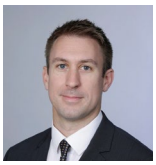
FEHILY TIMONEY

CONSULTANTS IN ENGINEERING,
ENVIRONMENTAL SCIENCE
& PLANNING

# Appendix 1.1

Curricula Vitae



# Trevor Byrne

Senior Engineer

FEHILY TIMONEY

CONSULTANTS IN ENGINEERING, ENVIRONMENTAL SCIENCE & PLANNING

## Profile

Trevor works as a Senior Engineer for Fehily Timoney and Company. Trevor holds a Master's degree in Sustainable Energy Systems from the University of Edinburgh and an honours degree in Civil Engineering following his studies at Edinburgh Napier University and Cork Institute of Technology. Trevor is part of the Energy and Environment division at FT and is a chartered member of Engineers Ireland. His primary area of expertise is in the planning, design and construction of renewable energy projects.

Trevor gained much of his experience in wind farm development working on a large number of projects in the UK renewable energy industry over the past number of years and has helped to deliver a variety of projects employing different technologies including onshore wind, hydro and solar PV. He also has experience working in the Irish construction industry and has worked in the US on a variety of civil/environmental projects.

Trevor has considerable environmental engineering and environmental impact assessment experience and is a proven project manager. He also has significant on site experience relating to managing the construction of renewable energy developments

## Key Skills

Trevor has experience in the following:

- EIAR, EIA
- Project Management
- Statutory and Public Consultation
- Oral Hearing
- Renewable Energy Development Design and Construction
- Site Supervision
- Detailed Design
- Strategic Infrastructure Developments

## Previous Experience Essentials For This Project

- **Teevurcher Windfarm, 2018**
  Teevurcher is a development in Co. Meath. FT are acting as designer to the Design and Build contractor, Roadbridge, for the construction of all onsite infrastructure associated with the development. Trevor successfully project managed all aspects of the detailed design for the project, liaising with the main contractor's management and coordinating the design team including the development's drainage system.

- **Moanvane Windfarm, 2017**
  Moanvane is a development in Co. Offaly. FT acted as the planning consultant for the client and project supervisor for the design stage of the project. Trevor produced the outline construction environmental plan for the site as part of the environmental impact assessment for the project as well as producing the traffic and transportation section of the environmental impact assessment including a traffic impact assessment.

## Key Information

### Qualifications

MSc. Sustainable Energy Systems
University of Edinburgh
2008-2009

BSc. (Hons), Civil Engineering
Edinburgh Napier University
2006-2008

BEng. (Ord), Civil Engineer
Cork Institute of Technology
2002-2005

### Professional Memberships

Chartered Engineer

Member of Engineers Ireland

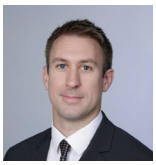
### Employment History

**2016- Present**
Fehily Timoney & Company
Senior Engineer

**2012 – 2016**
Greenspan, Edinburgh, UK
Project Manager

**2010 – 2012**
Cardinal Resources LLC,
Pittsburgh, PA, USA
Project Engineer

**2005 – 2007**
O'Shea Leader Consulting Engineers,
Cork
Graduate Engineer



# Trevor Byrne

Senior Engineer

FEHILY TIMONEY

CONSULTANTS IN ENGINEERING, ENVIRONMENTAL SCIENCE & PLANNING

- **Knockacummer Windfarm Grid Connection, 2017**
  Knockacummer is a 20km long 110kV grid connection project in Co. Cork for which FT acted as Employer's Engineer for the client. Trevor managed the coordination and supervision of full time site staff throughout the construction stage to ensure that the project was delivered in accordance the engineer's designs and specifications, the client's health and safety framework as well as statutory obligations, and the project's environmental management plan.

- **Gortfinbar Wind Farm, 2016**
  Gortfinbar is a 5 no. wind turbine development in Co. Tyrone. FT are acting as designer to the Design and Build contractor, DMKL, for the construction of onsite roads, hardstandings, substation and all other infrastructure associated with the wind farm development. Trevor successfully project managed all aspects of the detailed design for the project, liaising with the main contractor's management and coordinating the design team.

- **Sliabh Bawn Wind Farm, 2016**
  Sliabh Bawn is a 20 turbine project in Co. Roscommon. FT are acting as designer to the Design and Build contractor, Alexander for the construction of a series of walking trails, riding tracks and recreational areas throughout the wind farm. Trevor is managing the design contract on behalf of FT for this project.

- **Carirnmore Windfarm and Solar Park Hybrid, Scotland, 2015**
  Cairnmore is a 4MW solar PV park in North Aberdeenshire. The site is located on a farm with a pre-existing wind farm with which the SPV scheme shares a grind connection. Trevor acted as project manager and coordinated the design, construction and procurement of the project on behalf of the client. The scheme was commissioned in early 2016 and is now generating successfully in tandem with the existing wind farm. This was the largest combined technology scale project of its type in Scotland at the time of commissioning. The main challenges associated with this project related to ensuring the exported electricity from the combined wind/solar scheme was able to meet the power quality requirements of the network. This was solved through a cooperative design process between the private electrical design team and the network operator.

- **Millvale Solar PV, 2017**
  Millvale is a 15MWp solar photovoltaic generation scheme near Rathnew in Co. Wicklow for which FT were appointed by the client, BNRG, to gain planning permission. Trevor project managed the planning application and associated Environmental Report for the proposed Wicklow Solar Farm, including 38 kV substation and associated ancillary works. Lead contributor to the Environmental Report and responsible for coordination of overall project team members, including landscape and visual, ecological and archaeological sub-consultants. Responsible for extensive consultation during the planning process, including attendance at meetings with key stakeholders.

# Jim Hughes

Planner

FEHILY TIMONEY

CONSULTANTS IN ENGINEERING, ENVIRONMENTAL SCIENCE & PLANNING

## Profile

Jim Hughes has a BA in Public Administration (Development) from the University of Limerick, a Masters in Town Planning from Queens University Belfast and a Diploma in EIA/SEA Management from University College Dublin. Jim is also a member of the Irish Planning Institute.

Jim is a Qualified Town Planner with over 16 years post qualification planning experience in both the private and public sector. He has extensive experience in providing strategic level advice to clients and negotiating with and presenting to local authorities. Jim has experience in the management, coordination and preparation of planning applications, masterplans and Environmental Impact Assessments for mixed use schemes and large scale infrastructure projects throughout Ireland. He also has experience in the preparation of retail impact studies, planning appeals, Section 5 declaration applications and zoning submissions.

Jim has represented clients on planning enforcement matters and as expert witness at oral hearings. He is also experienced in peer review and preparation of independent planning assessments and appraisals on behalf of clients. Jim has also experience in delivering seminars to the Financial Sector on planning matters on the importance of protecting the planning asset.

Jim has acted as planning lead on a number of high profile infrastructure projects. Including the South Docklands Road infrastructure upgrade works including the Eastern Gateway Bridge, Dunkettle Interchange Road Project where FT are engaged by SISK as contractors designer. He is also planning lead on the N4 Road project where FT are engaged by Roadbridge as contractors designer.

## Key Skills

- Project Management
- Strategic Planning
- Planning Process
- SID
- CPO
- Oral Hearing
- Planning Appeals
- Planning Applications
- EIA

## Previous Experience Essentials For This Project

Current (2018 – Present)

**Lead Planning Consultant on the Dunkettle Interchange Road Project**

Responsible for planning input into the Detailed Design including planning compliance. Jim also lead the Design Team in pre-application consultations with An Bord Pleanála to discuss potential amendments to the scheme.

**Lead Planning Consultant on the N4 Realignment Collooney to Castlebaldwin Road**

Responsible for planning input into the Detailed Design including planning compliance and compliance with the EIA Directive and Habitats Directive.

## Key Information

### Qualifications

BA in Public Administration (Development), University of Limerick (2002)

MSc. Town Planning, Queens University Belfast (2004)

Diploma in EIA/SEA Management, University College Dublin (2008)

### Professional Memberships

Member of the Irish Planning Institute

### Employment History

**2020 – Present**

Fehily Timoney & Company
Director

**2017 – 2020**

Fehily Timoney & Company
Associate Director

**2015 – 2018**

Fehily Timoney & Company
Senior Planner

**2007 – 2015**

Cunnane Stratton Reynolds (CSR)
Senior Planner

**2004 – 2007**

Cork County Council
Area Planner

# Jim Hughes

Planner

FEHILY TIMONEY
30 YEARS
CONSULTANTS IN ENGINEERING, ENVIRONMENTAL SCIENCE & PLANNING

**Lead Planning Consultant for extension Waterford Airport Airfield Runway**
Jim was project director and planning lead on the EIAR for the Waterford Airport Runway extension. The project required the preparation of an EIAR and AA for the project and as the facility was not subject to EIA previously the EIAR had to consider the overall facility and its environmental impacts.

**Lead Planning Consultant for Apron and Taxi Way extension at Dublin Airport**
Jim was engaged by DAA to provide planning consultancy services and planning strategy for the extension of Apron and taxi ways. Jim and his team prepared a planning strategy and a supporting EIA Screening Report.

**Lead Planning Consultant on the redevelopment of the Lee Road Water Treatment Works, Cork City**.
Services included preparation of planning and environmental report and the coordination of the planning submission and further information.

**Planning Consultant for Shannon Commercial Properties, a large Mid-West Development company.**
Jim is regularly commissioned by SCP to provide planning advise on their land and commercial portfolio in the mid-west region. Jim leads the preparation of Planning Appraisals, Development Plan submissions and planning strategy report with an objective of protecting and enhancing the planning asset.

**Lead Planning Consultant for the development of 800 residential units in Kilbarry, Co. Waterford.**
Services included preparation of EIAR for the overall masterplan development and submission of individual planning applications connecting to the future LIHAF road.

**Lead Planning Consultant on the Coom Green Energy Park Strategic Infrastructure Development Project.**
Project Director for the EIAR project which consists of a 27 no. turbine wind farm in North Cork. The project includes the preliminary design, public consultation and preparation and submission of application for approval to ABP.

**Lead Planning Consultant on the Rosspile Solar Energy Park**
Responsible for planning input into the project including a SID application for the 110kv electricity infrastructure and grid route.

**Lead Planning Consultant and project director for 12 solar farm planning application nationwide**
Jim was project director for a number of planning applications nationwide. Activities include pre-planning consultations with the local authority. Public Consultation events and preparation of design and planning and environmental reports.

**Lead Planning Consultant for the Moanvane Wind Farm and Cable Route**
Jim was project manager and lead planning consultant for the preparation and design of Moanvane Wind Farm and cable route in Co. Offaly. The scope of works included and EIAR, Preliminary design of the wind farm and cable route including a recreation and amenity trail.

**Lead Planning Consultant for Drehid Wind Farm and Cable Route**
Jim was project Director and lead planning consultant for the preparation and design of Drehid Wind Farm and cable route in Co. Kildare. The scope of works included and EIAR, Preliminary design of the wind farm and cable route including a recreation and amenity trail.

**Foreshore License Cork Harbor**
Jim was engaged by Port of Cork to prepare a Foreshore License pre-application consultation for Site Investigations within Cork Harbor.

**Marine Spatial Planning**
Jim was engaged by the Port of Cork to prepare a written submission on the National Marine Planning Framework.

# Jim Hughes

Planner

FEHILY TIMONEY
30 YEARS
CONSULTANTS IN ENGINEERING, ENVIRONMENTAL SCIENCE & PLANNING

2017

**Lead Planning Consultant for Castletownmoore Wind Farm**
Jim was lead planning consultant and project manager for this 21-turbine wind farm in Co. Kildare. Services included the preparation and submission of SID application. Pre-application consultations with ABP. Specialist planning advice into subsequent Judicial Review High Court case.

2016
**Preparation and coordination of planning application for 50 no. dwelling units in Croom Co. Cork**
Preparation of an integrated tourism masterplan for tourism site on the banks of the River Shannon Co. Clare. Preparation and submission of a masterplan for a tourism facility on the banks of the River Shannon in County Clare. The application included a number of short-term letting units, waste water treatment unit, tourism facilities and welfare facilities.

**Preparation and submission of planning application for a recreation facility at the old Burlington Plan, Co. Clare**.
Jim was retained by Zinc Properties to manage their property portfolio including developing masterplans for the redevelopment of their facilities.

2015
**Planning Lead for Ballyvolane District Centre**.
Services included preparation of an EIAR and the management and coordination of a design team for the An Bord Pleanála Oral Hearing.

2008 – 2014
**SID Pre-Planning consultation with An Bord Pleanála for Local Authority Marina development in Cork**.
Services include written submission to ABP for a determination on EIA and NIS requirements for the Marina Development.

**Strategic Review of Dursey Island and Cable Car.** .
In conjunction with AECOM and TDI, Jim prepared an overall economic and tourism development strategy for Dursey Island.

**Bilberry Mixed Use Development Waterford**.
Lead Planning Consultant and contribution to the EIS and planning submission for the regeneration of the south western docklands area of Waterford City. The scheme consisted of 11 no. development blocks ranging in height from one floor to thirty floors over basement level.

**Old Ford Distribution Site Cork South Docklands**.
Coordinated a multi-disciplined team of 5 Architects, preparation of EIS and planning submission for the largest planning scheme (Atlantic Quarter) ever received by Cork City Council. The scheme included 50,000 sq.m of office space, 500 residential units, hotel, event centre and retail.

**Eastern Gateway Bridge and upgrade of Road infrastructure**
Commissioned by Cork City Council to prepare an EIS and planning application for the redevelopment of the Cork South Docklands road infrastructure including the Eastern Gateway Bridge with Architects Wilkinson Eyre. The bridge connected the Cork South Docklands with the Lower Glanmire Road.

# Eamon Hutton

Senior Project Planner

FEHILY TIMONEY

CONSULTANTS IN ENGINEERING, ENVIRONMENTAL SCIENCE & PLANNING

## Profile

Eamon Hutton is a Senior Project Planner with Fehily Timoney and Company and works as part of the Energy and Environment Team.

Eamon is a Chartered Town Planner with the Irish Planning Institute and holds a BSc in Spatial Planning and a MSc in City Planning and Regeneration which he received from the University of Glasgow. Eamon holds a Post-Graduate Diploma in Urban Design (University of Strathclyde).

Eamon has gained a wide range of experience with Fehily Timoney and Company, focusing on EIA, Wind, Solar and Residential Development.

## Key Projects

- **Annagh Wind Farm, Co. Cork**

  Project manager of planning and environmental submissions for a 6 no. wind turbine development in North County Cork. Roles include planning lead, EIAR coordination and production of EIAR chapters including Description of the Proposed Development, Alternatives, Population & Human Health and Telecommunications and Aviation.

- **Fahy Beg Wind Farm, Co. Clare**

  Assistant project manager for planning and environmental submission for an 8 no. turbine wind farm in East County Clare (ongoing).

- **Coom Green Energy Park, Co. Cork**

  Contribution to EIAR including chapters: population and human health, alternatives, policy, consultation, introduction and interactions. Involved with public consultation including information nights, technical workshops and door to door consultation. 2018-2020. Planning permission submissions for on-site met masts.

- **Croaghaun Wind Farm, Co. Carlow**

  Contributed to EIAR including chapters: population and human health, alternatives, policy, consultation, introduction and interactions.

- **Edenderry Power Plant, Co. Offaly (Bord na Móna)**

  Contribution to EIAR for the Policy Chapter of the proposed conversion of the Edenderry powerplant from Peat to Biomass. 2021

- **Dernacart Wind Farm, Co. Laois**

  Contributed to EIAR including chapters: alternatives and interactions.

- **Drehid Wind Farm, Co. Kildare**

  Contribution to EIAR and planning statement for wind farm development. Scoping & consultation, population & human health, alternatives, interactions and planning statement.

- **Derrysallagh Grid Connection Substitute Consent, Co Sligo, Leitrim, Roscommon**

  Input and preparation of a remedial Environmental Impact Assessment Report for substitute consent for the grid connection of the Derrysallagh Wind Farm. Landscape and policy assessment, interactions and non-technical summary. Preparation of planning application notices and documents.

## Key Information

### Qualifications

MSc City Planning & Regeneration,
University of Glasgow, 2016

Post Graduate Diploma in Urban Development
University of Strathclyde, 2016

BSc Spatial Planning
Dublin Institute of Technology, 2012

### Professional Memberships

Corporate Member of the Irish Planning Institute

### Employment History

**2017- Present**

Fehily Timoney and Company
Graduate Planner
Project Planner
Senior Project Planner

**June – August 2019**

Brookfield Renewable Ireland
Secondment
Project Planner

# Eamon Hutton

Senior Project Planner

FEHILY TIMONEY

CONSULTANTS IN ENGINEERING, ENVIRONMENTAL SCIENCE & PLANNING

- **Waterford Airport Runway Extension, Co Waterford**

  Contribution to EIAR for Waterford Airport runway extension 2018/2020. Introduction, description of the development, policy, scoping and consultation, traffic and transportation, landscape and visuals and interactions. Coordination of EIAR and submission of planning application to An Bord Pleanála.

- **Kilbarry Residential and Solar Park Development, Co Waterford**

  Contribution to EIAR for a residential development of 750 dwellings and an adjoining solar park. Introduction, description of development, policy, population, human health and material assets, EIA screening, alternatives, interactions and non-technical summary. Preparation of planning documents and statutory notices.

- **OPW - Flood Risk Assessment & Management Plans - Department of Public Procurement.** Review of Strategic Environmental Assessment and Appropriate Assessment documents for the national Catchment Flood Risk Assessment & Management Plans produced by the OPW. Content and procedural Review of all 36 plans and environmental assessments.

- **Mixed Residential and Commercial Development - 5 Victoria Road, Cork City**

  Planning input for a 9 story apartment block including café and restaurant at ground floor. Inputs included mobility management plan, planning statement and coordination of request for further information.

- **Rosspile Solar Farm, Co Wexford - Highfield Energy**

  Preparation of planning application and statutory notices as well as input to the environmental report for a c. 150ha solar farm in Co. Wexford. Involved with public consultation and site walkovers.

