHF	PO	2.33	6	Integrated Mix		
				BI	.26	4			
2	16.18	GPC 3	CHF	SS	14.56	22	Integrated Mix		
				ADB	1.62	4			

Additional Silvicultural and Environmental Conditions

In addition to the Department's environmental and silvicultural guidelines the following specific conditions apply to this proposal:

Silvicultural and Environmental Conditions

Plot 1 is too wet and poorly drained for scots pine. Plant plot 1 with GPC 6 (oak/birch),
In plot 2 plant 2-3 rows of alder/birch along the hedges, ditches and boundaries and 5 rows along all streams. Keep back 15m from streams.,
Adequately drain. Ensure adequate silt traps and compliance with water quality guidelines.,
Adhere to forestry & water quality guidelines,
All guidelines to apply

Scale 1: **10500.0**

Contract: **CN72236**

Certified Species Information

Contract No: CN72236
Townland: CLARAGHATLEA NORTH
County: C
6 " OS No: CK39

Plot No	GPC	Parcel No	GPC Area(h)	Land Use Type	Species Area	Species	Mixture Type	Excl. Area(h)	Excl. Type
1	GPC 6	37848703	2.59	BHF	2.59	PO, BI	I	0.0	
2	GPC 3	37848755	16.18	CHF	16.18	SS, ADB	I	0.0	
	Totals		18.77		18.77			0.0	

Remarks :

Area Surveyed By : **Date:**
Species Certified By : **Date:**

Appropriate Assessment Screening Report

Proposed Replanting at Glantane Beg, Co. Cork

McCarthy Keville O'Sullivan

Planning & Environmental Consultants

DOCUMENT DETAILS

Client:	Planree ltd
Project title:	Proposed Replanting at Glantane Beg, Co. Cork

Project Number:	160502
Document Title:	Appropriate Assessment Screening Report
Doc. File Name:	160502 –AASR – 2017.11.10 – F
Prepared By:	McCarthy Keville O'Sullivan Ltd. Planning & Environmental Consultants Block 1, G.F.S.C. Moneenageisha Road, Galway

Document Issue:

Rev	Status	Issue Date	Document File Name	Author(s)	Approved By:
01	Draft	10/11/2017	160502 – Replanting AASR Glantane Beg– 2017.04.04 – D1	EJ	PR
02	Final	10/11/2017	160502 – Replanting AASR Glantane Beg– 2017.11.10 – F	EJ	PR

Table of Contents

1 GENERAL INTRODUCTION

This report has been prepared to provide the information necessary to allow the competent authority to conduct an Article 6(3) Screening for Appropriate Assessment for the proposed construction of a new dwelling house, and wastewater treatment system along with all associated ancillary works **Glantane Beg, Co. Cork** (Grid ref: E 121136 N 97525).

The report provides the information necessary to allow the competent authority to conduct an Article 6(3) Appropriate Assessment Screening of the proposed afforestation.

Screening for Appropriate Assessment is required under Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (the Habitats Directive). Where a plan or project is not directly connected with or necessary to the management of a European site and where it cannot be excluded, on the basis of objective information that a project or plan, either alone or in combination with other projects or plans, would have a significant effect on a European Site, then same shall be subject to an appropriate assessment of its implications for the European site in view of the site's conservation objectives. The current project is not directly connected with, or necessary for, the management of any European Site consequently the project has been subject to the Appropriate Assessment Screening process.

The assessment in this report is based on a desk study and field surveys undertaken during March 2017. It specifically assesses the potential for the proposed afforestation to impact on European sites and the ecology of the area.

This report has been prepared in accordance with the European Commission guidance document *Assessment of Plans and Projects Significantly affecting Natura 2000 Sites: Methodological Guidance on the provisions of Article 6(3) and 6(4) of the Habitats Directive 92/43/EEC* (EC, 2001) and the Department of the Environment's Guidance on the Appropriate Assessment of Plans and Projects in Ireland (December 2009, amended February 2010).

In addition to the guidelines referenced above, the following relevant guidance was considered in preparation of this report:

(1) DoEHLG (2010) Appropriate Assessment of Plans and Projects in Ireland Guidance for Planning Authorities. Department of the Environment, Heritage and Local Government,
(2) European Communities (2000) Managing Natura 2000 Sites: the provisions of Article 6 of the 'Habitats' Directive 92/43/EEC, Office for Official Publications of the European Communities, Luxembourg. European Commission,
(3) 92/43/EEC, Office for Official Publications of the European Communities, Luxembourg. European Commission,
(4) EC (2007) Guidance document on Article 6(4) of the 'Habitats Directive' 92/43/EEC – *Clarification of the concepts of: alternative solutions, imperative reasons of overriding public interest, compensatory measures, overall coherence, opinion of the commission*. European Commission
(4) EC (2013) Interpretation Manual of European Union Habitats. Version EUR 28. European Commission,

(5) EPA (2002) Guidelines on the information to be contained in Environmental Impact Statements. Environmental Protection Agency,
(6) EPA (2003), Advice Notes on current practice in the preparation of Environmental Impact Statements. Environmental Protection Agency, and
(7) CIEEM (2016) Institute of Ecology and Environmental Management Guidelines for Ecological Impact Assessment. (9) EC (2001) Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC

1.1 Background to Appropriate Assessment

1.1.1 Screening for Appropriate Assessment

Screening is the process of determining whether or not an Appropriate Assessment is required for a plan or project. Under Part XAB of the Planning and Development Act, 2000 as amended, Screening must be carried out by the Competent Authority to assess, in view of best scientific knowledge, if a land use plan or proposed development, individually or in combination with another plan or project, is likely to have a significant effect on a European site. The Competent Authority's determination as to whether or not an Appropriate Assessment is required must be made on the basis of objective information and should be recorded. The competent authority may request information to be supplied to enable it to carry out screening.