- **Flood Defence – Castletroy, County Limerick**

  Planning application and multi-discipline coordination for flood defences on IDA lands at Castletroy, County Limerick.

# Maureen Marsden

Project Acoustic Engineer

FEHILY TIMONEY

CONSULTANTS IN ENGINEERING, ENVIRONMENTAL SCIENCE & PLANNING

## Profile

Maureen is a Project Acoustic Engineer with Fehily Timoney & Company. She has an MEng in Acoustics and Vibration from Southampton University (Institute of Sound and Vibration Research). She is a member of the Institute of Acoustics and Engineers Ireland.

Maureen has over 20 years' experience across a broad range of acoustics & vibration. She has experience of noise and vibration measurement and assessment across a variety of sectors, including building, industrial and transportation projects.

## Previous Experience Essentials For This Project

- **Wind Farm Projects**
  Baseline Noise Measurements and analysis to determine prevailing background noise. Compliance measurements to determine if operating windfarms meet planning conditions. Sample projects include: Drehid Windfarm, Ballagh Windfarm, Coom Green Energy Park, Derncart windfarm, Croaghaun Windfarm, Annagh Windfarm.

- **Transportation Projects 1994 -2011**
  Predicted operational and construction noise for a range of railway transport projects including highspeed rail and tram projects. Measurement of noise levels post construction at Docklands Light Railway extension. Measured noise from operational Docklands Light Railway Extension post completion to determine compliance. Measured internal noise of Intercity trains for the purpose of developing a specification for new rolling stock. Measured in-site performance of acoustic barriers on motorways in Ireland. Predicted noise from upgrade to N19 upgrade project during the route selection stage. Managed baseline noise survey prior to construction of Dublin Port Tunnel. Projects include Sunderland Metro, UK, East Coast Main Line Upgrade (UK), Docklands Light Railway Extension. Dublin Port Tunnel, N19 upgrade route selection stage

- **Building Acoustic Projects, 2002 - 2019**
  Provided acoustic advice on a range of building acoustic projects including residential, hotel, school, commercial and entertainment developments. Advised on sound insulation requirements for meeting building regulations. Advised on external building envelope design to meet suitable internal acoustic criteria. Predicted mechanical services noise to meet Local Authority noise criteria. Provided advice on meeting internal acoustic absorption requirements for a range of projects including community halls, churches, sports halls. Sample projects include Travelodge hotels, Chelsea Academy and Hammersmith Academy Schools.

- **Industrial Noise Assessments, 2011 - 2019**
  Predicted noise from a range of industrial sites including LNG facilities, dairy facilities, water works and power plants to advise on noise control measures to meet appropriate environmental legislation. Also predicted in-plant noise contours for purposes of meeting Noise at Work requirements. Sample projects include Thames Water projects, Ballyragget Glanbia site, Jazan Refinery, Saudi Arabia. Gas Networks Ireland – multiple sites, Compressed gas installation Whitegate, Kilkenny Water Projects, Thames Water Noise Impact Assessment, Bioatlantis, Kerry.

## Key Information

### Qualifications

MEng. Acoustics and Vibration,
Southampton University (ISVR), 1994

### Professional Memberships

Institute of Acoustics
Engineers Ireland

### Employment History

**2019- Present**
Fehily Timoney & Company
Project Acoustic Engineer

**2017- 2018**
Resonate Acoustics
Acoustic Consultant

**2015- 2017**
Soundsorba
Sales Engineer

**2011- 2015**
Kellogg Brown and Root
Acoustic Engineer

**2011- 2011**
Mott Mac Donald
Acoustic Consultant

**2008- 2010**
Applied Acoustic Design
Acoustic Consultant

**2007- 2008**
Hoare Lea Acoustics
Acoustic Consultant

**2002- 2006**
Sound Research laboratories
Acoustic Consultant

**2001- 2002**
RPS
Acoustic Consultant

**1998- 2001**
Arup Acoustics
Acoustic Engineer

**1996- 1998**
Hotpoint Ltd
Acoustic Engineer

**1993- 1996**
British Rail Research
Sponsored Student/Research Assistant

# Maureen Marsden

Project Acoustic Engineer

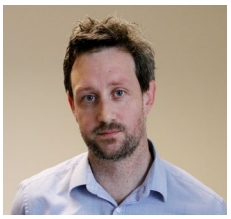
FEHILY TIMONEY

CONSULTANTS IN ENGINEERING, ENVIRONMENTAL SCIENCE & PLANNING

- **Compliance Monitoring at EPA Licenced Facilities**
  Measured and analysed boundary noise measurements at licenced waste facilities to determine compliance with noise conditions of the site licence.

- **Solar Farm Projects**
  Predicted operational noise from proposed external equipment to determine compliance with EPA criteria, and make recommendations for mitigation, if required. Predicted construction noise from works associated with to solar farm construction.
  Sample projects include: Moortown Solar farm, Dunmurray Golf Course Solar Farm, Kilcurly Solar Farm.

- **Channel Tunnel Rail Link Project, 1996 - 1998**
  Member of noise and vibration team providing noise and vibration advice. Predicted operational noise using 3-D model, during the detailed design phase of the project, determining noise barrier and bund heights to assist the project in meeting noise commitments. Liaised with design team/landscape architects to develop design incorporating bunding/noise barriers. Modelled construction noise associated with railhead operation and railway construction for the purpose of obtaining Section 61 consent for construction works.



# Dr. John Mahon

Senior Acoustic Engineer

FEHILY TIMONEY

CONSULTANTS IN ENGINEERING, ENVIRONMENTAL SCIENCE & PLANNING

## Profile

John is a Senior Acoustic Engineer with Fehily Timoney & Company. He has a PhD in Acoustics and Vibration and a BA BAI (Hons) degree in Mechanical Engineering from Trinity College Dublin. He is a member of Engineers Ireland and the Institute of Acoustics.
John has over 13 years' experience in acoustics & vibration and has an extensive knowledge and experience in the measurement, prediction and analysis in the field of acoustics and vibration including excellent knowledge of acoustics and vibration legislation, policy and standards at EU and Irish levels. John's primary experience is in environmental noise including measurement and prediction of industrial noise, wind farm noise and road noise. He has completed noise modelling, measurements and assessments for road schemes, wind farm developments, construction projects and industrial sites. He also has significant experience in assessing the acoustic performance of noise barriers and he sits on the Irish and European Committees for Standardization CEN/TC226/WG 6 (Road traffic noise reducing devices).

## Previous Experience Essentials For This Project

### Key Projects

- **Noise Impact Assessments for Wind Farms**
  Undertook noise impact assessments for wind farm projects including background noise assessments, noise predictions for construction and operational phases, compliance noise assessments and noise complaint investigations. He was also responsible for the preparation of environmental impact statements, technical reports and consultation with county councils.

  Cordal Wind Farm
  Ballagh Wind Farm
  Mauricetown Wind Farm
  Acres Wind Farm
  Cordal Wind Farm
  Meenwaun Wind Farm
  Drehid Wind Farm
  Castletownmoor Wind Farm
  Sigatoka Wind Farm
  Coolegrean Wind Farm

- **Multiple Noise Impact Assessments**
  He was involved in the submission of multiple noise impact assessments ranging from waste transfer facilities, seaweed processing plants to breweries and visitor centres. These noise impact assessments required attended and unattended baseline measurements as well as carrying operational and construction noise predictions and assessing the predicted noise levels against appropriate noise limits. In some instance mitigation measures were required in order meet noise limits.

- **Offline Motorway Service Areas**
  Noise lead on numerous planning applications for offline motorway service areas. Prepared noise and vibration impact assessments for construction and operational phases. Managed baseline monitoring, modelling of road traffic and industrial noise sources, preparation of technical reports and mitigation design.

- **Aberdeen Western Peripheral Route (AWPR)**
  Responsible for evaluating the noise impact of the amendment of the road alignment between the specimen design and conceptual design for the Fastlink section of the Aberdeen Western Peripheral Route. This involved noise modelling in accordance with CRTN of the Fastlink section of the AWPR and incorporating mitigation measures to satisfy Transport Scotland's design goals.

## Key Information

### Qualifications

PhD in Acoustics & Vibration,
Trinity College Dublin, 2008

Vibration Analysis – ISO 18436-2 Certification,
Mobius Institute Board of Certification

BA BAI (Hons) Mechanical Engineering,
Trinity College Dublin, 2004

### Professional Memberships

Member of Engineers Ireland

Member of Institute of Acoustics.

### Employment History

**2016- Present**

Fehily Timoney & Company
Senior Acoustic Consultant

**2008 – 2015**

Infrasonic (Acoustics & Vibration Consultancy), Dublin
Position

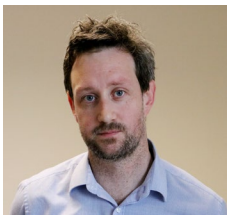
**2008 – 2013**

Trinity College Dublin
Position

### Employment History

Contributed to a Good Practice Guidance for the Treatment of Noise during the Planning of National Road Schemes. Appendix B – Good Practice Guide for Noise Barrier Design March 2014

Multiple Academic Journal and Conference publications on Flow Induced Noise & Vibration, Noise Barriers and Noise Source Identification Techniques



# Dr. John Mahon

Senior Acoustic Engineer

FEHILY TIMONEY

CONSULTANTS IN ENGINEERING, ENVIRONMENTAL SCIENCE & PLANNING

- **M8 M73 M74 Motorway Improvements**
  Responsible for checking the noise performance parameters of environmental noise barriers to be used in the motorway improvement scheme.

- **Noise Assessments at 42 Above Ground Installations, Gas Networks Ireland**
  Managed a team who carried out environmental and occupational noise monitoring at 42 above ground installation sites. All sites were assessed against environmental noise limits and occupational noise criteria.

- **Compliance Noise Surveys**
  Undertook noise monitoring and licence compliance work for EPA licensed landfill and waste facilities, greenfield waste sites and other commercial facilities including data analysis and preparation of technical reports. Carried out reviews of technical reports prepared as part of EPA licensed facilities requirements.

- **Remedial EIS – Lacken Stone**
  Noise lead in the preparation of a remedial EIS for Lacken Stone Quarry. He was responsible for the preparation of noise and vibration aspects of the environmental impact statement, including measurement of baseline noise levels, measurement of operational noise levels and noise predictions.

# Tom Clayton

Senior Engineer

FEHILY TIMONEY

CONSULTANTS IN ENGINEERING, ENVIRONMENTAL SCIENCE & PLANNING

## Profile

Tom is a Chartered Engineer with a total of 10 years of experience within the geotechnical sector having developed excellent skills in analytical design (including finite element analysis), project and team management. Tom has significant experience designing deep foundations (including deep shafts) in the London area as well as the Middle East and various projects within the Irish market.

Tom also specialises in earthwork stabilisation and has worked in asset management and design consultancy roles for both highways and rail projects. More recently, Tom has worked closely with contractors on Design & Build projects throughout the UK and Ireland, including several wind farms and other infrastructure schemes. Tom currently leads the geotechnical and engineering geology team at Fehily Timoney and is responsible for the day-to-day running of the team and business development.

## Key Skills

Tom's experience includes:

- Geotechnical Engineering
- Geotechnical Design
- Site Inspections

## Previous Experience Essentials For This Project

- **Kilgallioch Wind Farm, Farrans, Jun 2017 - Present**
  Tom took over the Project Manager role for this award winning 96 turbine wind farm project in Scotland towards the end of the construction stage and was responsible for closing out as-built drawings. Tom also undertook the role of Geotechnical Design Lead for a replacement turbine foundation at one location and undertook the formation inspection during the construction of this turbine.
- **Derrysallagh Wind Farm Substitute Consent – Kilronan Wind Farm Ltd, Jun 2017 - Present**
  Tom was the Geotechnical / Geology Lead for the preparation of a Soils, Geology and Hydrogeology chapter for a retrospective EIS relating to the construction of an electrical cable route from Derrysallagh Wind Farm to a nearby electrical sub-station. As part of this assessment, Tom undertook a full desk study, site visit and provided an assessment of potential and cumulative impacts of the development (including with the wind farm development itself) and mitigation measures that could be implemented.
- **Gortfinbar Phase 2 – Moriarty Civil Engineering Contractors, September 2016 – May 2017**
  Tom acted as Category III checker for a piled turbine base foundation at this Northern Irish Wind Farm. Tom carried out an independent set of calculations and provided comments to the Designer. Tom also provided slope stability assessments for access road rock cuttings.
- **Teevurcher Wind Farm - Roadbridge, October 2016 – May 2017**
  Tom was the Lead Geotechnical Designer for this 5 turbine wind farm in Co. Meath and carried out full interpretation of the ground investigation and geotechnical design for all turbine foundations, hardstandings, access roads, substation foundations and met mast.

## Key Information

### Qualifications

MEng. (Distinction) Civil Engineering, University of Surrey, 2008

Chartered Engineer (CEng) 2015

### Professional Memberships

Institution of Civil Engineers (Member) 2015

### Employment History

**2016- Present**

Fehily Timoney and Company
Principal Geotechnical Engineer

**2008 – 2016**

Aracadis UK (Formerly Hyder Consulting)
Position

**2004 – 2008**

Hyder Consulting (Undergraduate)
Position

Tom also provided construction stage support, formation inspections and verification of geotechnical testing for all of the above elements.

- **Meenwaun Wind Farm - Roadbridge, June 2016 – April 2017**
  Tom was the Lead Geotechnical Designer for this 4 turbine wind farm in Co. Offaly and carried out full interpretation of the ground investigation and geotechnical design for all turbine foundations, hardstandings, access roads, substation foundations and met mast. Tom also provided construction stage support, formation inspections and verification of geotechnical testing for all of the above elements.
- **Proposed Wind Farm, Co. Kerry – Joam Consulting Ltd., October 2016 – December 2016**
  Tom was the Project Manager for this peat stability assessment for a proposed wind farm in Co. Kerry. Tom oversaw the conducting of peat probing and field visits to the site and the preparation of a peat stability assessment in line with Scottish guidance on the preparation of Peat Stability Assessments. This project also involved the 3rd party check of a soil, geology and hydrogeology chapter prepared by others.
- **Raragh Wind Farm – Mainstream Renewables, July 2016 – December 2016**
  Tom was the Geotechnical / Geology Lead for the preparation of a Soils, Geology and Hydrogeology chapter for an EIS relating to the construction of an electrical cable route from Raragh Wind Farm to Kingscourt, Co. Cavan. As part of this assessment, Tom undertook a full desk study, site visit and provided an assessment of potential and cumulative impacts of the development (including with the wind farm development itself) and mitigation measures that could be implemented.
- **Proposed Wind Farm, Co. Donegal – Element Power, October 2016 – December 2016**
  Tom was the Geotechnical / Geology Lead for the preparation of a Peat Stability Assessment for an EIS relating to the construction of a Wind Farm in Co. Donegal which was a proposed as an 8 turbine site. Tom oversaw the conducting of peat probing and field visits to the site and the preparation of a peat stability assessment in line with Scottish guidance on the preparation of Peat Stability Assessments

# Emily Archer

Project Geotechnical Engineer

FEHILY TIMONEY

CONSULTANTS IN ENGINEERING, ENVIRONMENTAL SCIENCE & PLANNING

## Profile

Emily is a Project Geotechnical Engineer at Fehily Timoney and Company working in the Infrastructure Department. She has a Bachelor of Science (BSc.) in Geology and a Masters (MSc.) in Applied Environmental Geology, both from University College Cork. Since starting with FT in 2018, she has worked on various geotechnical, environmental monitoring, contaminated land and EIA projects.

## Key Skills

- Investigation and remediation of contaminated lands and landfill sites
- Environmental Risk Assessment
- Ground Investigations
- Soil and groundwater remediation
- Engineering Geology
- Hydrogeological assessment

## Previous Experience Essentials For This Project

- **Ballinagree Wind Farm, Co. Cork**
  Emily was responsible for the Land, Soils and Geology chapter of the EIAR for this project and associated peat stability assessment. This involved a site walkover, peat probing and shear vane testing (where necessary) and the review of all online available data relevant to the site to complete a detailed desk study. Emily liaised with GI contractors and coordinated the trial pitting and boreholes at proposed borrow pit locations and turbine locations.
- **Lemanaghan Wind Farm, Co. Offaly**
  Emily logged and supervised trial pitting at proposed borrow pit and infrastructure locations and created detailed logs using HoleBase. This helped to inform the client on the high risk areas, areas of deep peat and areas where it is likely to get good material that can be re-used on site.
- **Proposed Wind Farms, Co. Mayo**
  Emily carried out a series of peat stability assessments across three proposed wind farm sites. This involved detailed site walkovers, peat probing, shear vane testing and trial pit supervision (in two of the sites). These assessments helped to inform the clients on the high risk areas and areas of deep peat.
- **Ballivor Wind Farm, Co. Meath/Westmeath**
  Emily logged and supervised trial pitting at proposed borrow pit locations and created detailed logs using HoleBase. Emily also carried out a detailed site walkover that involved peat probing, shear vane testing and a review of all online available data to make informed decisions on where the areas of high risk are located across the site.
- **MSD Brinny Oil Interceptor Options**
  Emily was involved in site investigation works carried out for a proposed oil interceptor located on site at MSD Brinny. Emily's role included a review of all available online data to assist with the selection of the ground investigation locations, the logging of the boreholes and trial pits, liaising with contractors, creation of the detailed logs using HoleBase and creating a conceptual ground model using the ground investigation information.

## Key Information

### Qualifications

MSc. Applied Environmental Geology
University College Cork, 2018

BSc. Geology
University College Cork, 2017

### Professional Memberships

Member of the Institute of Engineers Ireland

### Employment History

**July 2018- Present**
Fehily Timoney & Company
Geotechnical Engineer

**May 2018 – July 2018**
Fehily Timoney & Company
Internship

**August 2016**
ESB International Cork
Undergraduate Work Placement

# Emily Archer

## Project Geotechnical Engineer

FEHILY TIMONEY

CONSULTANTS IN ENGINEERING, ENVIRONMENTAL SCIENCE & PLANNING

- **Dunkettle Interchange**
  Emily assisted with the day to day management and logging of intrusive site investigations on site, at the existing Dunkettle Roundabout. This role involved acting as the Designers Representative to ensure site investigations were undertaken in accordance with the Designers requirements and Euro Code 7. These works encompassed a range of site investigation techniques including cable percussion, rotary drilling, cone penetration testing and geophysical surveying. Ground conditions at the site were challenging due to extensive soft ground associated with buried channel features. As such she assisted with updating the ground model as information arrived from the investigations. This role also involved presenting progress reports and technical information to the project team to communicate ground risks encountered during the works. Emily also assisted with the drafting up of the Baseline Groundwater Monitoring Report. This involved reviewing and collecting the data from the groundwater monitoring wells on site and preparing a draft of the groundwater monitoring report. Emily was also involved on site as the Designer's Site Representative (DSR). This role involved supervising and monitoring the advanced earthworks that were taking place and approving the ground conditions. More recently and continuing in the DSR role, Emily has been involved in the second phase of intrusive site investigations on site.
- **Unregulated Historical Landfills, Kerry**
  Emily was responsible for the preparation of a number Tier 2 and Tier 3 environmental risk assessment reports for 13 no. unregulated historic landfills located in Co. Kerry. Assessments and reports were prepared as per the EPA's Code of Practice on Environmental Risk Assessment for Unregulated Waste Management. Work included comprehensive desk study review of landfill sites and surrounding environment characteristics, review and interpretation of site investigation data, environmental monitoring results, historical reports and assessments, carrying out DQRAs and the development of Conceptual Site Models for each site. Emily was also involved in collecting the groundwater and surface water samples across these 13 no. sites.
- **Unregulated Historical Landfills, Tipperary**
  Emily was responsible for the preparation of Tier 2 environmental risk assessment reports for 4 no. unregulated historic landfill sites located in Co. Tipperary. Assessments and reports were prepared as per the EPA's Code of Practice on Environmental Risk Assessment for Unregulated Waste Management. Work included comprehensive desk study review of landfill sites and surrounding environment characteristics, review and interpretation of site investigation data, environmental monitoring results, historical reports and assessments and the development of Conceptual Site Models for each site.
- **Coom Green Energy Park, Co. Cork**
  Emily drafted up the Land, Soils and Geology chapter of the EIAR for this project. This involved a site walkover, peat probing and shear vane testing (where necessary) and the review of all online available data relevant to the site to complete a detailed desk study. Emily also logged and supervised trial pitting at proposed borrow pit locations and created detailed logs using HoleBase, that were input into the Land, Soils and Geology chapter. Emily was also involved in the supervision of the geophysical surveys and creation of conceptual ground models at each proposed turbine location.
- **Min Ryan Skate Park, Co. Wexford**
  Emily was responsible for the ground investigation report for the proposed skate park location to determine the existing ground conditions in Min Ryan Park, Co. Wexford. Emily's role included a comprehensive desk study review of the site and surrounding environment characteristics, sampling and logging of trial pits, review and interpretation of site investigation data, creating detailed logs using HoleBase and the development of a Conceptual Site Model.
- **N22 Macroom – Ballyvourney Road, Access Track**
  Emily was involved in the geotechnical design report for the N22 Ballyvourney to Macroom scheme access roads, hardstands and borrow pit. Emily's role included a comprehensive desk study review of the site and surrounding environment characteristics, sampling and logging of trial pits, review and interpretation of site investigation data, creating detailed logs using HoleBase, development of a geotechnical risk register and drafting up the geotechnical design report.
- **Renewable Gas Facility, Cúil na Móna, Portlaoise**
  Emily's role included drafting up the Land, Soils and Geology and the Hydrogeology chapters of the EIAR for this project. This included a site walkover, peat probing, shear vane testing, logging a series of trial pits, creating detailed logs and the review of all online available data relevant to the site to complete a detailed desk study.
- **Dernacart Wind Farm, Co. Laois**
  Emily drafted up the Land, Soils and Geology chapter and the peat stability report for the EIAR for this project. This involved a site walkover to carry out peat probing and shear vane testing and the review of all online available data relevant to the site to complete a detailed desk study.

# Kristian Divjak

Civil Design Engineer

FEHILY TIMONEY

CONSULTANTS IN ENGINEERING, ENVIRONMENTAL SCIENCE & PLANNING

## Profile

Kristian is a Civil Design Engineer with Fehily Timoney and Company. He works as part of FT's Energy Team. After he graduated as the Best Student of his Generation, he continued his career in Hydroconsult Design Ltd. where he worked on various water management projects. He was responsible for hydraulic modelling. Kristian also worked on designing open channels, bridge culverts and river basin retentions.

Since joining FT, Kristian has worked on numerous Environmental Impact Assessment reports where his duty was to address impacts of development on hydrology and water quality and to implement mitigation measures. Kristian was responsible for drainage design and flood risk assessment.

## Key Skills

- Civil Infrastructure
- Environmental Impact Assessment
- Flood Risk Assessment
- Open Channel and Pipeline Hydraulics
- Hydraulic Modelling

## Previous Experience

**Fehily Timoney and Company, Cork – 2019 - Present**

- **Dromalivaun Solar Farm (2020)**
  Responsible for drainage design of the solar farm.

- **Fairfield Road Residential Planning and Design (2020-present)**
  Kristian was responsible storm, foul and watermain design of the residential development. The development consists of 49 houses and apartments.

- **Derryville Anaerobic Digestor (2020)**
  Kristian was responsible for preparation of the hydrology and water quality chapter of the environmental impact assessment report. He had undertaken the site investigation to identify hydrological constraints. He determined increase in runoff due to the development and impacts of the development on hydrology and water quality. He had to propose mitigation measure for construction, operation and decommissioning stage of the development. He was responsible for flood risk assessment and drainage design.

- **Dannistown Solar Farm (2020) & Oola Solar Farm Flood Risk Assessment (2020)**
  Responsible for drainage design for the solar farm.

- **Navan & Oola Solar Farm Flood Risk Assessment (2020)**
  Kristian was responsible to develop flood depth maps for Flood Zone A and Flood Zone B. It was required to estimate the flood depth to determine the height of the solar panels.

## Key Information

### Qualifications

Master (Summa Cum Laude) in Civil Engineering,
University of Zagreb, 2015

Bachelor of Engineering (Hons) in Civil Engineering,
University of Zagreb, 2013

Bachelor of Engineering (Hons) in Civil Engineering,
Polytechnic of Zagreb, 2012

### Professional Memberships

BEng ME MIEI

### Employment History

**2019- Present**

Fehily Timoney & Company, Cork

**2016 – 2018**

Hydroconsult Design Ltd., Croatia

**2015 – 2016**

Hydroengineering Ltd., Croatia

# Kristian Divjak

Civil Design Engineer

FEHILY TIMONEY

CONSULTANTS IN ENGINEERING, ENVIRONMENTAL SCIENCE & PLANNING

- **Oil Separator at MSB Brinny (2020-present)**
  Kristian was responsible for drainage design at MSB Brinny Site. An existing oil separator was replaced by two NSBE125 Bypass Oil Separators.

- **Cork County Bridge Rehabilitation (2019-2020)**
  Kristian was responsible for high-level hydraulic analysis for nine bridges located throughout Cork County. It was determined that the Lisheenleigh Bridge needed to be replaced. Kristian was responsible for hydraulic modelling, technical report writing and filling out a Section 50 Application form.

- **Coom Green Energy Park (2019 – present)**
  Kristian was responsible for preparation of the hydrology and water quality chapter of the environmental impact assessment report. He had undertaken the site investigation to identify hydrological constraints. He determined increase in runoff due to the development and impacts of the development on hydrology and water quality. He had to propose mitigation measure for construction, operation and decommissioning stage of the development. He was responsible for flood risk assessment and drainage design. Drainage design has been carried out in In-house Excel spreadsheet and Pipe Flow Advisor.

- **Dernacart Wind Farm (2019)**
  Kristian was responsible for preparation of the hydrology and water quality chapter of the environmental impact assessment report. He had undertaken the site investigation to identify hydrological constraints. He determined increase in runoff due to the development and impacts of the development on hydrology and water quality. He had to propose mitigation measure for construction, operation and decommissioning stage of the development. He was responsible for flood risk assessment and drainage design. Drainage design has been carried out in In-house, Excel spreadsheet and Pipe Flow Advisor.

- **Croaghaun Wind Farm (2019-present)**
  Kristian was responsible for preparation of the hydrology and water quality chapter of the environmental impact assessment report. He had undertaken the site investigation to identify hydrological constraints. He determined increase in runoff due to the development and impacts of the development on hydrology and water quality. He had to propose mitigation measure for construction, operation and decommissioning stage of the development. He was responsible for flood risk assessment and drainage design. Drainage design has been carried out in In-house Excel spreadsheet and Pipe Flow Advisor.

- **Boolard Wind Farm Detailed Design (2019(**
  Responsible for drainage design for the Boolard Wind Farm.

- **Killcurly Solar Farm (2019-2020)**
  Kristian was responsible for preparation of the hydrology and water quality chapter of the environmental impact assessment report. He had undertaken the site investigation to identify hydrological constraints. He determined increase in runoff due to the development and impacts of the development on hydrology and water quality. He had to propose mitigation measure for construction, operation and decommissioning stage of the development. He was responsible for flood risk assessment and drainage design. Drainage design has been carried out in In-house Excel spreadsheet and Pipe Flow Advisor.

- **Croom Residential Development (2019 – present)**
  Kristian was responsible for drainage design for Croom residential development. Croom residential development consists of 11 apartments. Kristian designed storm, foul and water main network. Storm water and foul network were designed with Flow software developed by Causeway. Water main was designed with EPANET software.

- **Feasiblity Report Listry Bridge (2019)**
  Kristian was responsible to hydraulic and hydrology assessment of the Bridge Listry. It was required to determine the flow conveyance of the bridge and soffit level.

- **Section 5 Application Grid Connection Millvale, Co. Wicklow**
  Responsible for Section 5 report.

- **Section 5 Application Grid Connection Furryhill, Co. Kildare**
  Responsible for Section 5 report.

**Hydroconsult Design Ltd., Croatia – 2016 – 2018 – Civil Engineer Consultant**

- **Study Documentation for Preparing Flood Control Projects for the Zagrebačko Prisavlje Basin**
  Kristian was responsible for technical report writing, hydraulic modelling, estimating costs of flooding for extreme storm events and preparation of flood risk and flood hazard mapping. On this project worked a Consortium of three companies. Due to catchment area and complexity of the project, it was divided into three parts. For assigned part, each company had to provide a description of the current state, hydrology and hydraulic model, estimate costs of fluvial flooding for various storm events, flood risk and flood hazard mapping and propose flood risk mitigation measures:

  Flood extents have been model for approximately 27km of open channel in HEC-RAS for various extreme flood events. Flood extents were imported into ArcGIS and overlaid with existing infrastructure to estimate costs of flooding. Based on the impact due to flooding, appropriate mitigation measures have been proposed.

- **Planning Permission for Flood Mitigation Measures for Town Pakrac (2018)**
  Kristian was responsible for technical report writing, drainage design for approximately 3.2km of open channel, culvert design and hydraulic modelling of the River Pakra to determine water elevation for various extreme storm events.

  Drainage design of open channels was carried out in Civil 3D. Culverts were designed in In-house software. Hydraulic river modelling was carried out in HEC-RAS.
- **Planning Permission for River Regulation of the Bednja River (2018)**
  Kristian was responsible for technical report writing and hydraulic river modelling for approximately 9.7 km of the Bednja River to determine required elevation of embankments for extreme storm events.

  The hydraulic model of the Bednja River was developed in HEC-RAS.
- **Planning Permission for an Earthen Retention at Catchment Bahunsko (2017)**
  Kristian was responsible for technical report writing and design of an earthen retention at catchment Bahunsko. He was responsible to determine the flood extents due to construction of a dam and design of an outfall and emergency spillway.

  Extreme storm events were modelled in HEC-HMS based on recorded historic rainfall data. The flood extents were determined in ArcGIS for various water elevations. An outfall and emergency spillway were designed in In-house Excel spreadsheet.

# Eoghan O'Sullivan

Air Quality

FEHILY TIMONEY

CONSULTANTS IN ENGINEERING, ENVIRONMENTAL SCIENCE & PLANNING

## Profile

Eoghan is a Graduate Engineer at Fehily Timoney and company working in the Energy and Planning department. He recently completed his four year BE degree in Civil Structural and Environmental Engineering in UCC, receiving first class honours.

Eoghan is an active member of his local GAA club, St. Finbarrs and he also has a keen interest in travel and photography. He has great communication skills and works very well with a team.

## Key Skills

Eoghan's key skills are the following:

- EIA
- Feasibility Studies
- Arcmap

## Key Information

### Qualifications

**2016-2020**:
BE in Civil Structural and Environmental Engineering
University College Cork (UCC)
Result **1:1**

### Employment History

**2020 – Present**
Fehily Timoney & Company
Graduate Engineer

**May 2021**
Fehily Timoney & Company
GIS Analyst

## Previous Experience Essentials for this Project

- **Hewitts Mills Residential, Cork City**
  Undertook a quality audit for a 200 apartment residential development in the northern suburbs of Cork City. The audit evaluated the accessibility of the development for pedestrians, cyclists, motorists and mobility impaired users and it included a site visit and the review of architects design drawings.
- **Milltown Solar Farm, Meath**
  Produced a technical note for a solar farm planning application. The note included an assessment of a masonry arch bridge and an evaluation of the surrounding road network for the haul route.
- **Croaghaun Wind Farm, Carlow**
  Produced the CEMP and Non-technical summary as part of the EIAR for this proposed wind farm. Also evaluated the proposed haul route as part of the 1st party appeal.
- **Dunkettle Interchange Upgrade Scheme, Cork**
  Undertook Environmental monitoring (noise, vibration and dust) for a major infrastructure project including set up, installation, troubleshooting and online monitoring.
- **Mohill Solar Farm, Leitrim**
  Produced a stage 1 feasibility report, including GIS mapping, for a potential solar farm in Co. Leitrim.
- **Annagh Wind Farm, Cork**
  Prepared two chapters of the EIAR: Chapter 6 – Air and Climate, Chapter 16 Telecommunications and Aviation for a 6-turbine wind farm application in North County Cork
- **Middleton House Solar Farm Extension, Meath**
  Contributed to a stage 2 feasibility report for an extension to an already permitted solar farm. Collaborated with in house geologist, planner and ecologist to coordinate site visits and compile the report.

# Eoghan O'Sullivan

## Air Quality

FEHILY TIMONEY

CONSULTANTS IN ENGINEERING, ENVIRONMENTAL SCIENCE & PLANNING

- **Ballinagree Wind Farm, Cork**
  Produced the CEMP and Air and Climate Chapter for the EIAR the planning application. Conducted a site access survey to determine suitable entrances to the site that conform the TII requirements for direct accesses.
- **Goulacullin Constructability Report**
  Produced a report that determined the constructability of a proposed wind farm in Co. Cork. The report looked at the constraints associated with the site, the buildability of the layout provided by the client and proposed a more buildable layout.
- **Noise Monitoring at Various GNI Sites**
  Undertook noise surveys at GNI AGI sites across Cork. Measurements were taken at day, evening and night time to establish baseline noise conditions for the sites.
- **Coom Green Energy Park**
  Produced the CEMP and Schedule of Mitigation Measures for SID wind farm application. Erected and monitored site notices for 7 weeks.
- **Coumnagcappul Wind Farm**
  Prepared two chapters of the EIAR: Chapter 6 – Air and Climate, Chapter 16 Telecommunications and Aviation for an 11-turbine wind farm application in North County Waterford. Undertook a planning search for the site to determine nearby developments.

# Donna O'Halloran

Project Scientist

FEHILY TIMONEY

CONSULTANTS IN ENGINEERING, ENVIRONMENTAL SCIENCE & PLANNING

## Profile

Donna O'Halloran is a Project Environmental Scientist with four years' experience and works on energy, waste and urban planning related projects Donna's has a comprehensive knowledge of Air and Climate Change impact appraisal as part of Planning and Environment Reports, Environmental Impact Assessment Reports (EIAR) as well as a comprehensive knowledge of air and climate related international and national legislation and international agreements. Donna's key skills include traffic emission modelling (DMRB)and carbon calculation modelling. Donna also has experience and skills in ecology.

Donna holds two first class honors Masters of Science; one in Environmental Resource Management from University College Dublin, Ireland and the other in ecological assessment from National University of Ireland, University College Cork. Donna has a background in horticulture and landscape architecture.

## Key Skills and Projects

- **Air and Climate Change Impact Appraisal for Wind Farm EIARs:**
  Air and Climate Change Impact Appraisal as part of EIAR is assessed according to the NRA's (now TII) '*Assessment Criteria for the impact of dust emissions from construction activities with standard mitigation*'. Carbon balance of windfarms is calculated using the Scottish Windfarm Carbon Calculating tool. Traffic emissions are calculated where the DMRB (UK Highways Agency) threshold is met. And the UK Highways Agency's tool is used.
  - Slaghbooly Wind Farm, Co. Clare
  - Castletownmoor Wind Farm, Co. Meath
  - Ballymanus Wind Farm, Co. Wicklow
  - Ballymanus Wind Farm, Co. Wicklow
  - Raragh Wind Farm underground 20KV Grid Connection, Co. Cavan & Co. Meath
  - Windfarm in Co Cork, (preplanning stage)

- **Air and Climate Change Impact Appraisal for Non Wind Farm projects EIAR or Environmental Reports for planning.**
  Traffic emission (DMRB) modelling has been carried out where thresholds have been met:
  - Proposed Waste Transfer and Processing Facility, Co Laois
  - Waste Soil Recovery Facility Kilquade, Co Wicklow
  - Millennium Park Landfill Extension, Co. Dublin
  - Overhead Line, midlands
  - Solar Farm Co. Wexford
  - Soil Backfill Facility, Co. Limerick
  - Battery Storage Facility, Co. Cork
  - Kilpaddoge Peaker Plant, Co. Kerry
  - Mishells Battery Storage, Co. Cork
  - Barnahely Battery Storage, Co Cork
  - Soils Recovery Facility and Eco Park, Co. Wicklow
  - Glenbeigh Greenway, Co. Kerry

## Key Information

### Qualifications

MSc. Ecological Assessment (First Class Honors),
University College Cork, 2014

MSc. (Agr.) Environmental Resource Management (First Class Hons)
University College Dublin, 2007

BSc. (Agr.) Landscape Horticulture (Hons),
University College Dublin, 2006

National Diploma in Horticulture,
National Botanic Gardens/ITB, Dublin
2004

### Employment History

**2015- Present**
Fehily Timoney & Company
Project Ecologist

**2011 – 2014**
Heronswood Childcare Centre, Cork
Assistant Supervisor

**2010 – 2011**
Little Hands Childcare and Early Learning Centre, Cork
Assistant

**2007 – 2008**
Mitchell & Associates, Cork
Landscape Architect

**2006**
Brady Shipman Martin, Cork
Landscape Architect Assistant

**2001 – 2004**
National Botanic Gardens, Dublin
Student Gardener

**2001 – 2003**
Carewswood Garden Centre, Cork
Sales Assistant

# David Moore

Principal Planner

FEHILY TIMONEY

CONSULTANTS IN ENGINEERING, ENVIRONMENTAL SCIENCE & PLANNING

## Profile

David is a Principal Planner with Fehily Timoney and Company and is responsible for planning and environmental inputs to large scale project activity within the company.