1.1.2 Appropriate Assessment (Natura Impact Statement)

The term Natura Impact Statement (NIS), is defined in legislation[1]. An NIS, where required, should present the data, information and analysis necessary to reach a definitive determination as to 1) the implications of the plan or project, alone or in combination with other plans and projects, for a European site in view of its conservation objectives, and 2) whether there will be adverse effects on the integrity of a European site. The NIS should be underpinned by best scientific knowledge, objective information and by the precautionary principle.

[1] As defined in Section 177T of the Planning and Development Act, 2000 as amended, an NIS means a statement, for the purposes of Article 6 of the Habitats Directive, of the implications of a proposed development, on its own and in combination with other plans and projects, for a European site in view of its conservation objectives. It is required to include a report of a scientific examination of evidence and data, carried out by competent persons to identify and classify any implications for the European site in view of its conservation objectives

2 DESCRIPTION OF THE PROPOSED AFFORESTATION

2.1 General Project Description

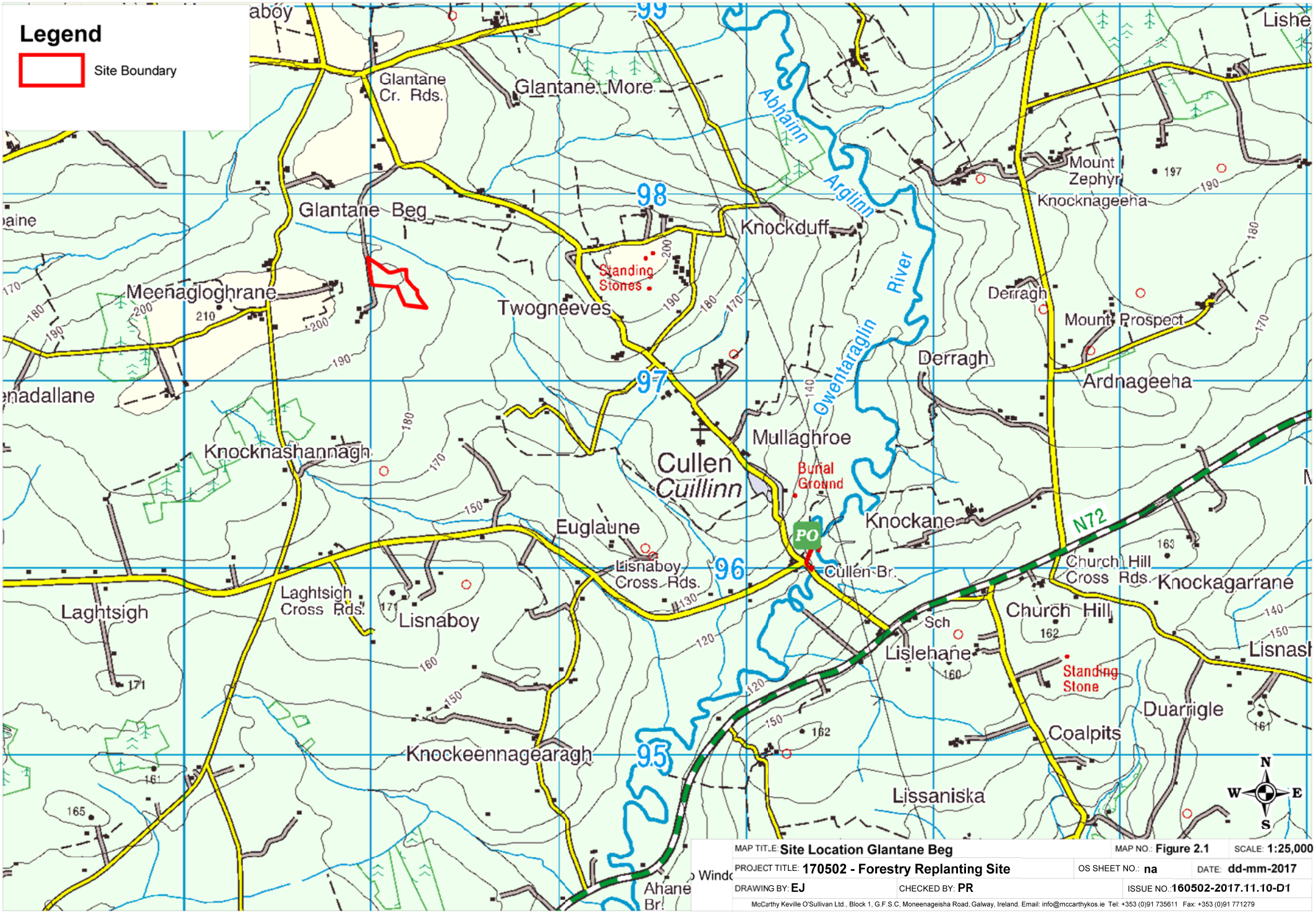
The land addressed in this document has been granted Technical Approval by the Forest Service for afforestation. Copies of the Technical Approval documents are presented in Appendix 1.