David has over 20 years' experience in the planning and development sector within private, public and academic contexts. He has gained extensive project management experience in complex, multi-party projects at national and international scales.

David holds honours degrees at Bachelor and Masters level in Geography, a Masters degree in Business Administration and Master of Science Degree in Spatial Planning. In 2017 David was awarded a Higher Diploma in Planning and Environmental Law by the Honorable Society of King's Inns which provides him with a strong understanding of current planning legislation and court rulings.

David's planning experience embraces all aspects of development control, strategic and regional planning, together with co-ordination of multi-disciplinary teams. David has provided strategic planning advice on large scale renewable energy, infrastructure, residential, commercial and retail development.

He has provided expertise in development plan preparation, development plan submissions and expert witness services for oral hearings, arbitration and court cases. David is an experienced Project Manager and has EIAR Coordinator to energy, aviation and residential projects. David has acted on behalf of project promoters and other interested stakeholders and has led a number of public engagement programmes. Over his career David has also acted as lead for IT, Data Management and GIS activity into planning and resource management projects.

## Key Skills

David has experience across a broad range of planning expertise embracing:

- Experience in planning and development practice for renewable energy, residential, commercial and infrastructure, sectors.
- Specialist expertise in solar PV planning and layout design.
- Management of large-scale planning applications and consent process including strategic infrastructure development, substitute consent and 'Part 8' applications.
- Preparation of planning and development strategies including feasibility studies, risk management strategies, due diligence and compliance reports.
- Coordination of multi-disciplinary teams for large scale development projects including design management, Environmental Impact Assessment Reports (EIAR) and Appropriate Assessment (AA).
- Preparation of planning reports, planning appeals, development plan submissions, 'section 5' requests and referrals, and legal submissions/affidavits.
- Specialist understanding of planning compliance and enforcement issues.
- Experience in oral hearings, CPO arbitration hearings, court hearings and presentations to stakeholders, local authority elected members and officials.
- Technical skills in urban design, rural development, development plan preparation, SEA, EIA and AA, retail impact, landscape and visual assessment, GIS and data management, renewable energy technology, demographics and socio-economic analysis.

## Key Information

### Qualifications

Higher Diploma in Planning and Environmental Law, The Honorable Society of King's Inns, 2017

MSc. Spatial Planning, Dublin Institute of Technology, 2006

Masters in Business Administration, Open University, UK, 2002

Masters of Arts (Geography with GIS), University College Dublin 1991

Bachelor of Arts (Archaeology & Geography) 1988

### Professional Memberships

Irish Planning Institute (Corporate Member, Elected Chairman of the Cork IPI Branch, 2011/12)

MBA Association of Ireland (Member of Southern Branch Committee 2011)

IRLOGI (Irish GIS and Geo-data Umbrella organisation member since 1996)

### Employment History

**2013- Present**
Fehily Timoney & Company

**2003 – 2013**
Spatial Planning Solutions Ltd.

**2001 – 2003**
McCutcheon Hogan, Planning Consultants, Cork

**1998 – 2001**
EUROGISE Project, National University of Ireland, Galway

**1996 – 1998**
CSA Computing, Dundrum Business Park, Dundrum

**1992 – 1996**
Kevin Cullen & Company (NGIS), Environmental Consultants, Dublin

# David Moore

Principal Planner

FEHILY TIMONEY

CONSULTANTS IN ENGINEERING, ENVIRONMENTAL SCIENCE & PLANNING

## Previous Experience Essentials

- **Wind Energy:**
  Compliance and statutory regulation requirements for turbine provisions at including EIAR and AA (Stage 1) coordination Barranafaddock Wind Farm, Co. Waterford for StatKraft (2019). EIAR reviewer and public consultant attendance for Coom Green Energy Park, Co. Cork (Brookfield Renewable 2019). Planning advice and strategy preparation for re-powering of existing wind energy projects (Blackrock 2019). Compliance consents for turbine regularisation at Coomacheo, Wind Farm Co. Cork & Co. Kerry for SSE and Lagan Construction (2015), Planning advice, Emlagh Wind Farm, Co. Meath Oral Hearing (Element Power 2014 – 2015); Planning advisor Maighne Wind Farm (47 no. Turbines) (Element Power 2015); Compliance advice on landscape and residential amenity impacts at Knockacummer Wind Farm, Co. Cork (Private client).

- **Solar Energy:**
  Coordination, design review, and preparation of planning reports, EIA Screening and planning applications for over 15 no. utility scale solar energy developments in counties Cork, Clare, Kildare, Longford, Louth, Westmeath and Wexford; preparation of over 45 no. Planning Feasibility for solar projects nationally. Preparation of Further Information Requests and first party Appeals for solar projects. Submissions to the ISEA Solar Energy Guidelines. Design activity included specification of mitigation measures, compliance with road building and development standards, position of key site infrastructure and site access provisions. Leading of public consultation programme for a number of solar planning applications.

- **Marine Infrastructure:**
  Submission of planning applications for 9 no. locations associated with landing and passenger infrastructure of a fast-ferry passenger service in Cork Harbour for Harbour Cat Ferries Ltd. This included preliminary site assessment for at 28 sites around Cork Harbour, and engagement with Department of Marine on Foreshore Licenses (2008 – 2009).

- **Strategic Environmental Assessment:**
  Review of OPW Flood Risk Management Plans – review of analysis and policy input (2018). Strategic Environmental Assessment for Draft Buncranna and Environs Development Plan (2007) Donegal County Council, landscape and zoning policy analysis for assessment of the draft Development Plan, in association with Brendan McGrath & Associates, (2007)

- **Oral Hearings/Expert Witness:**
  - Expert Witness on retail catchment areas in O'Leary v's Volkswagen Group Ireland Ltd. High Court 2016 (Ref: 4143P [2016] IEHC 773)
  - Oral Hearing Witness – Planning advisor at Emlagh Wind Energy Project Strategic Infrastructure Development Oral Hearing (Element Power, 2015).
  - Legal Planning Appraisal - Examination of statutory planning requirements for pre-2000 legal planning case for Arthur Cox & Co. (Private client., 2014).
  - Expert witness for appellant in ABP Gateway Bridges CPO by Cork City Council (for Harbour CAT Ferries 2009).
  - Expert witness - High Court: Cork County Council, Froggatt & Ord V Slattery Quarry Ltd. S.160 proceedings (Ref. 2007 103 MCA & 5661 P) (for applicant Froggatt & Ors.) (2007).
  - Oral Hearing: Bottlehill Landfill, Co. Cork on behalf for appellant (Bottlehill Community Association 2002).

- **CPO and Arbitration:**
  - Expert witness for claimant - Justin & Catherine McCarthy V OPW (2012).
  - Expert witness for claimant - Timothy Harrington V Cork County Council (2014).

- **International Experience:**
  - Lead Data Manager and input to the landuse and master plan of the Jeddah Environmental Assessment and Jeddah Social and Environmental Master Plan for the Presidency of Meteorology and Environment, Saudi Arabia in Partnership. This project was undertaken in association with Ramboll. (2014).
  - GIS management to a Model Based Waste Management Plan for Abu Dhabi Emirate on behalf of the Centre for Waste Management, Abu Dhabi in association with Ernst & Young (2015).

**Jim Singleton**

**PRINCIPAL TECHNICAL CONSULTANT**

Jim is a Principal Technical Consultant whose experience within acoustics consultancy covers a range of sectors including environmental noise, occupational noise and architectural acoustics, with particular expertise in the energy and industrial sectors.

Jim is the Team Manager of the Site Services team with a specific focus on delivering noise and shadow flicker services for windfarm developments as well as leading our non-windfarm noise assessment services.

**KEY EXPERIENCE**

- Noise Propagation Modelling
- Industrial Noise Assessments and compliance monitoring
- PPC Permitting
- Due Diligence
- Construction Noise Assessments
- Planning applications for commercial, industrial and residential
- Quarrying and blast monitoring (noise & vibration)
- Mixed-use Master Planning
- ETSU-R-97 Noise Assessments
- Shadow Flicker Assessments
- BREEAM Assessments
- Room acoustics modelling

**EDUCATION AND PROFESSIONAL STATUS**

Diploma in Acoustics & Noise Control, Institute of Acoustics (2008)

BSc. (Hons) Music Technology, First Class (2001)

Member of the Institute of Acoustics (MIOA)

Member of the Audio Engineering Society (AES)

**EXPERIENCE RECORD**

**2014 - Current** **TNEI Services Ltd**
**Principal Technical Consultant & Team Manager**

**Energy Projects**

Jim regularly works on energy projects covering a range of generation types from conventional energy through to renewables, storage and electrical infrastructure. Projects of note include:

- Roosecote 50MW battery storage facility
- Capacity Mechanism Schemes, numerous (1MW – 40+MW)
- NorthConnect (Norway / Scotland Interconnector)
- Galloper 336MW offshore wind farm onshore substation
- Aberdeen 92MW offshore wind farm onshore substation
- New Gorbals District Heating Scheme
- Wormit Solar Farm

**Position in Firm:**
Principal Technical Consultant

**Discipline:**
Acoustics

**Experience:**
12 years (consultancy)
6 years (lecturing)

**Key Qualifications:**
Diploma in Acoustics & Noise Control (IOA)

BSc (Hons) Music Technology

**Professional Memberships:**
MIOA
AES

**Marine, Near-shore and Ports**

Jim has worked both locally and internationally on marine, near shore and port projects and provided a wide range of consultancy services to this sector. Examples include;

- Umm Qasr, Iraq (ESIA studies and chapter for extension of container port and RORO services)
- Port of Cromarty Firth, Invergordon (PPC application for oil & gas decommissioning and offshore asset recovery)
- Lochmaddy/Tarbert (Harbour expansions to facilitate larger ferry on Isle of Harris and North Uist.
- Johan Castberg FPSO Module (operational noise predictions for floating production storage and offloading vessel )
- Aberdeen Offshore Windfarm landfall, Blackdog (Predictions & measurements for cable winching from offshore to landfall).

**Industrial Projects**

Jim has significant experience of industrial noise assessments including PPC permit applications/variations, BS4142 assessments for planning applications and noise control and management for compliance and/or complaints. Recent projects of note include;

- Confidential Site, Proposed Open Cast Coal Mine (EIA noise assessment)
- Drakelow Energy from Waste plant (EIA and PPC application)
- Great Coates Energy from Waste plant (EIA)
- Binn Farm SRF Processing Facility (PPC application and compliance)
- SGL Carbon Fibers (PPC Permit compliance monitoring)
- BSW Timber Newbridge (Planning applications)
- Port of Cromarty Firth, Invergordon (PPC applications and construction noise assessments)

**Residential Developments**

Jim has worked on a number of residential developments assessing site suitability, providing planning application noise impact assessments, monitoring for compliance with planning conditions and specification of building facades, barriers and other noise control measures.

Recent projects of note include;

- Gosforth Business Park – Road traffic and industrial noise studies
- Newcastle Great Park Cell A – Road traffic and aircraft noise assessments
- Newcastle Great Park Cell D – Road traffic noise assessments
- Newcastle Great Park Cell G – Compliance monitoring
- Royal Quays, North Shields – Planning application
- Cannon Street, Hull – Planning application

**2011 – 2014** **Atmos Consulting Ltd, Edinburgh**
**Senior Consultant (Acoustics & Noise)**

Whilst at Atmos, Jim authored the ES noise chapters of several Section 36 and large scale wind farms as well as numerous medium scale and FIT scheme developments. Other renewable energy projects included a number of biomass plants, wood fuel pellet production facilities and run-of-river hydro schemes.

Jim's experience of noise assessments outside of renewable energy covered a wide range of sectors. Some interesting projects of note include:

- Hovercraft crossing feasibility studies (Kirkaldy to Edinburgh)
- Go-Kart Track, Aviemore – Impact assessment for planning application within a National Park;
- St Andrews International Golf Club – Impact assessment for planning application;
- Mixed use development, Muir of Ord – Master planning for outline planning;
- Housing development, Llandrindod wells – Site suitability assessment;

**2007 – 2011** **BMT Cordah Ltd, Glasgow & New Acoustics, Glasgow**

Prior to concentrating on the energy and industrial sectors Jim worked on a significant amount of architectural acoustics projects as well as environmental noise. Architectural acoustics work has included room design, sound insulation testing, mechanical ventilation calculations, facade specifications and internal partition specification.

Interesting projects of note include;

- Acoustic design for the conversion of a Victorian warehouse space into the Kvadrat Showroom (London), as featured in Wallpaper magazine, working with Peter Saville and David Adjaye.
- Specification of internal partitions and acoustic design of specialist spaces for University of West Scotland, Ayr Campus (including recording & TV studios, radio studios, lecture theatres, performance spaces and atria).
- Acoustic design for the restoration of Triskel Christchuch, Cork, into a live music venue. Now renowned in Ireland for its acoustics.
- Mechanical ventilation calculations and design input for the Briggait, Glasgow. Coversion of former fish market into artist studios and exhibition spaces. The Briggait
- ETSU-R-97 noise assessment for the Viking Wind Farm, Shetland;
- PPC planning application and ES noise chapter for Northern Irelands' first large scale 'wood to energy' CHP.

**Mark Tideswell**

**TECHNICAL CONSULTANT**

Mark is a Technical Consultant with over six years experience working in the Environmental Consultancy sector. Mark's work focuses mainly on the technical aspects of renewable energy developments including site finding, GIS mapping services, shadow flicker and various types of noise assessments.

**KEY EXPERIENCE**

- Noise monitoring and assessment (ETSU-R-97, BS4142, BS5228)
- Noise propagation modelling
- Shadow Flicker assessment
- GIS site finding and feasibility for energy developments
- Constraints mapping
- Technical drawing and figure production

**EDUCATION AND PROFESSIONAL STATUS**

- BSc (Hons) Music Technology, Leeds Metropolitan University (2011)
- IOA Diploma in Acoustics and Noise Control, Leeds Metropolitan University (2015)
- Associate Member of the Institute of Acoustics (AMIOA)

**EXPERIENCE RECORD**

**2013 – Present TNEI Services Ltd**

**Noise Assessment**

Mark has undertaken noise assessments and provided support for a range of different development types, including: Wind Farms, energy generation and storage, Industrial and Residential schemes.

Projects of note include:

- Wind turbine compliance noise assessment (project confidential) on South Uist for Comhairle Nan Eilean Siar.
- Spaldington Wind Farm: Noise level monitoring and reporting for wind farm construction activities, including piling.
- Lindhurst Wind Farm: Wind farm noise compliance monitoring and assessment.
- Rumer Hill Gas Peaking Plant: Baseline noise monitoring and BS4142 assessment for the operation of externally located gas powered engine/generator sets.
- Newcastle Great Park: Production of noise propagation models and noise mapping of a large housing development in Newcastle in order to assess the potential impacts of road and aircraft noise.

**Position in Firm:**
Technical Consultant

**Experience:**
6 years

**Key Qualifications:**
- BSc (Hons) Music Technology
- Diploma in Acoustics & Noise Control (IOA)

**Professional Memberships:**
- AMIOA

**GIS and Mapping Services**

Mark has provided GIS and CAD support for numerous projects at TNEI, including renewable energy, power systems, and residential and industrial developments. Duties typically include data management and analysis, site finding and feasibility assessments, site design, production of technical plans and figures, and general mapping services for the duration of a project.

Projects of note include:

- WPD Grid Study: Mapped the WPD electricity distribution grid network across the south-west of England.
- ZNSHINE SOLAR Site Search: Feasibility assessment to identify potential sites suitable for solar development in England through the use of geographic data.
- Bankend Rig Wind Farm Extension: Provided GIS and mapping support for the planning application of the consented Bankend Rig Wind Farm Extension, including the production of supporting figures, plans and technical drawings.
- Hydrogen fuel cell development in Orkney: Production of GIS models and figures.
- STOR site in Lancashire: Produced GIS models and figures for three gas turbine engines.
- Feasibility studies for large scale STOR sites for up to 50MWe of generators/engines.

# Tony Cummins BA MA

**Senior Archaeologist & EIA Consultant**

**Professional Qualifications**

B.A. Degree (Archaeology) UCC, 1992
M.A. Degree (Archaeology), UCC, 1994
Licence-eligible Archaeologist since 1998

**Career Profile**

| | |
|---|---|
| *2009 to present*: | **Senior Archaeologist**, John Cronin & Associates |
| *2009* | **Consultant researcher**, INSTAR Research Project, Archaeology Dept., UCC |
| *2003-2009* | **Project Manager**, Sheila Lane & Associates |
| *2003* | **Project Manager**, Eachtra Archaeological Projects |
| *1999-2002* | **Senior Archaeologist**, Aegis Archaeology |
| *1998-1999* | **Project Manager**, Archaeological Services Unit, Archaeology Dept. UCC |
| *1991-1998* | Member of various archaeological excavation teams |

**Relevant Experience**

Tony has been a Senior Archaeologist with John Cronin & Associates since 2009 and has over twenty-five years continuous experience as a professional archaeologist. He has been a licence-eligible archaeologist since 1998 and has directed numerous excavations in Ireland as well as participating in archaeological projects in Britain and Lebanon. Tony also has gained a number of years' experience as the archaeological project manager overseeing archaeological works on a number of large-scale infrastructure projects, including the Limerick Southern Ring Road, Waterford City Bypass, Killaloe Bypass and Clashavoon-Dunmanway 110kV transmission circuit. This allowed him to gain extensive experience in the preparation of impact assessments, directing excavations, co-ordinating research studies and compiling reports for submission to state agencies and planning authorities.

Tony has extensive experience in preparing environmental impact assessments for numerous wind farm projects which included co-ordinating with other relevant consultants, including project design teams and LVA specialists. Examples of some of these projects include: Derrybrien rEIAR (Co. Galway), Glentane and Knockeenboy (Co. Cork), Shragh (Co. Clare), Bunmahon (Co. Waterford), Carrigdown (Co. Tipperary) and Tullynamoyle (Co. Leitrim).

# John Cronin BA MRUP MUBC Dip. Geol MIAI

**Principal Consultant & Architectural Heritage Specialist**

**Professional Qualifications**

Master of Urban & Building Conservation, School of Architecture, University College Dublin, 1999
Diploma in Geology, University College Cork, 1996
Master of Regional & Urban Planning, University College Dublin, 1993
Bachelor of Arts (Honours) - Archaeology & Geography, University College Cork, 1991
Member of Institute of Archaeologists of Ireland

**Career Profile**

| | |
|---|---|
| *2000 to date* | **Managing Director and Principal Consultant**, John Cronin & Associates |
| *1999 – 2000* | **Executive Planner (Conservation)**, Donegal County Council |
| *1998 – 1999* | **Conservation Officer**, Cork County Council |
| *1995 – 1998* | **Archaeology and Historic Building Officer**, Cork County Council |
| *1994 – 1995* | **Principal Research Officer**, Urban Archaeological Survey, UCC, Cork |
| *1993 – 1994* | **Surveyor**, Landesamt für Archaeologie, Dresden, Germany |

**Relevant Experience**

Mr Cronin is an archaeologist, town planner and building conservation consultant with over twenty years post-graduate experience in the public and private sectors. Mr Cronin has prepared numerous cultural heritage assessments for environmental impact assessments and has also supervised architectural surveys throughout the country. He has also acted as a built heritage consultant to Transport Infrastructure Ireland, The Heritage Council, the National Inventory of Architectural Heritage and various planning authorities.

Mr. Cronin has carried out archaeological and architectural heritage assessments for numerous large-scale infrastructure projects and the following are a short selection of same:

- **A1/N1 Newry-Dundalk Road Scheme** Dual carriageway link road across the border between Cloghoge roundabout, south of Newry, and Ballymascanlan interchange, north of Dundalk. Working in association with RPS Group, John Cronin was responsible for (i) Cultural Heritage Impact Assessment of the proposed scheme, (ii) expert Evidence at An Bord Pleanála hearing and (iii) specification of archaeological mitigation measures.

- **Galway City Outer Bypass (GCOB)** John Cronin project managed the archaeological, architectural and cultural heritage assessment input and specialist advise for the constraints, route option stage and EIS stage of the GCOB project. John also provided expert witness evidence at the oral hearing held by An Bord Pleanála.

- **Wind Farm Projects:** John has project-managed the assessment of numerous wind farm projects throughout the country and examples include Barnastooka and Kilgarvan (Co. Kerry), Sliabh Bawn (Co. Roscommon) and Streamhill (Co. Cork).

# Richard Barker

**MLA. BA Env. PG Dip For.**
**MILI.**

**Position:** Principal Landscape Architect

**Qualifications:** Irish Landscape Institute Professional Practice Qualification – 2005

MLA – Lincoln University - 2003
PG Diploma Forestry – Canterbury University - 1996

BA Environmental Science – Massey University - 1995

**Professional Affiliations:** Corporate Member of the Irish Landscape Institute

**Professional Experience**

Richard formerly worked as a Town Planner in New Zealand, London and Dublin before moving into the field of Landscape Architecture. He has spent the last 16 years working as a Landscape Architect in Ireland and has considerable experience in the fields of both Landscape and Visual Impact Assessment (LVIA) and landscape design, covering all stages from project feasibility through to construction. This cross-over of expertise is invaluable in determining and designing the most appropriate and effective form of landscape and visual mitigation for infrastructural development projects.

Richard manages the LVIA department in Macro Works undertaking assessment work on a broad spectrum of projects from wind and solar energy, to roads and large-scale industrial and infrastructural development. Richard has personally completed the landscape and visual assessment of over 90 wind farms and 80 solar farms including nine SID projects. Consequently, he has considerable oral hearing expert witness experience. This extends to more than 15 oral hearings over the past 12 years with four of these being for large SID wind farm projects.

Richard has presented a number of conference papers relating to sustainable landscape design and LVIA as well as delivering the inaugural workshop on the landscape and visual effects of wind energy developments on behalf of the Irish Wind Energy Association. He has presented a paper to members of the Irish Landscape Institute on the application of the Guidelines for Landscape and Visual Impact Assessment (2013) using a wind energy case study. Richard has also delivered guest lectures to the University College Dublin professional course in EIA Management in relation to LVIA.

**Key Projects**

| | | |
|---|---|---|
| Coom Wind Farm | Brookfield / Coillte | 135MW SID wind energy development |
| Barnesmore Repower Wind Farm | SPR | 85MW SID wind energy development |
| Derryadd Wind Farm | Coillte | 120MW SID wind energy development |
| Cluddaun Wind Farm | Coillte | 120MW SID wind energy development |
| Emlagh Wind Farm | Element Power | 120MW SID wind energy development |
| Maighne Wind Farm | Element Power | 120MW SID wind energy development |
| Yellow River Wind Farm | Greenwind | 95MW SID wind energy development |
| Mount Lucas Wind Farm | Bord na Mona | 80MW wind energy development |
| Carrowleagh / Kilbride Wind Farm | John Duffy Assoc. | 48.5MW wind energy development |
| Bruckana Wind Farm | Bord na Mona | 45MW wind energy development |
| Lisheen III Wind Farm | Bord Gais | 20MW third phase wind energy development |

Feasibility and design optimisation studies for 10+ Offshore wind energy sites

LVIA for 90+  other Wind Energy developments

LVIA for 80+ Solar Energy Proposals

| | | |
|---|---|---|
| **Cian Doughan**<br><br>**BSc - Landscape Architecture**<br><br>**MILI** | **Position:** | Landscape Architect |
| | **Professional Experience** | |
| | Cian came to Macro Works as an honours graduate of Landscape Architecture from UCD and is now a full corporate member of the Irish Landscape Institute. He has been with Macro Works since 2016, working in a variety of roles that involve a combination of LVIA, landscape design and 3D modelling. He also worked for a leading landscape design office (Hollander Design) in New York for a year.<br><br>Cian has exceptional graphic ability and his main field of interest in landscape Architecture is that of landscape planning and, in particular,LVIA. Cian has completed assessments for a wide range of development types across our portfolio, including important water supply projects, as well as a range of wind farm and solar farm applications.<br><br>Recent work includes preparing the Draft Landscape Design Guidelines for Irish Water Infrastructure projects. | |

FEHILY TIMONEY

CONSULTANTS IN ENGINEERING,
ENVIRONMENTAL SCIENCE
& PLANNING

# Appendix 1.2

## Projects Considered in the Cumulative Assessment

## Appendix 1.2: Projects Considered in the Cumulative Assessment

Projects considered for Cumulative Assessment in the EIAR

| Development Name/Type | Coordinates (ITM) | Year | Planning Reference Number | Decision | Status | Description | Address | Distance from Project |
|---|---|---|---|---|---|---|---|---|
| Boggeragh Wind Farm (1) | X 537022<br>Y 588100 | 2001 - 2008 | 011248<br>085944 | Grant | Operational | Construction of Wind Farm consisting of 20 wind turbines of 80m hub height & 80m blade diameter elect substation with control building & assoc works.<br>Completion of wind farm consisting of 19 no. wind turbines of 80m hub height and 80m blade diameter and electrical substation with control building granted under Planning Reg. No. 01/1248. | Carrigduff, Crinnaloo South, Inchamay North, Carrragraigue | 2km North of Wind Farm Site |
| Boggeragh Wind Farm (2) | X 539837<br>Y 585668 | 2010 - 2011 | 108067 | Grant | Operational | A wind farm consisting of 38 no. wind turbines with a maximum ground to top blade tip height of up to 136.5 metres with ancillary structures, 4 borrow pits, 1 no. permanent meteorological mast, 1 no. substation, upgrading of existing roads/access tracks, underground cabling and provision of new access track and new entrances onto public roads and all associated infrastructure (at the Boggeragh Mountains in the townlands of Ballynagree East, Carrigagulla, Annagannihy, Knocknagoun, Kilcullen North, Barrahaurin, Commeenaplaw, Meenahony, Gowlane North, Carrigduff, Crinaloo South, Inchamay South, Glenaneatnagh South, Nadanuller Beg and Knock) | Ballynagree East, Carrigagulla, Co Cork | 1km East of Wind Farm Site |
| Esk Wind Farm | X 544258<br>Y 591425 | 2011 - 2014 | 115276<br>145602 | Grant | Operational | Permission for wind farm comprising the provision of a total of 14no. Wind turbines with a maximum overall blade tip height of up to 136.5m, upgrading of existing and provision of new internal access roads, provision of a wind anemometry mast (height up to 90m), 4no. borrow pits, an electricity substation with control room and associated equipment, underground electricity connection cabling, 3no. temporary construction compounds, and all ancillary site works including the upgrading of site access junctions (145602). | Derrygowna, Esk North, Esk South, Garrane, Glandine, Glannaharee East, Glannaharee West, Glanminnane, Knockavaddra, Monanveel, Co Cork | 6km North East of Wind Farm Site |
| Carraigcannon Wind Farm | X 539462<br>Y 591287 | 2003 - 2011 | 034181<br>094564 | Grant | Operational | Windfarm to include 10 no. wind turbines, ESB control building, compound and ancillary site works. | Carrragraigue, Charlesfield, Rathcoole, Mallow | 3.5km North of Wind Farm Site |
| Carriganimmy Wind Farm | X 530089<br>Y 582538 | 2007 | 074102 | Grant | Operational | Wind farm with 6 no. wind turbines (80m hub height and 80m blade diameter with total height not exceeding 120m), a 38kV substation to include pylon and control building within a fenced compound, 1 no. 80m high meteorological mast, construction and upgrading of site entrances, site tracks and associated works | Carriganimmy, Macroom, Co Cork | 5km West of Wind Farm Site |
| Bawnmore Wind Farm | X 537770<br>Y 578542 | 2008 | 016529<br>086149<br>088770 | Grant | Operational | Wind farm to include 7 no. turbines, substation and site tracks.<br>An increase in hub height from 60 to 85 metres and rotor blade diameter from 66 to 82 metres as well as the addition of 1no. wind turbine to the permitted wind farm development at Cahernafulla. Associated changes to include relocation of permitted turbines, relocation of permitted substation & access | Cahernafulla, Kilberrihert, Aghabullogue, Co Cork | 5km South of Wind Farm Site |

| Development Name/Type | Coordinates (ITM) | Year | Planning Reference Number | Decision | Status | Description | Address | Distance from Project |
|---|---|---|---|---|---|---|---|---|
| | | | | | | tracks, and increase in site area to provide for new access road and entrance | | |
| Extension to 110kV Substation to include Battery Storage | X 537658<br>Y 587776 | 2018 | 184256 | Grant | Operational | Construction of an extension to existing 110kv electricity substation. The proposed works for which planning permission is sought will involve the construction of new palisade fencing, bunded concrete plinths, 4no. battery storage units, transformers, control cabin, access track and all associated site works. | Crinnaloo South, Millstreet, Co. Cork | 1km North of Wind Farm Site |
| Solar Farm | X 537026<br>Y 591906 | 2016 - 2019 | 165455<br>186562 | Grant | Not yet constructed | Permission for the development of a solar photovoltaic panel array consisting of up to 33,000sq.m of solar panels on ground mounted steel frames, 2 no. electricity control cabins, 4 no. inverter units, underground cable and ducts, hardstanding area, boundary security fence, new entrance onto public road, CCTV and all associated site services and works. Planning permission is sought for a period of 10 years.<br>An extension to the permitted solar photovoltaic (PV) array. | Carragraigue, Inchamay North and Crinnaloo South Co. Cork | 5km North of Wind Farm Site |
| Met Mast | X 537676<br>Y 586145 | 2020 | 205342 | Grant | Not yet constructed | The erection of a temporary 100m lattice type meteorological mast for a period of 5 years. The structure will be fixed to ground anchors by guy wires and will include instruments for measuring local climate conditions and all ancillary works. | Carrigagulla, Ballinagree, Co Cork | 200m from T17 |
| Met Mast | X 535551<br>Y 583216 | 2021 | 214476 | New Application | Existing | The continued use of an existing, temporary lattice type meteorological mast, 80m in height. The structure is fixed to ground mounted anchors by guy wires and includes associated instruments to measure local meteorological conditions. Permission is sought for a period of 5 years. | Ballynagree West, Macroom, Co Cork | 50m from T6 |
| Extension to Substation to include Battery Storage at Bawnmore Wind Farm | X 537270<br>Y 578451 | 2018 | 185240 | Grant | Not yet constructed | An extension to the existing electricity substation, comprising of the construction of up to 4 no. battery storage units, palisade fencing, bunded concrete plinths, associated electrical equipment, transformers and all ancillary site works. | Kilberrihert, Coachford, Co. Cork | 1.7km north of Clashavoon Substation |
| Knockglass Solar Farm (adjacent Bawnmore Wind Farm) | X 538337<br>Y 578149 | 2015 | 155424 | Grant | Not yet constructed | Solar PV Panel array consisting of up to 33,000sq.metres of solar panels on ground mounted steel frames, 2 No. electrical control cabins, 5 No. inverter units, underground cable ducts, hardstanding area, boundary security fence, site entrances, access tracks, CCTV and all associated site works. | Knockglass & Kilberrihert, Coachford, Co. Cork | 1.9km north Clashavoon Substation |
| Battery Storage | X 526153<br>Y 584281 | 2018 | 185686 | Grant | Not yet constructed | Construction of a battery storage compound including 2 no. battery storage buildings with associated plant and equipment, an ancillary 110kV electricity substation with 2 no. control buildings, associated electrical plant & equipment and fencing, underground electricity cabling, surface water drainage, site entrance and access track, security fencing and all ancillary site works. | Caherdowney, Millstreet, Co. Cork | 9km West of Wind Farm Site |
| Solar Farm | X 540565<br>Y 565575 | 2019 - 2020 | 196847 | Grant | Not yet constructed | A 5 MW solar farm comprising approximately 22,200 photovoltaic panels on ground mounted frames within a site area of 8.12 hectares, 2 no. single storey inverter / transformer | Cloghmacow, Crookstown, Co. Cork | 11.5km south of Clashavoon Substation |

| Development Name/Type | Coordinates (ITM) | Year | Planning Reference Number | Decision | Status | Description | Address | Distance from Project |
|---|---|---|---|---|---|---|---|---|
| | | | | | | stations, 1 no. single storey delivery station, security fencing, CCTV, and all associated ancillary development works. | | |
| Solar Farm | X 551136<br>Y 575818 | 2018 - 2019 | 187280 | Granted | Not yet constructed | The construction and operation of solar PV arrays mounted on metal frames on a 21.3ha site, inclusive of an electrical substation compound, up to 10 inverter units, a temporary construction area and ancillary facilities (inclusive of gross floor space of proposed works up to 248sqm). The planning application is accompanied by an environmental report and stage 1 screening for appropriate assessment. | Berrings, Co. Cork | 14km east of Clashavoon Substation |
| Solar Farm | X 541634<br>Y 564446 | 2016 - 2017 | 164783 | Granted | Not yet constructed | A 5 MW solar farm comprising approximately 22,200 photovoltaic panels on ground mounted frames within a site area of 8.5 hectares, 2 no. single storey inverter/transformer stations, 1 no. single storey delivery station, security fencing, CCTV and all associated ancillary development works | Currabeha, Crookstown, Co. Cork | 13km south of Clashavoon Substation |
| Existing and permitted Wind turbines within 20km of study area | - | - | - | - | | All existing and permitted wind turbines within 20km of the study area have been considered in the visual assessment as set out in Chapter 15: Landscape and Visual | | 0-20km of Main Wind Farm Site |
| Existing Forestry Activity | - | - | - | - | Ongoing | Commercial forestry activity in the proximity to the Ballinagree Wind Farm site. | | 0km |

**Other Projects identified for Cumulative Assessment in the EIAR**

**Kerry County Council applications within 20km of Wind Farm (main site) since 2011**

| Development Name/Type | Coordinates (ITM) | Year | Planning Reference Number | Decision | Status | Description | Address | Distance from Project |
|---|---|---|---|---|---|---|---|---|
| Wind Farm - Extension of Duration | X 520616<br>Y 582490 | 2011 | 0691680 | Conditional | Operational | Complete development of wind farm, consisting of 2 no. wind turbines, 2 no. transformers, a control and metering building, a meteorological mast, site tracks and associated works. | Cummeenabuddogue and Clydaghroe, Co. Kerry | 12.7km west of Main Wind Farm site |