The afforestation and subsequent harvesting will conform to current best practice Forest Service regulations, policies and strategic guidance documents as well as Coillte produced guidance documents, to ensure that newly planted trees remain viable and afforestation provide minimal potential impacts to the receiving environment.

Planting will be carried out by hand, and in accordance with the 'Forestry Schemes Manual' (Forest Service, 2011), which provides guidance in relation to ground cultivation, stocking and spacing, plant handling, planting dates, fertiliser application, fencing, fire, and weed control. Certain specific silvicultural and environmental conditions are also set out in the Forest Service Technical Approvals for the site, which will be adhered to. Drainage and sediment control on site will conform to Forest Service best practice.

Invasive Species
The following measures address potential impacts associated with the construction phase of the project:

- Good site hygiene will be employed to prevent the spread of invasive species with vehicle thoroughly washed prior to leaving any site which potentially supported invasive species.



MAP TITLE: **Site Location Glantane Beg**		MAP NO.: **Figure 2.1**	SCALE: **1:25,000**
PROJECT TITLE: **170502 - Forestry Replanting Site**		OS SHEET NO.: **na**	DATE: **dd-mm-2017**
DRAWING BY: **EJ**	CHECKED BY: **PR**		ISSUE NO.: **160502-2017.11.10-D1**

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3 METHODOLOGY AND LIMITATIONS

Assessing the impacts of any project and associated activities requires an understanding of the ecological baseline conditions prior to and at the time of the project proceeding. Ecological Baseline conditions are those existing in the absence of proposed activities (CIEEM 2016).

The following paragraphs outline the methodologies utilised to establish the baseline ecological condition of the proposed afforestation site.

Initially the potential for the site to support protected habitats and species was assessed by means of a desk study. Literature pertinent to the site and surrounding area was reviewed as was information pertaining to legislation/designations and other notable ecological records.

A field survey of the site, including a habitat survey, was carried out by suitably qualified ecologist from McCarthy Keville O'Sullivan, Erin Johnston (BSc., MSc, PhD) in March 2017. The site was assessed and the habitats the site were classified per the guidelines set out in 'A Guide to Habitats in Ireland' (Fossitt, 2000), which classifies habitats based on the vegetation present and management history. In addition, the field survey was designed to detect the presence, or likely presence, of a range of protected species.

Seasonal factors that affect distribution patterns and habits of species were taken into account when conducting the surveys. The potential of the site to support certain populations (in particular those of conservation importance that may not have been recorded during the field survey due to their seasonal absence or nocturnal/cryptic habits) was assessed.

The nature of the site was such that all habitats and species of interest were readily identifiable based on the site survey. Using the information gained during this site visit, together with published information on the site and its environs, it is considered that a comprehensive ecological assessment was achieved.

4 FIELD SURVEY

4.1 Habitats

The site is comprised almost entirely of overgrown, Wet Grassland (GS4). The grassland is extensively dominated by rushes (*Juncus* spp.). Grass species recorded include Creeping Bent (*Agrostis stolonifera*), and Yorkshire Fog (*Holcus lanatus*). There was very little in terms of species recorded within the grassland, with ther species recorded in this habitat include Creeping Buttercup (*Ranunculus repens*, Common Sorrell (*Rumex acetosa*), and Water Dock (*Rumex hydrolapathum*). The boundaries of the site were comprised of hedgerows (WL1) and thin strips of scrub (WS1) and conifer plantation (WD4). Species recorded within these habitats include Willow (*Salix spp.*), Gorse (*Ulex europaeus*) Hawthorn (*Crataegus monogyna*), and Brambles (*Rubus fructicosus*). Drainage ditches were recorded along the borders of the site, with one running through the centre of the site. Drainage ditches were typically overgrown with rushes, brambles and in some cases gorse. Vegetation bordering the stream included rushes, Lesser Celandine (*Ficaria verna*), Primrose (*Primula vulgaris*), Herb Robert (*Geranium robertianum*), Dandelion (*Taraxacum vulgaria*), Bracken (*Pteridium aquilinum*), and Hard Fern (*Blechnum spicant*).

Plate 5.1 Wet Grassland (GS4) on the study site with bordering Conifer Plantation (WD4).

Plate 5.1 Drainage ditch (FW4) bordering the site.

4.1.1 Invasive Species

No invasive species listed on the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations, 2011 were identified within the site boundaries during field survey.

4.1.2 Significance of habitats

No habitats which correspond to those that are listed in the EU Habitats Directive were identified during the site visit. The wet grassland and drainage ditches that are present within the site, given their highly modified nature, are of Local Importance (Lower Value) as they contain areas which are of some local importance for wildlife. The hedgerows and scrub are of Local Importance (Higher Value) as these habitats have a higher level of biodiversity within the context of the local environment, and provide links between habitats of higher ecological value.

5 APPROPRIATE ASSESSMENT SCREENING

5.1 Background to European Sites

The Habitats Directive (together with the Birds Directive) forms the cornerstone of Europe's nature conservation policy. It is built around two pillars: The Natura 2000 network of protected sites and a strict system of species protection. All in all, the directive protects over 1,000 animal and plant species and over 200 "habitat types" (e.g. special types of forests, meadows, wetlands, etc.), which are of European importance.