**Grid Route**

**All application within 250m of each side of the grid route within last 5 years.**

| Development Name/Type | Coordinates (ITM) | Year | Planning Reference Number | Decision | Status | Description | Address | Distance from Project |
|---|---|---|---|---|---|---|---|---|
| Permission | X 534761<br>Y 578954 | 2021 | 215628 | Conditional | Finalised | To construct a new dwelling house. | Bawnmore, Macroom, Co. Cork | <5m |
| Permission | X 535938<br>Y 577516 | 2017 | 176948 | Conditional | Finalised | Construction of new dwellinghouse, domestic garage and new entrance together with all other ancillary site works. | Caherbaroul, Macroom, Co. Cork | <10m |

| Development Name/Type | Coordinates (ITM) | Year | Planning Reference Number | Decision | Status | Description | Address | Distance from Project |
|---|---|---|---|---|---|---|---|---|
| Permission | X 535288<br>Y 579968 | 2017 | 174237 | Conditional | Finalised | To construct new single storey extensions to front and side of existing two storey dwelling along with internal and external alterations, new sewerage treatment system to replace existing septic tank, re-located site entrance, new single storey extension to existing domestic garage and all associated works. | Knocknagappul, Horsemount, Ballinagree, Macroom, Co. Cork | <10m |
| Permission | X 534553<br>Y 581275 | 2019 | 196751 | Conditional | Finalised | The demolition of out building and the single storey annex to the rear (north-west) and side (south-west) of an existing dwelling and for a) the construction of a two storey extension to the rear (north-west) and side (south-west) of the dwelling house b) removal of the existing roof and construction of a new roof at a higher level c) various elevational changes to the existing dwelling d) decommissioning of existing septic tank and installation of a secondary waste water treatment unit and polishing filter and all ancillary and necessary site works to complete the development. | Rahalisk, Ballinagree, Co. Cork | 55m |
| Permission | X 534427<br>Y 578167 | 2016 | 166355 | Conditional | Finalised | (i) Retention of the as constructed domestic garage (ii) change of use of the existing domestic garage to a Pre-school unit (iii) construct new extension (36sq.m) on the western side of the existing garage for toilets/office which will form part of the new pre-school unit and associated site works. | Bawnmore, Macroom, Co. Cork | 55m |
| Permission | X 536176<br>Y 577232 | 2020 | 206573 | Conditional | Finalised | Construction of a dwellinghouse. | Derryroe, Macroom, Co. Cork | 75m |
| Permission | X 534426<br>Y 578068 | 2018 | 185336 | Conditional | Finalised | Construct a slatted house and all associated site works. | Bawnmore, Macroom, Co. Cork | 96m |
| Permission | X 536328<br>Y 576977 | 2021 | 206866 | Conditional | Finalised | a) Permission for retention of dwelling to include revised boundaries, entrance and site layout including septic tank, all as constructed, and b) Permission for decommissioning of existing septic tank and soak pit and construction of new septic tank and percolation area. | Derryroe, Macroom, Co. Cork | 138m |
| Extension of Duration | X 535442<br>Y 580045 | 2019 | 194044 | Conditional | Finalised | Construction of dwellinghouse, domestic garage, new entrance and all associated site works. | Knocknagcapall, Ballinagree, Macroom, Co. Cork | 138m |
| Permission | X 534848<br>Y 581777 | 2016 | 166235 | Conditional | Finalised | Construction of dwellinghouse, domestic garage, new entrance and all associated site works. | Knocknagappul, Ballinagree, Macroom, Co. Cork | 147m |
| Permission | X 534321<br>Y 578515 | 2018 | 186011 | Conditional | Finalised | Construction of dwellinghouse, domestic garage, new entrance and all associated site works. | Bawnmore, Macroom, Co. Cork | 148m |

| Development Name/Type | Coordinates (ITM) | Year | Planning Reference Number | Decision | Status | Description | Address | Distance from Project |
|---|---|---|---|---|---|---|---|---|
| Permission | X 536293<br>Y 577504 | 2020 | 204757 | Conditional | Finalised | 1)Demolitions to an existing dwelling, 2)construction of extension to rear of existing dwelling, 3)alterations to existing dwelling, 4)alterations to existing vehicular entrance, 5) decommissioning of existing septic tank and installation of a new septic tank and percolation area and all associated site works<br>Construction of dwellinghouse, domestic garage, new entrance and all associated site works. | Kilberrihert, Coachford, Co. Cork | 161m |
| Permission | X 534408<br>Y 581125 | 2021 | 206924 | Conditional | Finalised | Permission for new two storey dwelling, sewerage system and all associated works. | Rahalisk, Ballinagree, Co. Cork | 215m |
| Permission | X 535992<br>Y 577811 | 2016 | 166336 | Conditional | Finalised | For garage (garage relocation & change of garage plan from that permitted under planning Ref No.15/6634) | Caherbaroul, Macroom, Co. Cork | 228m |
| Permission | X 535521<br>Y 583210 | 2021 | 214476 | Conditional | Finalised | The continued use of an existing, temporary lattice type meteorological mast, 80m in height. The structure is fixed to ground mounted anchors by guy wires and includes associated instruments to measure local meteorological conditions. Permission is sought for a period of 5 years. The mast was erected on site as exempted development pursuant to Class 20 (A), Part 1 Schedule 2 of the Planning & Development Regulations 2001 (as amended) in November 2019. | Ballynagree West, Near Ballinagree, Macroom, Co. Cork | >250m |
| Permission | X 534651<br>Y 582433 | 2021 | 216635 | Conditional | Finalised | New single storey and two storey extension to side of existing two storey dwelling, new sewerage system upgrade to existing system and all associated works. | Horsemount, Knocknagappul, Ballinagree, Macroom, Co. Cork | <10m |

**Turbine Delivery Route (TDR) Route**

**Application within 250m of nodes within last 5 years.**

| Development Name/Type | Coordinates (ITM) | Year | Planning Reference Number | Decision | Status | Description | Address | Distance from Project |
|---|---|---|---|---|---|---|---|---|
| Permission | X 553382<br>Y 623075 | 2017 | 174574 | Conditional | Application Finalised | Construction of a single storey extension to side of dwelling, alterations to front and both sides of dwelling and all associated site works | 11 Cedar Court, Rathgoggan Middle, Charleville, Co. Cork | 100m |
| Retention | X 553222<br>Y 623063 | 2016 | 164209 | Conditional | Application Finalised | Retention to existing dwelling of: (a) side porch, (b) rear 2 storey and single storey extension, and (c) attached and detached domestic garages | Love Lane, Rathgoggan Middle, Charleville, Co. Cork | 150m |

| Development Name/Type | Coordinates (ITM) | Year | Planning Reference Number | Decision | Status | Description | Address | Distance from Project |
|---|---|---|---|---|---|---|---|---|
| Retention | X 553465<br>Y 623090 | 2018 | 186419 | Conditional | Application Finalised | Retention of the existing single storey extensions to the front, side and rear elevations of the existing two storey dwelling house with all associated site and ancillary works. | Old Limerick Road, Rathgoggan Middle, Charleville, Co. Cork | 250m |
| Retention | X 553993<br>Y 621927 | 2019 | 194554 | Conditional | Application Finalised | Retention for; 1) Minor alterations to elevations, internal modifications to layout and minor increase to footprint of extension to petrol station / shop / diner permitted under Planning Reg. No. 01/1502, 2) Retention for change of use of store permitted under Planning Reg. No. 05/4350 and extension to same for use as dry goods store, food preparation area, bakery, kitchen, cold rooms, staff amenities and attached waste store and enclosed yard area (partially covered by canopy), 3) Retention for change of use and alterations to elevations / layout, including new roof, of dwelling house on site to use as solid fuel store, ancillary to petrol station, partial demolition of boundary wall to said dwelling and closure of site entrance to Charter School Road previously serving dwelling, 4) Retention for alterations to site entrance on Charter School Road and 3no. site entrances on N20, 5) Retention of forecourt canopy, 6) Retention for signage on side elevation of shop, 7) Retention for brush car wash, associated store and 2no. manual car wash units, 8) Retention for car parking layout as constructed including 67no. car parking spaces and 2no. HGV spaces, 9) Retention for self-service laundrette unit and, 10) all associated site works. | Amber Service Station, Rathgoggan South, Charleville, Co. Cork | 200m |
| Permission | X 554023<br>Y 621983 | 2021 | 215568 | Further Information | Application Finalised | To carry out rear demolition, alterations, renovations and extensions to an existing dwelling house and all associated site works. | Ballysally, Rathgoggan South, Charleville, Co. Cork | 150m |
| Permission | X 554216<br>Y 609187 | 2018 | 176600 | Conditional | Application Finalised | Change of use of former retail outlet on ground floor of premises to residential. | Main Street, Buttevant, Co. Cork | 200m |
| Permission | X 554650<br>Y 607335 | 2019 | 194723 | Conditional | Application Finalised | Construct a two storey dwelling, a garage, a proprietary wastewater treatment system and polishing filter and all associated site works | Ballybeg Middle, Buttevant, Co. Cork | 250m |
| Permission | X 555176<br>Y 599582 | 2019 | 194636 | Conditional | Application Finalised | Retention of (a) existing porch to front of dwelling (b) alterations to dwelling (c) detached 2 storey building used as living accommodation ancillary to main dwelling and planning permission for the installation of 2 velux roof lights to rear of existing dwelling and planning permission for 2 storey extension to rear and side of existing dwelling for use as granny flat including the incorporation of detached 2 storey building used as living accommodation ancillary to main dwelling into same and all associated site works. | Upper Lackanalooha, Lackanalooha TD, Mallow, Co. Cork | 200m |
| Permission | X 555360<br>Y 599181 | 2018 | 177205 | Conditional | Application Finalised | Construction of dwelling house and associated services on lands which are adjacent to existing dwelling and construction of new vehicular entrance to existing dwelling. | No. 8 The Alders, Lackanalooha, Mallow, Co. Cork | 250m |

| Development Name/Type | Coordinates (ITM) | Year | Planning Reference Number | Decision | Status | Description | Address | Distance from Project |
|---|---|---|---|---|---|---|---|---|
| Permission | X 555276<br>Y 598845 | 2020 | 206152 | Conditional | Application Finalised | The development will consist of replacing approximately 155m of existing 2.4m high chainlink fence and associated access/emergency gates with 155m of new 2.4m high green palisade security fencing/gates and all associated site work at an existing above ground natural gas installation. | Ballyclough AGI (Above Ground Installation), West End, Annabella, Mallow, Co. Cork | 250m |
| Permission | X 555226<br>Y 598696 | 2016 | 166063 | Conditional | Application Finalised | Installation of a 3m high 'lamp post' style relief vent stack servicing the existing below ground natural gas pressure reduction unit with all ancillary services and associated site works | Limerick Road DRIug, Limerick Road, Annabella, Mallow, Co. Cork | 200m |
| Permission | X 555269<br>Y 598451 | 2020 | 204925 | Conditional | Application Finalised | Development on a site which will consist of the demolition of part of the existing Co-Op store, and associated garden centre, agri store, and delivery yard, and the provision of an expanded Co-Op store, and associated part-covered garden centre, agri store and delivery yard; the refurbishment of Annabella Villas (Protected Structure Reg Nos. 70-71) (Unit 1) to provide a restaurant use at lower ground floor and ground floor, to include the sale of hot food for consumption off the premises, and offices on the first floor and second floor; repair works to the Coach Houses (Protected structure Reg No. 72); 7no. new units (Units 2-8) suitable for convenience retail/comparison retail/retail warehousing/restaurant/café use, with retail use to include the sale of alcohol for consumption off the premises, and restaurant/café use to include the sale of hot food for consumption off the premises. A glazed connection, for restaurant use, is proposed between the lower ground floor of Annabella Villas (Protected Structure Reg Nos. 70-71) (Unit 1) and Unit 2. The proposed development also provides for the demolition of part of the boundary wall fronting West End; public realm works on West End; car parking; cycle parking; signage; waste management areas; ESB substation; rooftop plant, including solar panels; and all site development, infrastructural and landscaping works, including modifications to the existing access off Park Road, and improved/new pedestrian connections on West End and Park Road. The northern part of the site is located within an Architectural Conservation Area (ACA-1). An Environmental Impact Assessment Report (EIAR) will be submitted to the Planning Authority with the application. A Natura Impact Statement (NIS) will be submitted to the Planning Authority with the application. | West End and Park Road, Annabella, Mallow, Co. Cork | 150m |
| Retention | X 531940<br>Y 597374 | 2018 | 185465 | Conditional | Application Finalised | Retain extension as constructed to the rear of existing dwelling house including all associated siteworks. | Dromahoe, Dromagh, Mallow, Co. Cork | 200m |
| Permission | X 532105<br>Y 597198 | 2018 | 176611 | Conditional | Application Finalised | Construction of a split level, single and two storey dwelling with garage/shed, new site entrance and all associated site works. | Black Road Cross, Dromahoe, Dromagh, Mallow, Co. Cork | 200m |

| Development Name/Type | Coordinates (ITM) | Year | Planning Reference Number | Decision | Status | Description | Address | Distance from Project |
|---|---|---|---|---|---|---|---|---|
| Permission | X 530592<br>Y 596027 | 2017 | 175147 | Conditional | Application Finalised | Retention of: a) dwelling and attached garage as constructed (previous Reg. No. 1005/67), b) domestic garage/fuel shed, c) entrance and d) altered site boundaries and Permission for installation of wastewater treatment unit | Garrane North, Killetragh, Dromagh, Mallow, Co. Cork | 100m |
| Permission | X 528622<br>Y 591868 | 2020 | 205904 | Conditional | Application Finalised | To construct new public footpath & all associated services & site works (from Drishane Castle entrance to the Coole crossroads). | Drishane More, Millstreet, Co. Cork | 100m |
| Retention | X 528236<br>Y 591461 | 2020 | 205553 | Conditional | Application Finalised | To retain dwellinghouse and domestic garage as constructed and all associated site works. | Drishane More, Millstreet, Co. Cork | 100m |
| Permission | X 527807<br>Y 590337 | 2018 | 176769 | Conditional | Application Finalised | Construction of a new two storey warehouse with covered canopy consisting of storage space for medical equipment, staff use, repair workshop and a toilet with all associated site works and services including minor amendments to existing site entrance and minor boundary treatments, an area for recycling bins, additional on-site parking and all associated site works for O Flynn Medical Facility. | O Flynn Medical Facility, Liscahane, Millstreet, Co. Cork | 250m |
| Permission | X 527813<br>Y 590339 | 2017 | 175297 | Conditional | Application Finalised | Construction of single storey detached lightweight storage shed to rear of existing building(for storage of medical equipment) for O'Flynn Medical. | Liscahane, Millstreet, Co. Cork | 250m |
| Permission | X 528771<br>Y 589661 | 2016 | 164469 | Conditional | Application Finalised | To construct new single storey dwelling, domestic garage, site entrance, sewerage treatment system and all associated site works. | Tullig, Millstreet, Co. Cork | 200m |
| Permission | X 529590<br>Y 589493 | 2017 | 174607 | Conditional | Application Finalised | Retention and completion of dormer dwelling including all ancillary works and Permission for the construction of domestic garage, entrance and installation of septic tank and percolation area | Tullig, Millstreet, Co. Cork | 150m |
| Permission | X 529817<br>Y 589221 | 2019 | 194280 | Conditional | Application Finalised | Construct a new dwelling house. | Tullig, Millstreet, Co. Cork | 200m |
| Permission | X 532240<br>Y 587390 | 2021 | 214764 | Conditional | Application Finalised | Two storey extension to rear of existing dwelling, façade alterations, demolition of existing shed, construction of new domestic garage, completion of road boundary wall, sewerage upgrade works and all associated works. | Aubane, Tullig, Millstreet, Co. Cork | 200m |

**Biodiversity Enhancement and Management Lands (BEMP lands)**

**Applications within 250m of the BEMP lands over the past 5 years.**

| Development Name/Type | Coordinates (ITM) | Year | Planning Reference Number | Decision | Status | Description | Address | Distance from Project |
|---|---|---|---|---|---|---|---|---|
| Permission | X 538415<br>Y 578213 | 2015 | 155424 | Conditional | Application Finalised | Solar PV Panel array consisting of up to 33,000sq.metres of solar panels on ground mounted steel frames, 2 No. electrical control cabins, 5 No. inverter units, underground cable ducts, | Knockglass and Kilberrihert, Coachford, Co. Cork | 100m |

| Development Name/Type | Coordinates (ITM) | Year | Planning Reference Number | Decision | Status | Description | Address | Distance from Project |
|---|---|---|---|---|---|---|---|---|
| | | | | | | hardstanding area, boundary security fence, site entrances, access tracks, CCTV and all associated site works. | | |
| Extension of Duration | X 538415<br>Y 578213 | 2021 | 215941 | Conditional | Application Finalised | Solar PV Panel array consisting of up to 33,000sq.metres of solar panels on ground mounted steel frames, 2 no. electrical control cabins, 5 no. inverter units, underground cable ducts, hardstanding area, boundary security fence, site entrances, access tracks, CCTV and all associated site works. - Extension of duration of permission granted under Planning Reference: 15/5424, An Bord Pleanala Appeal reference: PL04.245862. | Knockglass and Kilberrihert, Coachford, Co. Cork | 100m |
| Permission | X 539064<br>Y 578240 | 2014 | 145772 | Conditional | Application Finalised | Construction of two-storey front extension to dwelling house, construction of side extension to existing dwelling house together with elevational changes to the existing dwelling house, demolition of existing outhouses, installation of new septic tank and percolation area and alterations to existing entrance | Laharankeal<br>Rusheen<br>Co.Cork | 200m |
| Permission | X 539318<br>Y 578573 | 2021 | 216883 | | New Application | The construction of new dwellinghouse, domestic garage, new entrance, waste water treatment system together with all other ancillary site works. | Leadawillin and , Carriganish, Coachford, Co. Cork | 50m |
| Permission | X 538909<br>Y 578744 | 2018 | 185020 | Conditional | Application Finalised | Construct, 1) cow cubicle house with feed passage & slatted tanks, 2) milking parlour & dairy, 3) loose house, 4) cow collecting yard, drafting area and cattle pens, 5) open silo and 6) farm roadway. All to be carried out in conjunction with all associated site works | Cahernafulla, Kilberrihert, Coachford, Co. Cork | 0m |
| Permission | X 539074<br>Y 579363 | 2012 | 125073 | Conditional | Application Finalised | Construction of dwelling and domestic garage and associated site works | Dooneens, Rylane, Co. Cork | 50m |
| Permission | X 539166<br>Y 580047 | 2012 | 124442 | Conditional | Application Finalised | Construction of slatted house with underground tank | Dooneens, Rylane, Co. Cork | 100m |
| Permission | X 539166<br>Y 580047 | 2021 | 214824 | Conditional | Application Finalised | Construction of slatted house with underground effluent tank and all associated site works. | Dooneens, Rylane, Co. Cork | 100m |
| Permission | X 535938<br>Y 578287 | 2017 | 174546 | Conditional | Application Finalised | Retention of existing as built dwellinghouse and site boundaries to that permitted under planning ref: No. 13/6305 | Caherbaroul, Macroom, Co. Cork | 20m |
| Permission | X 536344<br>Y 578535 | 2019 | 194192 | Conditional | Application Finalised | Construction of a single storey dwellinghouse and a single storey detached garage including all associated site works, drainage works and associated landscaping | Caherbaroul, Macroom, Co. Cork | 20m |
| Permission | X 534652<br>Y 582436 | 2021 | 216635 | Conditional | Application Finalised | New single storey and two storey extension to side of existing two storey dwelling, new sewerage system upgrade to existing system and all associated works. | Horsemount, Knocknagappul, Ballinagree, Macroom, Co. Cork | 200m |
| Permission | X 535551<br>Y 583216 | 2021 | 214476 | Conditional | Application Finalised | The continued use of an existing, temporary lattice type meteorological mast, 80m in height. The structure is fixed to ground mounted anchors by guy wires and includes associated instruments to measure local meteorological conditions. Permission is sought for a period of 5 years. | Ballynagree West, Macroom, Co. Cork | 250m |