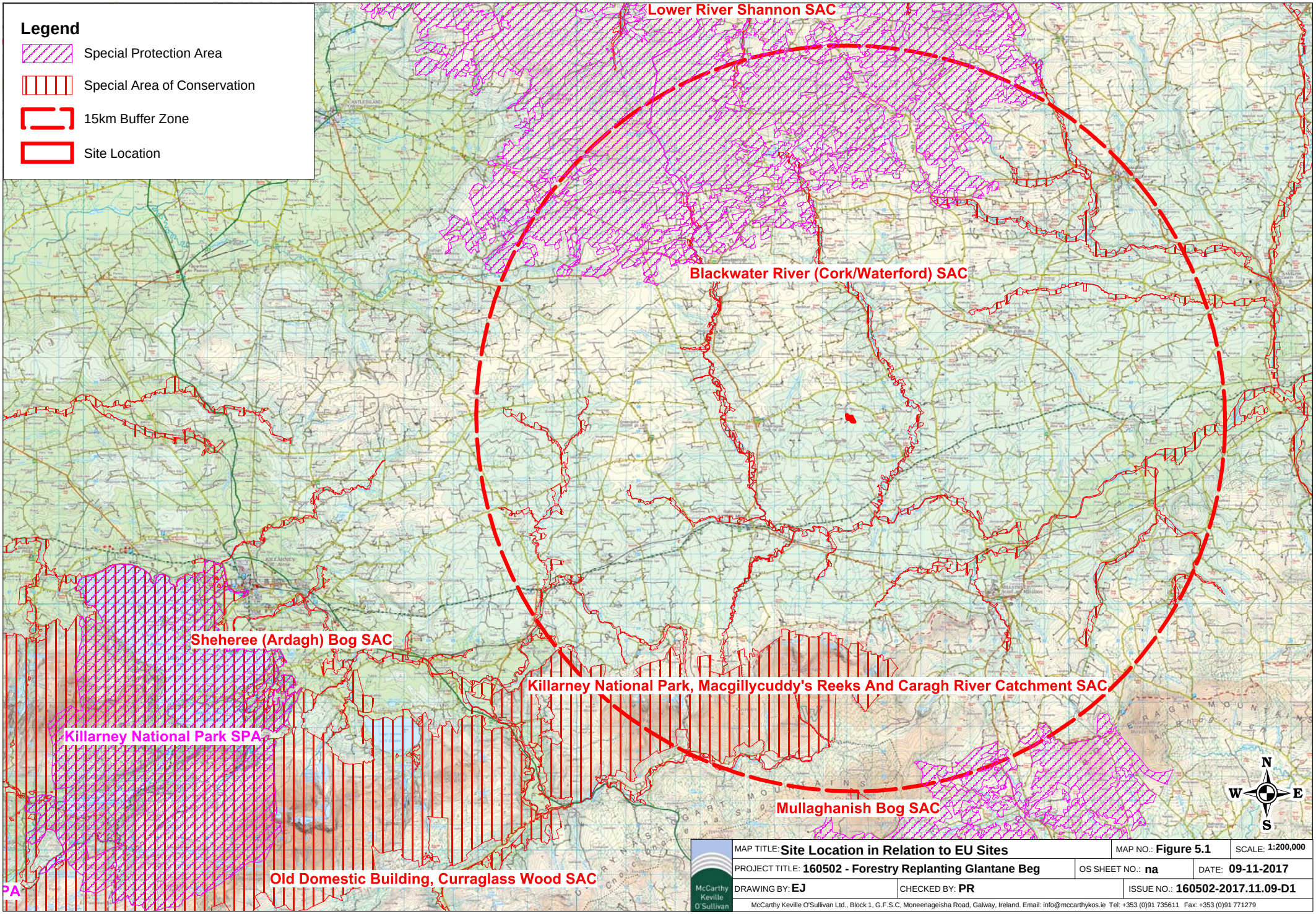
With the introduction of the EU Habitats Directive (92/43/EEC) and Birds Directive (79/409/EEC) which were transposed into Irish law as S.I. No. 94/1997 *European Communities (Birds and Natural Habitats) Regulations* 1997, the European Union formally recognised the significance of protecting rare and endangered species of flora and fauna, and also, more importantly, their habitats. The 1997 Regulations and their amendments were subsequently revised and consolidated in S.I. No. 477/2011- *European Communities (Birds and Natural Habitats) Regulations* 2011. This legislation requires the establishment and conservation of a network of sites of particular conservation value that are to be termed 'European Sites'.

5.2 European Sites in the likely Zone of Impact of the Proposed Afforestation

The most up to date GIS spatial datasets for European designated sites were downloaded from the NPWS website (www.npws.ie) on the 10.11.2017. Using the GIS software, MapInfo (Version 10.0), European sites within the likely zone of influence of the project were identified. The following rationale was used to identify the zone of influence. Initially, sites within a 15 kilometer radius of the proposed works were identified as per DoEHLG Guidance (2010). In addition, using the precautionary principle, European Sites located outside the 15km buffer zone were also taken into account and assessed. In this case, no potential for impacts outside the 15km buffer was identified.

Figure 5.1 show the location of the proposed works in relation to all European sites within the Likely Zone of Influence as identified per the criteria described above.

Table 5.1, lists all European Sites that were considered to be within the Likely Zone of Influence. The site synopses and conservation objectives of these sites, as per the NPWS website (www.npws.ie), were considered at the time of preparation of this report (10/11/2017). Details of these sites, including their distance from the proposed afforestation, are provided in Table 5.1.