**Wind Farm Main Site**

**Application within 2km over last 5 years.**

| Development Name/Type | Coordinates (ITM) | Year | Planning Reference Number | Decision | Status | Description | Address | Distance from Project |
|---|---|---|---|---|---|---|---|---|
| Permission | X 537731<br>Y 582531 | 2018 | 185683 | Granted | Application Finalised | Construct a dwellinghouse, detached domestic garage, on site sewerage treatment and all associated site works | Carrigagulla, Ballinagree, Co. Cork | 0.15km |
| Permission | X 537732<br>Y 582531 | 2021 | 214315 | Granted | Application Finalised | To construct a dwelling house (change of plan from that permitted under Planning Reg No.: 18/5683), detached domestic garage, on site sewerage treatment and all associated site works | Carrigagulla, Ballinagree, Co. Cork | 0.2km |
| Permission | X 534992<br>Y 581829 | 2016 | 166235 | Granted | Application Finalised | Construction of dwellinghouse, domestic garage, new entrance and all associated site works. | Knocknagcapall, Ballinagree, Macroom, Co.Cork | 0.3km |
| Permission | X 536169<br>Y 581502 | 2017 | 175008 | Granted | Application Finalised | Construction of dwellinghouse, domestic garage and new entrance together with all other ancillary site works | Ballynagree West, Macroom, Co. Cork | 0.5km |
| Permission | X 537745<br>Y 581447 | 2020 | 204627 | Granted | Application Finalised | Permission for retention of bungalow as constructed, change of plan and elevations from that permitted on site under Planning Reg. No. 1455/64; (2) permission for demolition of existing ancillary domestic structures on site (51sqm) and demolition of existing chimney stack serving dwelling; (3) permission for the construction of new extension to side of existing dwelling; (4) permission for the construction of new front entrance porch; (5) permission for the construction of new extension, served by link, to rear of existing dwelling to accommodate new domestic garage and utilities spaces; (6) to carry out minor alterations to existing elevations and; (7) all associated site works. | Dooneens, Rylane, Co. Cork | 0.7km |
| Permission | X 537654<br>Y 587792 | 2016 | 166837 | Granted | Application Finalised | Permission for the construction of an extension to the existing 110kv electricity substation and Retention of existing development. The proposed works for which Permission is sought will involve the construction of new palisade fencing, bunded concrete plinth, power filter cabinet, transformer, access track and all associated site works. The development for which Retention is sought constitutes ground levelling, 2 no. storage containers, minor re-location of control building and security fence, access road, drainage and all associated works | Crinnaloo South, Millstreet, Co. Cork | 0.75km |
| Permission | X 537622<br>Y 587819 | 2018 | 184256 | Granted | Application Finalised | Construction of an extension to existing 110kv electricity substation. The proposed works for which planning permission is sought will involve the construction of new palisade fencing, bunded concrete plinths, 4no. battery storage units, transformers, control cabin, access track and all associated site works. | Crinnaloo South, Millstreet, Co. Cork | 0.75km |
| Permission | X 537702<br>Y 587850 | 2018 | 186562 | Granted | Application Finalised | An extension to the permitted solar photovoltaic (PV) array permitted by Cork County Council (planning reference 16/5455). The development will consist of; 1) up to 41,600 m2 | Carragraigue, Inchamay North and Crinnaloo South Co. Cork | 0.75km |

| Development Name/Type | Coordinates (ITM) | Year | Planning Reference Number | Decision | Status | Description | Address | Distance from Project |
|---|---|---|---|---|---|---|---|---|
| | | | | | | of solar panels on ground mounted steel frames, internal underground cables & ducts, up to 5 no. inverter units, boundary security fence, CCTV and landscaping; 2) underground electrical grid connection cabling and ducting connecting the permitted onsite control cabin (planning reference 16/5455) to the national grid at Boggeragh Substation in the townland of Crinnaloo South, Co. Cork and 3) all associated ancillary works. A Natura Impact Statement (NIS) accompanies this application. | | |
| Permission | X 536333 Y 581081 | 2016 | 166924 | n/a | Incomplete Application | Construction of (1) Playground and associated walkway, (2) New vehicular and pedestrian entrance to proposed development, (3) New public footpath and all associated services and site works (from existing footpath at Saint John's Drive to proposed new entrance), (4) Construction of car park on site of proposed development | Ballynagree West, Co. Cork | 0.85km |
| Permission | X 536333 Y 581065 | 2017 | 175641 | Granted | Application Finalised | 1)Construction of playground and associated walkway, 2) New vehicular and pedestrian entrance to proposed development, 3) New public footpath and all associated services and site works (from existing footpath at Saint John's Drive to proposed new entrance) and 4) Construction of a car park on site of proposed development. | Ballynagree West, Macroom, Co. Cork | 0.85km |
| Permission | X 536295 Y 580915 | 2018 | 185664 | Granted | Application Finalised | 1) Retention of dwelling house, garage and entrance as constructed, 2) Permission to rectify site boundaries, 3) Permission to construct 2 no. extensions to existing dwelling. | Ballynagree West, Macroom, Co. Cork | 0.9km |
| Permission | X 536451 Y 581027 | 2019 | 196531 | Granted | Application Finalised | (a) Construct a single storey resource classroom on to the western elevation of the existing school building and (b) associated siteworks. | Ballynagree West, Co. Cork | 1km |
| Permission | X 534550 Y 581257 | 2019 | 196751 | Granted | Application Finalised | The demolition of out building and the single storey annex to the rear (north-west) and side (south-west) of an existing dwelling and for a) the construction of a two storey extension to the rear (north-west) and side (south-west) of the dwelling house b) removal of the existing roof and construction of a new roof at a higher level c) various elevational changes to the existing dwelling d) decommissioning of existing septic tank and installation of a secondary waste water treatment unit and polishing filter and all ancillary and necessary site works to complete the development. | Rahalisk, Ballinagree, Co. Cork | 1km |
| Permission | X 533672 Y 582193 | 2020 | 205744 | Granted | Application Finalised | To construct a new dwelling house. | Maulnahorna, Carriganima, Macroom, Co. Cork | 1km |
| Permission | X 537652 Y 580838 | 2016 | 164804 | Granted | Application Finalised | Permission for domestic garage to serve 2-storey dwelling and all associated site works | Lyroe, Rylane, Co. Cork | 1.2km |
| Permission | X 536144 Y 580729 | 2016 | 166583 | Granted | Application Finalised | The construction of a part 2 storey and part 1 1/2 storey dwellinghouse with a detached garage, construction of a new vehicular entrance, installation of a sewerage treatment plant | Ballynagree West, Macroom, Co. Cork | 1.2km |

| Development Name/Type | Coordinates (ITM) | Year | Planning Reference Number | Decision | Status | Description | Address | Distance from Project |
|---|---|---|---|---|---|---|---|---|
| | | | | | | and soil polishing filter, all necessary landscaping and ancillary site works | | |
| Permission | X 533366<br>Y 582516 | 2021 | 215535 | Granted | Decision Made | To demolish existing sun room on western side of existing dwelling house and construct new extensions to the northern and western sides of existing dwelling house along with all associated site works. | Moulnahorna, Carriganima, Macroom, Co. Cork | 1.2km |
| Permission | X 534402<br>Y 581113 | 2020 | 206924 | Granted | Application Finalised | Permission for new two storey dwelling, sewerage system and all associated works. | Rahalisk, Ballinagree, Co. Cork | 1.2km |
| Extension of Duration | X 537655<br>Y 580836 | 2020 | 204243 | Granted | Unconditional | Construction of a two storey dwelling, site entrance, sewerage treatment system and all associated site works. Extension of Duration to Permission granted under Planning Ref. No 15/05633 | Lyroe, Rylane, Co. Cork | 1.2km |
| Permission | X 536487<br>Y 580442 | 2020 | 206065 | Granted | Application Finalised | Permission for new two storey dwelling, domestic garage, sewerage system and all associated works. | Ballinagree West, Ballinagree, Macroom, Co. Cork | 1.4km |
| Permission | X 536359<br>Y 580264 | 2020 | 204766 | Granted | Application Finalised | Construct cubicle house with underground effluent tanks, feeding passage, calf house, dairy, store, milking parlour and holding yard, walled silage pit and all associated site works | Ballinagree West, Macroom, Co. Cork | 1.5km |
| Permission | X 536348<br>Y 580268 | 2020 | 204766 | Granted | Application Finalised | Construct cubicle house with underground effluent tanks, feeding passage, calf house, dairy, store, milking parlour and holding yard, walled silage pit and all associated site works | Ballinagree West, Macroom, Co. Cork | 1.5km |
| Permission | X 536348<br>Y 580268 | 2019 | 196648 | n/a | Incomplete Application | To construct cubicle house with underground effluent tank, feeding passage, calf house, dairy store, milking parlour and holding yard, walled silage pit and all associated site works. | Ballynagree West, Macroom, Co. Cork | 1.5km |
| Permission | X 536348<br>Y 580268 | 2019 | 196809 | Refused | Decision made | To construct cubicle house with underground effluent tank, feeding passage, calf house, dairy store, milking parlour and holding yard, walled silage pit and all associated site works | Ballynagree West, Macroom, Co. Cork | 1.5km |
| Permission | X 539353<br>Y 583112 | 2020 | 204992 | Granted | Application Finalised | A sunroom extension to the front of the existing dwelling. | Annagannihy, Rylane, Co. Cork | 1.5km |
| Permission | X 532205<br>Y587321 | 2019 | 196765 | Granted | Application Finalised | To construct slatted house and all associated site works | Aubane Upper Tullig, Millstreet, Co. Cork | 1.7km |
| Permission | X 532242<br>Y 587389 | 2021 | 214764 | Granted | Application Finalised | Two storey extension to rear of existing dwelling, façade alterations, demolition of existing shed, construction of new domestic garage, completion of road boundary wall, sewerage upgrade works and all associated works. | Aubane, Tullig, Millstreet, Co. Cork | 1.8km |
| Extension of Duration | X 535413<br>Y 579991 | 2019 | 194044 | Unconditional | Application Finalised | Construction of dwellinghouse, domestic garage and associated site works. | Knocknagcapall, Ballinagree, Macroom, Co. Cork | 2km |
| Permission | X 535391<br>Y 579959 | 2019 | 195313 | Granted | Application Finalised | Construction of dwellinghouse and a domestic outbuilding plus site and ancillary works | Knocknagcapall, Ballinagree, Macroom, Co. Cork | 2km |
| Permission | X 535580<br>Y 588749 | 2018 | 185505 | Granted | Application Finalised | Construct a dwellinghouse | Carrigduff, Rathcoole, Mallow, Co. Cork | 2km |

| Development Name/Type | Coordinates (ITM) | Year | Planning Reference Number | Decision | Status | Description | Address | Distance from Project |
|---|---|---|---|---|---|---|---|---|
| Permission | X 535745 Y 588905 | 2017 | 176552 | Refused | Application Finalised | A storey and a half type dwelling, domestic garage and septic tank. | Carrigduff, Rathcoole, Mallow, Co. Cork | 2km |
| Permission | X 532779 Y 588192 | 2019 | 194664 | Granted | Application Finalised | Removal of existing external timber facade on all elevations of dwelling and replace with masonry block and plaster (b) Installation of two no. doors to replace windows and one no. window (c) Convert the existing attic /storage area into a habitable space with 2 no. bedrooms, 1 no. bathroom, 1 office / storage area and (d) Raising of the existing chimney. | Brookpark, Rathcool, Mallow, Co. Cork | 2km |
| Permission | X 530949 Y 587725 | 2020 | 205254 | Conditional | Decision made | the construction of silage walls on an existing silage slab and all associated site works | Tullig, Millstreet, Cork | 3km |
| Permission | X 530686 Y 587618 | 2020 | 204152 | Granted | Application Finalised | To construct a new dwelling house. | Tullig, Millstreet, Cork | 3km |
| Permission | X 536372 Y 580969 | 2020 | 205301 | Granted | Application Finalised | (A) Extensions and alterations to an existing dwelling house including, a porch to the front, a sunroom to the south side, roof windows to the rear roof and attic storage areas, and (B) to construct a detached domestic garage to the rear of the existing dwelling house and all associated site works. | Ballinagree West, Macroom, Co. Cork | 0.8km |
| Permission | X 534134 Y 582345 | 2021 | 216700 | n/a | Further Information | The following works to existing agricultural barn, 1) convert barn to residential dwelling at ground floor and partial first floor, 2) indoor storage area, 3) outdoor covered area, 4) external façade alterations to suit residential dwelling, 5) new sewerage system, 6) improvement works to existing site entrance and 7) all associated works. | Rahalisk, Ballinagree, Macroom, Co. Cork | 0.4km |
| Extension of Duration | X 534970 Y 581859 | 2021 | 216528 | n/a | Incomplete Application | Construction of dwellinghouse, domestic garage, new entrance and all associated site works. - Extension of Duration to Permission granted under Planning Ref. No.16/6235 | Knocknagappul, Ballinagree, Macroom, Co. Cork | 0.3km |
| Permission | X 533366 Y 582467 | 2021 | 215535 | Granted | Application Finalised | To demolish existing sun room on western side of existing dwelling house and construct new extensions to the northern and western sides of existing dwelling house along with all associated site works. | Moulnahorna, Maulnahorna, Carriganima, Macroom, Co. Cork | 1km |
| Permission | X 534893 Y 588705 | 2016 | 164334 | Granted | Application Finalised | Construction of an animal house incorporating slatted and straw bedded areas, feed passages and associated works | Horsemount Mountain, Kilcorney, Mallow, Co. Cork | 2.1km |
| Permission | X 534646 Y 582431 | 2021 | 216635 | Conditional | Decision made | New single storey and two storey extension to side of existing two storey dwelling, new sewerage system upgrade to existing system and all associated works. | Horsemount, Knocknagappul, Ballinagree, Macroom, Co. Cork | 0.23km |

**Wind Farm Site**

**Large developments within 20km over the past ten years**

| Development Name/Type | Coordinates (ITM) | Year | Planning Reference Number | Decision | Status | Description | Address | Distance from Project |
|---|---|---|---|---|---|---|---|---|
| Permission | X 537718<br>Y 587863 | 2018 | 186562 | Conditional | Finalised | An extension to the permitted solar photovoltaic (PV) array permitted by Cork County Council (planning reference 16/5455). The development will consist of; 1) up to 41,600 m2 of solar panels on ground mounted steel frames, internal underground cables & ducts, up to 5 no. inverter units, boundary security fence, CCTV and landscaping; 2) underground electrical grid connection cabling and ducting connecting the permitted onsite control cabin (planning reference 16/5455) to the national grid at Boggeragh Substation in the townland of Crinnaloo South, Co. Cork and 3) all associated ancillary works. A Natura Impact Statement (NIS) accompanies this application. | Carragraigue, Inchamay North and Crinnaloo South, Near Rathcool, Co. Cork | <1km |
| Permission | X 538192<br>Y 579565 | 2016 | 164329 | Conditional | Finalised | Continuance of use for existing 30m telecommunications structure, carrying associated telecommunications equipment, associated cabinets, including existing access track (as per Planning Ref: 09/6214), and Permission for additional telecommunications equipment and cabinet, all within existing secure compound. The development will continue to form part of existing 3G Broadband Network | Dooneens, Rylane, Co. Cork | 1.1km |
| Permission | X 537672<br>Y 587863 | 2018 | 186562 | Conditional | Application Finalised | An extension to the permitted solar photovoltaic (PV) array permitted by Cork County Council (planning reference 16/5455). The development will consist of; 1) up to 41,600 m2 of solar panels on ground mounted steel frames, internal underground cables & ducts, up to 5 no. inverter units, boundary security fence, CCTV and landscaping; 2) underground electrical grid connection cabling and ducting connecting the permitted onsite control cabin (planning reference 16/5455) to the national grid at Boggeragh Substation in the townland of Crinnaloo South, Co. Cork and 3) all associated ancillary works. A Natura Impact Statement (NIS) accompanies this application. | Carragraigue, Inchamay North, Crinnaloo South near Rathcool, Co. Cork | 1.2km |
| Permission | X 526690<br>Y 587640 | 2016 | 167216 | Conditional | Finalised | Permission for the development associated with the uprate of a section of the existing Clashavoon to Tarbert 220kV overhead line. The proposed development pertains to the length of existing overhead line between mast structure number 63 ( south-east of the Knockanure 220kV substation, Co. Kerry) and mast structure number 233 (north of the existing Ballyvouskill 220kV substation, Co. Cork). The overall length of this section of overhead line is approximately 60.4 km, of which 21.2 km is located in Co. Cork and 39.2 km is located in Co. Kerry. The proposed development in County Cork, between the Cork-Kerry county boundary north-west of mast structure number 173 and mast structure number 233, is located in the | Glencollins Upper,, Lackanastooka, Tooreenglanahee, Meentyflugh, Knock, Cloghboola More,, Co. Cork | 5.3km |