MAP TITLE: **Site Location in Relation to EU Sites**		MAP NO.: **Figure 5.1**	SCALE: **1:200,000**
PROJECT TITLE: **160502 - Forestry Replanting Glantane Beg**		OS SHEET NO.: **na**	DATE: **09-11-2017**
DRAWING BY: **EJ**	CHECKED BY: **PR**	ISSUE NO.: **160502-2017.11.09-D1**	

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Table 5.1 Designated sites within the Likely Zone of Influence

European Site	Distance from the site of the proposed development (km)	Qualify Interests/Special Conservation Interests for which the European Site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie on the 04/04/2017)	Conservation Objectives
Special Protection Areas (SPA)			
Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA (004161)	7.5km	• Hen Harrier (Circus cyaneus) [A082]	The generic conservation objectives for this site are "*To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA*"
Mullaghanish to Musheramore Mountains SPA (004162)	14.0km	• Hen Harrier (Circus cyaneus) [A082]	The generic conservation objectives for this site are "*To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA*"
Special Areas of Conservation (SAC)			
Blackwater River (Cork/Waterford) SAC (002170)	2.1km	▪ Estuaries [1130] ▪ Mudflats and sandflats not covered by seawater at low tide [1140] ▪ Perennial vegetation of stony banks [1220] ▪ Salicornia and other annuals colonising mud and sand [1310] ▪ Atlantic salt meadows (Glauco-Puccinellietalia maritimae) [1330] ▪ Mediterranean salt meadows (Juncetalia maritimi) [1410]	Detailed conservation objectives for this site are available online at www.npws.ie

		▪ Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation [3260] ▪ Old sessile oak woods with Ilex and Blechnum in the British Isles [91A0] ▪ Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae) [91E0] ▪ Margaritifera margaritifera (Freshwater Pearl Mussel) [1029] ▪ Austropotamobius pallipes (White-clawed Crayfish) [1092] ▪ Petromyzon marinus (Sea Lamprey) [1095] ▪ Lampetra planeri (Brook Lamprey) [1096] ▪ Lampetra fluviatilis (River Lamprey) [1099] ▪ Alosa fallax fallax (Twaite Shad) [1103] ▪ Salmo salar (Salmon) [1106] ▪ Lutra lutra (Otter) [1355] ▪ Trichomans speciosum (Killarney Fern) [1421]	
Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC (000365)	8.6km	▪ Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae) [3110] ▪ Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or Isoeto-Nanojuncetea [3130] ▪ Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation [3260] ▪ Northern Atlantic wet heaths with Erica tetralix [4010] ▪ European dry heaths [4030] ▪ Alpine and Boreal heaths [4060] ▪ Juniperus communis formations on heaths or calcareous grasslands [5130] ▪ Calaminarian grasslands of the Violetalia calaminariae [6130]	

		▪ Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae) [6410] ▪ Blanket bogs (* if active bog) [7130] ▪ Depressions on peat substrates of the Rhynchosporion [7150] ▪ Old sessile oak woods with Ilex and Blechnum in the British Isles [91A0] ▪ Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae) [91E0] ▪ Taxus baccata woods of the British Isles [91J0] ▪ Geomalacus maculosus (Kerry Slug) [1024] ▪ Margaritifera margaritifera (Freshwater Pearl Mussel) [1029] ▪ Euphydryas aurinia (Marsh Fritillary) [1065] ▪ Petromyzon marinus (Sea Lamprey) [1095] ▪ Lampetra planeri (Brook Lamprey) [1096] ▪ Lampetra fluviatilis (River Lamprey) [1099] ▪ Salmo salar (Salmon) [1106] ▪ Rhinolophus hipposideros (Lesser Horseshoe Bat) [1303] ▪ Lutra lutra (Otter) [1355] ▪ Trichomanes speciosum (Killarney Fern) [1421] ▪ Najas flexilis (Slender Naiad) [1833] ▪ Alosa fallax killarnensis (Killarney Shad) [5046]	
Lower River Shannon SAC (002165)	14.0km	• Sandbanks which are slightly covered by sea water all the time [1110] • Estuaries [1130] • Mudflats and sandflats not covered by seawater at low tide [1140] • Coastal lagoons [1150] • Large shallow inlets and bays [1160] • Reefs [1170] • Perennial vegetation of stony banks [1220]	Detailed conservation objectives for this site are available online at www.npws.ie

		• Vegetated sea cliffs of the Atlantic and Baltic coasts [1230] • Salicornia and other annuals colonising mud and sand [1310] • Atlantic salt meadows (Glauco-Puccinellietalia maritimae) [1330] • Mediterranean salt meadows (Juncetalia maritimi) [1410] • Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation [3260] • Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae) [6410] • Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae) [91E0] • Margaritifera margaritifera (Freshwater Pearl Mussel) [1029] • Petromyzon marinus (Sea Lamprey) [1095] • Lampetra planeri (Brook Lamprey) [1096] • Lampetra fluviatilis (River Lamprey) [1099] • Salmo salar (Salmon) [1106] • Tursiops truncatus (Common Bottlenose Dolphin) [1349] • Lutra lutra (Otter) [1355]	
Mullaghanish Bog SAC (001890)	14.9km	• Old sessile oak woods with Ilex and Blechnum in the British Isles [91A0]	The generic conservation objective for this site is: "*To maintain or restore the favourable conservation condition of the Annex I habitat(s) and/or the Annex II species for which the SAC has been selected.*"

6 ARTICLE 6(3) SCREENING ASSESSMENT

6.1 Article 6(3) Assessment Criteria

The Screening Assessment criteria examined in the impact assessment section of this screening document follow the suggested screening matrix structure detailed in *Assessment of Plans and Projects Significantly Affecting Natura 2000 Sites: Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive* (EC 2001).

6.1.1 Description of the Individual Elements of the Project with Potential to give Rise to Impacts on the European Site

The project involves the afforestation of land as described in detail previously. Elements of the works in the construction phase with the potential to give rise to impacts on nearby European sites include the following:

- Site preparation works including excavation works for drainage
- Subsequent felling of mature trees

6.1.2 Description of any Likely Direct, Indirect or Secondary Impacts of the Project on the European Site

Any likely direct, indirect or secondary impacts of the proposed afforestation, both alone and in combination with other plans or projects, on the European Sites by virtue of the following criteria: size and scale, land-take, distance from the European Sites or key features of the site, resource requirements (such as water abstraction), emissions (disposal to land, water or air), excavation requirements, transportation requirements and duration of construction, operation, decommissioning are presented in Table 6.1.

Table 6.1 Likely Impacts of the Project on the European Sites

Likely Direct, Indirect or Secondary Impacts of the Project on the European Sites	
Size and Scale	The project consists of the afforestation of modified wet grassland land, and includes the creation of drainage ditches on site. It is not considered that the size and scale of the project will contribute to any significant impacts on any European sites.
Land-take	There will be no land take within any European Site associated with the proposed afforestation and therefore there will be no resultant impacts.
Distance from the European Sites or Key Features of the Site	The closest European site, Blackwater River (Cork/Waterford) SAC (002170) is located 2.1km from the proposed afforestation site. Given the distance from the site, the nature, and scale of the works, and the best practice measures incorporated it is unlikely that the works will impact on any European Site due to distance.

Likely Direct, Indirect or Secondary Impacts of the Project on the European Sites	
Resource Requirements	There will be no exploitation of any resources within any European Site as part of the proposed development and therefore impacts in this regard on any of the sites within the Likely Zone of Impact can be discounted.
Emissions	The closest European site, Blackwater River (Cork/Waterford) SAC (002170) is located 2.1km from the proposed afforestation site. Hydrological connectivity was identified between the proposed afforestation site and the SAC through the nearby stream. However, given the distance to the site, and that all works are to be carried out to best practice guideline specification, no impact on this or any European Site are anticipated.
Excavation Requirements	There will be no works undertaken within any European Site and therefore no direct impacts relating to excavation are predicted. Small scale excavations will be required on the site for the installation of drainage ditches throughout the site. Though hydrological connectivity was identified between the proposed afforestation site and the nearest European Site, the Blackwater River (Cork/Waterford), given the distance to the site, and that all works are to be carried out to best practice guideline specification, no impact on this or any European Site are anticipated. Given the scale of the works, the best practice pollution prevention measures, and the distance to the nearest European sites no impact on these European Sites are anticipated due to excavation.
Transportation Requirements	As the proposed afforestation is located entirely outside any European Site, there will be no direct impacts on any such site in relation to transportation requirements. Transport to and within the proposed afforestation site will be by existing roads. Therefore, no indirect effects on any European Sites are predicted as a result of transportation requirements.
Duration of Construction, Operation, Decommissioning	No potential impacts that relate directly to the duration of each phase of the afforestation were identified. Impacts resulting from Emissions are possible during site preparation and felling, but are considered above with no additional potential for impacts arising specifically as a result of the duration of each phase identified.
Cumulative Impacts with other Projects or Plans	The proposed development was considered in combination with other developments and activities in the area that could result in cumulative impacts on the identified European Sites. The proposed development site is situated in the townland of Glantane Beg, Co. Cork. This area is characterised by improved agricultural grasslands, domestic dwellings, and forestry. There are no large scale developments proposed or existing in close proximity to the project. Two previous planning applications that have been made in the townland in the past were identified. These were related to wastewater treatment systems, and construction of dwelling houses. The proposed works will not result in any impacts on any European Site and therefore cannot contribute to any wider cumulative impact.

6.1.3 Description of any Likely Changes to the European Site

Any likely changes to the European Sites are described in Table 6.2 with reference to the following criteria: reduction of habitat area, disturbance to key species, habitat or species fragmentation, reduction in species density, changes in key indicators of conservation value (e.g. water quality etc.) and climate change.

Table 6.2 Likely Changes to the European Sites

Likely Changes to the European Sites	
Reduction of Habitat Area	The closest European Sites is located 2.1km from the proposed development site. Therefore, there will be no loss of habitat within any European sites. No potential for disturbance to any habitats, for which any European Sites considered in the screening assessment are designated, have been identified.
Disturbance to Key Species	Based on the desk study, and field surveys, no significant disturbance of key species is anticipated. No potential for disturbance to any key species, for which any European Sites considered in the screening assessment are designated, have been identified.
Habitat or Species Fragmentation	There will be no habitat or species fragmentation within any European Site associated with the proposed afforestation or in combination with other developments in the surrounding area.
Reduction in Species Density	European Sites are not considered to be at any risk of a reduction of species density given the nature of the QI's or SCI's, scale and the nature of the proposed works, and the distance to the afforestation site.
Changes in Key Indicators of Conservation Value	European Sites are not considered to be at any risk from changes in key indicators of conservation value given the nature of the QI's or SCI's, scale and the nature of the proposed works, and the distance to the afforestation site.
Climate Change	Given the scale and nature of the proposed works, it is unlikely that these works will contribute significantly to climate change.

6.1.4 Description of any Likely Impacts on any European Site

Potential pathways for impacts and effects on the European sites in the preceding sections have been examined and none were found to have a significant impact as a result of the proposed afforestation.

Direct Impacts and **Indirect Impacts** on European Sites are not anticipated. Table 6.3 describes the nature of any impacts in terms of the structure and function of the identified European Sites.

Table 6.3. Assessment of Potential Impacts on the Structure and Function of European Sites

Likely Changes to the European Sites	
Interference with the key relationships that define the structure of a European Site	No potential for impact on the key relationships that define the **Structure** of any European Sites have been identified.

Likely Changes to the European Sites	
Interference with key relationships that define the function of the European site	No potential for impact on the key relationships that define the **Function** of any European Sites have been identified.

6.1.5 Indicators of Significance as a Result of the Identification of Effects

Indicators of significance are provided in Table 6.4 for any impacts identified above in terms of loss, fragmentation, disruption, disturbance and changes to key elements of the site, such as water quality.

Table 6.4Indicators of Significance as a Result of the Identification of Effects

Indicators of Significance as a Result of the Identification of Effects	
Loss	There will be no reduction in Annex I habitat area within any European Sites as a result of the proposed afforestation. There will be no net loss of supporting habitat of QI/SCI species.
Fragmentation	There will be no habitat or species fragmentation within any European Site associated with the proposed afforestation.
Disruption	There will be no disruption to the ecological processes within any European Sites as a result of the proposed afforestation
Disturbance	There will be no disturbance within any European Sites as a result of the proposed afforestation
Changes to Key Elements of the Site	There will be no changes to key elements within any Natura 2000 site as a result of the proposed afforestation.

7 ARTICLE 6(3) SCREENING STATEMENT AND CONCLUSIONS

The findings of this Screening Report are presented below

7.1 Assessment of Significance of Effects

Is the project directly connected with or necessary to the management of the site?

The project is not directly connected with or necessary to the management of any European Site.

Are there any other projects or plans that together with the project being assessed could affect the site?

A search in relation to plans and projects that may have the potential to result in cumulative impacts on European sites was conducted. The proposed afforestation will have no individual or cumulative impacts on any European site in any regard.

Describe how the project is likely to affect the Natura 2000 sites

The project will not significantly affect any European Sites. Complete impact source-pathway receptor chains for direct or indirect impacts were not identified.

Explain why these effects are not considered significant

- There will be no negative direct or indirect impacts or reduction in Annex I habitat area within any European Site.
- There will be no reduction in key habitats supporting populations of Annex I bird species and no reduction in the populations of any Annex I species.
- There will be no reduction in key habitats supporting populations of Annex II species and no reduction in the populations of any Annex II species.
- The works themselves will involve little disturbance or disruption to the ecological processes in the area during either construction or operation.

7.2 Data Collected to Carry Out Assessment

In preparation of the report, the following sources were used to gather information:

- Review of NPWS Site Synopses and Conservation Objectives for European sites and pNHA sites.
- Site Visit
- Desk study of relevant ecological information.
- Report including desk study and appropriate assessment prepared by Erin Johnston (BSc, MSc, PhD), and reviewed by John Hynes (B Sc. M.Sc), McCarthy Keville O'Sullivan Ltd.

7.3 Concluding Statement

The proposed afforestation, by itself or in combination with other plans and projects, in light of best scientific knowledge in the field, will not, in view of the sites' conservation objectives, have significant effects on any European Site.

There is no requirement for Appropriate Assessment.

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NRA (2006) A Guide to Landscape Treatments for National Road Schemes in Ireland. Dublin: National Roads Authority.

NRA (2006) Best Practice Guidelines for the Conservation of Bats in the Planning of National Road Schemes. Dublin: National Roads Authority.

NRA (2006) Guidelines for the Protection and Preservation of Trees, Hedgerows and Scrub Prior to, During and Post-Construction of National Road Schemes. Dublin: National Roads Authority.

NRA (2006) Guidelines for the Treatment of Badgers prior to the Construction of National Road Schemes (1 ed.). Dublin: National Roads Authority.

NRA (2006) Guidelines for the Treatment of Bats during the Construction of National Road Schemes. Dublin: National Roads Authority.

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NRA (2008).Guidelines for the Creation, Implementation and Maintenance of an Environmental Operating Plan. Dublin: National Roads Authority.

Preston C.D. et. al. (2002). New Atlas of the British and Irish Flora. Oxford University Press.

Water status data available on http://www.epa.ie and http://www.wfdireland.ie

Wildlife Act 1976 and Wildlife (Amendment) Act 2000.

Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (Habitats Directive) and Directive 2009/147/EC (codified version of Directive 79/409/EEC as amended) (Birds Directive) – transposed into Irish law as European Communities (Birds and Natural Habitats) Regulations 2011 (SI 477/2011

Appendix 1

Technical Approval Documents

ENERCO ENERGY LTD

Department of
Agriculture,
Food and the Marine
An Roinn
Talmhaíochta,
Bia agus Mara

ENERCO ENERGY LTD
LISSARDA BUSINESS PARK
LISSARDA
CO CORK

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04/08/2015

Approval for Non Grant Aided Afforestation

Forest Owner	FO128320H
Contract Number	CN72161
Townland	Glantane beg
County	Cork
Approved Area (Ha)	2.93
Fencing Length (LM)	220.00

I refer to your application (Form 1) requesting approval for Afforestation. Your application has been assessed and approval is hereby issued on the basis that the works will be undertaken in accordance with the prescription set out in Appendix A attached herewith.

You should note that the project will NOT be eligible for grant aid.

The following conditions apply to this application:
Satisfactory completion of the work not later than 30-JUN-17

Environmental & Silvicultural Considerations
Plant 5 rows of birch,alder,rowan,scots pine along road setback and 15m back from streams along the northern and southern boundaries.,
Adequately drain the site. Connect mound drains to field drains via silt traps and collector drains.,
All guidelines to apply

You are required to notify the Department of Agriculture, Food and Marine in writing if any of the details of your application have changed.

IMPORTANT

As no submissions from third parties were received by the Department concerning this application, development in accordance with this may proceed without further notice.

Please feel free to contact this office, quoting your Contract Number, regarding progress of your application. LoCall 1890-200-509.

Yours sincerely

JOANNE ROBINSON
Approval Section
Forest Service

An Roinn Talmhaíochta,
Bia agus Mara
Department of Agriculture,
Food and the Marine

Eastát Chaisleán Sheonach
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APPENDIX A

Department of Agriculture, Food and the Marine

Department of Agriculture, Food and the Marine
An Roinn Talmhaíochta, Bia agus Mara

Operational Proposals for Approval of Afforestation

Forest Owner Number	FO128320H
Contract Number	CN72161
Townland	Glantane beg
County	Cork
Area Approved	2.93(ha)
Fencing Length (LM)	220.00

All applications must be developed in accordance with detailed standards and procedures as described in the current Forestry Schemes Manual. Certain specific operational proposals particular to this application are described below. No change is permitted to these proposals and species approved unless approved in advance by the Department. The Department may insist that proposed changes constitutes a new application.

Operational Proposal Details

Agro Forestry (GPC 11)		
1.	Tree Shelters	Not Entered
2.	Plant Size and Stocking	Not Entered
Drainage		
1.	Drainage	Required
2.	Drainage Comment	Full compliance with the Forestry and Water Quality Guidelines.
Fertiliser		
1.	Zero	Yes
2.	350 Kg Granulated Rock Phosphate	Not Entered
3.	250 Kg Granulated Rock Phosphate	Not Entered
4.	Split Application	Not Entered
5.	Other Details	Not Entered
Firebreaks/Res.		
1.	Firebreaks/Res	Not Required
Forestry for Fibre (GPCs: 12a and 12b))		
1.	Is Land Free Drainage arable or pasture soils	Not Entered
2.	Are there surface water gleys without a peat layer	Not Entered
3.	Do you intend to use improved genetic material	Not Entered
4.	Details	Not Entered
Ground Prep.		
1.	Woody Weed Removal	Not Entered
2.	Ripping	Not Entered
3.	Pit Plant	Not Entered
4.	Mole Drainage	Not Entered
5.	Mounding	Yes
6.	Ploughing	Not Entered
9.	Other Details	Not Entered
Planting Method		
1.	Angle Notch	Yes
2.	Pit	Not Entered
3.	Machine	Not Entered

An Roinn Talmhaíochta, Bia agus Mara
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4.	Slit	Not Entered
5.	Other Details	Not Entered
Road Access		
1.	Road Access	Provided
Standard Stocking		
1.	Standard Stocking	Yes
2.	Details	Not Entered
Weed Control		
1.	Herbicide Control yr0	Yes
2.	Herbicide Control yr1	Yes
3.	Herbicide Control yr2	Yes
3.	Herbicide Control yr4	Not Entered
4.	Manual	Yes
4.	Herbicide Control yr3	Yes

Fencing Details (metres)	Stock	220	Stock-Sheep	0
	Stock-Rabbit	0	Upgrade to Deer	0
	Deer-Rabbit	0	Deer	0
	Upgrade Existing Fence(s)	0		
	Upgrade Details: None Entered			

Species Approved

The species approved in this proposal relate to the digitised certified species map attached.

Species Approved for Afforestation

Plot	Area	GPC	Land Type	Species	Species Area	Yield Class	Mixture Type	Exclusion	Exclusion Type
1	2.93	GPC 3	CHF	SS	2.64	22	Integrated Mix		
				ADB	.29	4			

Additional Silvicultural and Environmental Conditions

In addition to the Department's environmental and silvicultural guidelines the following specific conditions apply to this proposal:

Silvicultural and Environmental Conditions

Plant 5 rows of birch,alder,rowan,scots pine along road setback and 15m back from streams along the northern and southern boundaries.,
Adequately drain the site. Connect mound drains to field drains via silt traps and collector drains.,
All guidelines to apply

Certified Species Information

Contract No: CN72161
Townland: GLANTANE BEG
County: C
6 " OS No: CK29

Plot No	GPC	Parcel No	GPC Area(h)	Land Use Type	Species Area	Species	Mixture Type	Excl. Area(h)	Excl. Type
1	GPC 3	37681342	2.93	CHF	2.93	SS, ADB	I	0.0	
	Totals		2.93		2.93			0.0	

Remarks :

Area Surveyed By : **Date:**
Species Certified By : **Date:**

Scale 1: **5000.0**

Contract: **CN72161**