| Development Name/Type | Coordinates (ITM) | Year | Planning Reference Number | Decision | Status | Description | Address | Distance from Project |
|---|---|---|---|---|---|---|---|---|
| | | | | | | townlands of Glencollins Upper, Lackanastooka, Tooreenglanahee, Meentyflugh, Knockeenadallane, Doonasleen North, Doonasleen South, Doonasleen East, Ummeraboy East, Glantane More, Knockduff Upper, Knockduff Lower, Mullaghroe North, Derragh, Knockane, Lislehane, Lissaniska, Ahane Beg, Coolykeerane, Shanaknock, Claraghatlea North, Claragh More, Inchileigh, Mountleader, Geararoe and Cloghboola More. The proposed development in Co. Cork comprises of the renewal and alteration of a total of 61 existing mast structures, including foundation upgrade works and restringing of the existing overhead line with new conductor. The proposed development also includes all associated and ancillary works including, comprising or relating to permanent and temporary construction and excavation, involving construction of temporary guard poles, the construction and reinstatement of temporary access tracks, improvement and reinstatement of new temporary entrances, widening of existing entrances, temporary silt fencing, temporary silt traps, temporary culverts, temporary clear span bridging, and the clearance of vegetation at various locations along the route to facilitate the proposed principle development. The proposed development will be facilitated by the storage of construction materials and associated and ancillary activities, at existing hard-standing yards. These 6 yards (2 in Co. Cork and 4 in Co. Kerry) are located in the vicinity of the overhead line, in the townlands of Lislehane and Liscahane. No works or change of use, are proposed in theses existing yards and as such they do not form part of the proposed development. A Natura Impact Statement (NIS) accompanies this application. | | |
| Permission | X 538174<br>Y 577927 | 2015 | 155424 | Conditional | Application Finalised | Solar PV Panel array consisting of up to 33,000sq.metres of solar panels on ground mounted steel frames, 2 No. electrical control cabins, 5 No. inverter units, underground cable ducts, hardstanding area, boundary security fence, site entrances, access tracks, CCTV and all associated site works. | Knockglass & Kilberrihert, Coachford, Co. Cork | 5km |
| Permission | X 537238<br>Y 591877 | 2016 | 165455 | Conditional | Application Finalised | Permission for the development of a solar photovoltaic panel array consisting of up to 33,000sq.m of solar panels on ground mounted steel frames, 2 no. electricity control cabins, 4 no. inverter units, underground cable and ducts, hardstanding area, boundary security fence, new entrance onto public road, CCTV and all associated site services and works. Planning permission is sought for a period of 10 years. A Natura Impact Assessment (NIS) accompanies this application. | Carragraigue, Rathcool, Co. Cork | 5.5km |
| Permission | X 526185<br>Y 584281 | 2018 | 185686 | Conditional | Finalised | Construction of a battery storage compound including 2 no. battery storage buildings with associated plant and equipment, an ancillary 110kV electricity substation with 2 no. control buildings, associated electrical plant & equipment and fencing, | Caherdowney, Millstreet, Co. Cork | 5.6km |

| Development Name/Type | Coordinates (ITM) | Year | Planning Reference Number | Decision | Status | Description | Address | Distance from Project |
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| | | | | | | underground electricity cabling, surface water drainage, site entrance and access track, security fencing and all ancillary site works. | | |
| Permission | X 526045<br>Y 584081 | 2018 | 186438 | Conditional | Finalised | The proposed development will comprise the construction of one (1) no. ± 100 Mvar STATCOM transformer, one (1) no. auxiliary transformer, three (3) no. reactors, one (1) no. outdoor cooling bank, control and valve building (268m²), underground connection to existing ESB substation. It further includes security fencing, security gate, four (4) no. 25m high lightning masts, permeable surfacing, and an internal access road. There will also be the construction of one (1) no. temporary contractors' compound. The development is an extension to the existing substation and the overall site area (within the planning application boundary) is 0.73ha. Access is provided via a local road (L5226) onto the R582. | Caherdowney, Millstreet | 5.8km |
| Permission | X 526032<br>Y 584075 | 2020 | 205281 | Conditional | Finalised | Proposed modifications to the previously permitted development (planning ref: 18/06438 granted on 7th March 2019).The proposed modifications will comprise the additional construction of one (1) harmonic filter, one (1) HV circuit breaker (including CT and VT), one (1) MV disconnector and earth switch, two (2) cable sealing ends, three (3) additional lightning masts (approximately 25m high) and additional lamppost lightning. It further includes a retaining wall (approximately 2.5m high), asphalt (non-permeable) surfacing, additional permanent access road, additional fencing to match existing 2.6m high palisade, additional permanent access gate and all other ancillary site development works. The development will remain an extension to the existing substation and this extension will have an overall site area (within the planning application boundary) of 0.73ha. Access will continue to be provided via a L5226 and the R582. | Existing ESB Ballyvouskill 220/110 kV substation, Located in the townland of , Caherdowney, Millstreet, Co. Cork | 5.8km |
| Permission | X 525800<br>Y 584186 | 2018 | 184182 | Conditional | Finalised | A battery energy storage facility which will comprise of rechargeable battery units contained within up to 39 No. 40 foot containers on site and the associated development of unit substations, a 110 kV substation, security fencing, security cameras, lightning mast, new site roads and the upgrading of the existing vehicular access. The facility will connect into the adjoining Ballyvouskill ESB substation via underground cable. All associated site development, landscaping and boundary treatment works above and below ground. | Caherdowney, Millstreet, Co. Cork | 5.8km |
| Permission | X 525784<br>Y 584185 | 2018 | 184182 | Conditional | Finalised | A battery energy storage facility which will comprise of rechargeable battery units contained within up to 39 No. 40 foot containers on site and the associated development of unit substations, a 110 kV substation, security fencing, security cameras, lightning mast, new site roads and the upgrading of the existing vehicular access. The facility will connect into the adjoining Ballyvouskill ESB substation via underground cable. | Caherdowney, Millstreet, Co. Cork | 5.9km |

| Development Name/Type | Coordinates (ITM) | Year | Planning Reference Number | Decision | Status | Description | Address | Distance from Project |
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| | | | | | | All associated site development, landscaping and boundary treatment works above and below ground. | | |
| Permission | X 543945<br>Y 591617 | 2011 | 115276 | Conditional | Application Finalised | Windfarm to consist of [a] the provision of a total of 12 no. wind turbines with a maximum ground to top blade tip height of up to 126 metres, [b] upgrading of existing and provision of new internal access roads, [c] provision of a wind anemometry mast (85 metres in height), [d] 2 no. borrow pits, [e] an electricity sub-station with control room (as previously approved under Planning Reg. No. 11/4242), and [f] associated equipment and all ancillary site and facilitating works to existing road junctions. | Esk North, Esk South, Derrygowna, Monanveel, Glanminnane, Millstreet/Mallow | 6km |
| Permission | X 544258<br>Y 591425 | 2014 | 145602 | Conditional | Application Finalised | Permission for wind farm comprising the provision of a total of 14no. Wind turbines with a maximum overall blade tip height pf up to 136.5m, upgrading of existing and provision of new internal access roads, provision of a wind anemometry mast (height up to 90m), 4no. borrow pits, an electricity substation with control room and associated equipment, underground electricity connection cabling, 3no. temporary construction compounds, and all ancillary site works including the upgrading of site access junctions. | Derrygowna, Esk North, Esk South, Garrane, Glandine, Glannaharee East, Glannaharee West, Glanminnane, Knockavaddra, Monanveel, Co. Cork | 6km |
| Permission | X 526153<br>Y 584281 | 2018 | 185686 | Conditional | Application Finalised | Construction of a battery storage compound including 2 no. battery storage buildings with associated plant and equipment, an ancillary 110kV electricity substation with 2 no. control buildings, associated electrical plant & equipment and fencing, underground electricity cabling, surface water drainage, site entrance and access track, security fencing and all ancillary site works. | Caherdowney, Millstreet, Co. Cork | 7km |
| Permission | X 527305<br>Y 590995 | 2017 | 174490 | Conditional | Application Finalised | The upgrading/replacement and extending of the existing waste water treatment plant and installation of a new outfall pipe. The upgrading/replacement includes the extending of the existing Wastewater Treatment Plant (WWTP) from a capacity of 1,600 population equivalents to 2,210 population equivalents. The development includes the construction of a control building, extended access road, improvements to gates and fencing, new preliminary treatment works (including screening, grit removal and storm water storage), new secondary treatment tanks, chemical dosing tanks, sludge handling facilities and tanks, pipework, mechanical and electrical plant, landscaping and associated ancillary works at the site. A new underground treated effluent outfall pipeline to the River Finnow, approximately 1.3km to the North West of the existing plant, laid along Station Road (L1115). The demolition/disposal of the existing settlement tanks, sludge beds and tanks, control building, chemical storage and reinstatement of the area is to be included in the development. The existing oxidation ditch will be retained for future use. A | Millstreet Waste Water Treatment Plant, Station Road (Drominahilla and Coomlogane), Millstreet, Co. Cork | 7km |

| Development Name/Type | Coordinates (ITM) | Year | Planning Reference Number | Decision | Status | Description | Address | Distance from Project |
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| | | | | | | Natura Impact Statement will be submitted as part of this planning application. | | |
| Permission | X 545881<br>Y 588506 | 2013 | 135576 | Conditional | Application Finalised | The upgrading and widening of an existing forestry road (1.67km in length) and its public road entrance and existing track way (362m in length) to provide an alternative means of access for construction and maintenance to the wind farm development that has been previously granted planning permission under Pl. Ref. 10/08067. | Glandine and Glannaharee East, Bweeng, Mallow | 8km |
| Permission | X 543236<br>Y 573437 | 2020 | 206446 | Pending | Appealed | Permission for the development of a small-scale quarry with the extraction of rock using ripping and rock breaker and the on-site crushing and screening with mobile plant, and open storage of crushed rock. The installation and use of a mobile wheel wash and the continued use of the site access road, facility entrance from regional road R618, continued use of the existing weighbridge office, welfare facilities and existing septic tank and percolation area. The extraction of rock will extend to an area of 2.15 hectares. Following extraction, the site will be restored using stripped overburden, an eight-year quarry lifespan is sought. | Former O'Regan Precast Quarry, Carhoo Lower and Coolnagearagh townlands, Coachford, Co. Cork | 9.1km |
| Permission | X 543427<br>Y 573582 | 2020 | 204969 | Conditional | Finalised | Importation of soil and stone for the restoration of a quarry in order to improve the agricultural output of the quarry and return it to an agricultural field. | Carhoo Lower, Coachford, Co. Cork | 9.4km |
| Permission | X 523145<br>Y 585297 | 2013 | 135717 | Conditional | Application Finalised | Ten year planning permission for an extension to existing Gneeves Wind Farm (Planning Refs. 99/0616, 03/6585, 04/1355, 04/0188, 08/5636, 13/4566). The proposed extension will comprise of 3no. turbines (each with a maximum tip height of 91m), a borrow pit, new internal access roads, upgrading of existing internal access roads, underground cables, an extension to the existing substation building with a wastewater holding tank and ancillary work | Gneeves, near Millstreet, Co.Cork | 9.5km |
| Permission | X 542139<br>Y 596621 | 2015 | 156515 | Conditional | Application Finalised | Continuance of use for existing 27m telecommunications structure, with antennas fixed to the top, giving overall height of 29.8m, carrying associated telecommunications equipment, associated cabinets, including existing access track (as per planning ref: 08/10152), and permission for additional telecommunications equipment and cabinet, all within existing secure compound. The development will continue to form part of existing 3G broadband network | Curraghrour East , Banteer, Co. Cork | 9.8km |
| Permission | X 535938<br>Y 570659 | 2013 | 134021 | Conditional | Appealed | (a) Permission for retention of the temporary construction entrance and ancillary works, and permission for replacement of the original 3.5m wide gate with a 4m wide double leaf gate and associated ancillary works, (b) Permission for c. 20m of 1.8m high 358 type mesh fencing and 4m wide double leaf gate at entry to ESB lands, (c) Permission for c.77m of 1.8m high 358 type mesh fencing, (d) Permission for retention of c.66m of temporary fencing 1.8m high (palisade) attached to | ESB Hydro Lands, Coolcour, Macroom, Co. Cork | 9.9km |

| Development Name/Type | Coordinates (ITM) | Year | Planning Reference Number | Decision | Status | Description | Address | Distance from Project |
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| | | | | | | concrete bollard and permission for associated planting scheme, (e) Permission for retention of c.109m of existing bollard arrangement and permission to replace the temporary mesh fencing with 1.8m high 358 type mesh fencing and associated planting scheme, and (f) Permission to erect c.25m of 1.8m high 358 type mesh fencing and permission to replace a section of existing 1.2m high chain-link fence and gate with 1.2m high supreme type mesh fence and gate. | | |
| Permission | X 526349<br>Y 597850 | 2017 | 174308 | Conditional | Finalised | Construction and operation of a Solar PV development consisting of photovoltaic panels on ground mounted frames within a site area of up to 32.2ha to include two single storey electrical substation cabins, 26 single storey electrical inverter/transformer stations, battery units and storage units, CCTV cameras, access tracks, fencing and associated electrical cabling and ancillary site works and infrastructure. | Knocknacarracoosh, Meenskeha West, Cullen, Co. Cork | 11.2km |
| Extension of Duration | X 546191<br>Y 603235 | 2016 | 164186 | Pending | New Application | Redevelopment of Ballygiblin Manor, stables, orangery and Stewards House into a 40 no. bed hotel and spa with associated ancillary dining, 18-hole golf course to include artificial lake, golf clubhouse, golf academy, driving bays, cart storage, 16 no. holiday homes and 101 no. residential units, maintenance facility, installation of waste water treatment plant, foul storage tank, 3 no. pumping stations, water storage tank, 2 no. wells, provision of 573 no. parking spaces, landscaping and all associated site works and services – Extension of Duration of Permission granted under planning ref: 08/4403 | Ballygiblin, Cecilstown, Co. Cork | 12km |
| Permission | X 528741<br>Y 597977 | 2012 | 124940 | Conditional | Application Finalised | Retirement of the existing station and the construction of a replacement station on a site adjacent to the existing station. The new works will include; 3 no. new containerised control and switchgear modules; 2 no. new bunded power transformers with oil interceptor; 2 no. new house transformers; new internal gravel road; new 1.4m high concrete post and rail boundary fence; new 2.6m high palisade compound fence and gates; new splayed entrance and associated site works. | ESB Cloonbannin, 38kV electrical transformer station, Cloonbannin West, Mallow | 13km |
| Permission | X 521265<br>Y 576462 | 2019 | 196016 | Conditional | Application Finalised | (i) upgrade of the existing underground Ballymakeera pumping station and replacement of above ground kiosk; (ii) creation of a new dedicated access to the pumping station site; (iii) decommissioning of an existing septic tank and gravity outfall pipe; and (iv) all ancillary development and associated temporary works including vehicle turning area, and perimeter fencing with access gate on to the public road. | Ballymakeery, Macroom, Co. Cork | 13.5km |
| Permission | X 551892<br>Y 583876 | 2021 | 214715 | Conditional | Application Finalised | An amendment to the development permitted pursuant to Cork County Council Planning Register Reference 09/4399 to increase the operational duration of the existing wind turbine | Pluckanes West, Donoughmore, Co. Cork | 13.7km |

| Development Name/Type | Coordinates (ITM) | Year | Planning Reference Number | Decision | Status | Description | Address | Distance from Project |
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| | | | | | | and all associated ancillary infrastructure from 20 years to 30 years from the date of full commissioning of the wind turbine. | | |
| Extention of Duration | X 537714<br>Y 602868 | 2021 | 214724 | N/A | Finalised | Construction of a new two-storey primary school with a total internal floor area of 3253sqm on a green field site, consisting of 16no. classrooms, a general purpose hall, library, support accommodation, a 3 no. classroom special needs unit/ASD unit and all ancillary works. This includes for the provision of 37no. on-site car parking spaces and 3 no. disabled parking spaces, vehicular access roads, set down area, pedestrian access pathways, ball courts, play areas, bin store, bicycle shelters, oil storage tank, new connection to existing foul drainage system, surface water drainage system with storm water attenuation connected to existing surface water network at entrance to Market Place. Diversion of on-site overhead electricity cables to underground, signage and landscaping, as part of the overall site development works on a site area of circa 2.389 hectares. The development also comprises a portion of a new link road with a priority junction off Mill Road - Extension of duration of permission granted under planning reference: 15/04230 - An Bord Pleanala reference : PL 04.245860 | Mill Road, Kanturk, Co. Cork | 13.8km |
| Permission | X 520688<br>Y 577001 | 2018 | 185158 | Conditional | Application Finalised | To construct 25 No. dwellinghouses (16 previously permitted under planning reference number 05/6890), consisting of 16 No. 4 bedroom semi detached houses, 8 No 3 bedroom semi detached houses, 1 No. 4 bedroom detached, public open space, extension to existing estate driveway and footpaths, extension of public lighting, foul and surface water sewers, attenuation system together with permission for 2 No. temporary construction entrances separate to the existing main entrance. | Cluain Reidh Housing Development, Flats, Ballymakeera, Co. Cork | 13.8km |
| Extension of Duration | X 520931<br>Y 576841 | 2014 | 146162 | Unconditional | Finalised | a) Construction of an eighty-five bed residential nursing home with ancillary facilities and associated site works to service the development. (b) Demolition of exiting petrol station, shed and ancillary structures. (c) New entrance/exit and car parking facilities. | Flats, Ballymakeera, Co. Cork | 14km |
| Permission | X 537572<br>Y 600594 | 2016 | 164601 | Conditional | Application Finalised | A 5 MW solar farm comprising approximately 22,200 photovoltaic panels on ground mounted frames within a site area of 12.23 hectares, 2 no. single storey inverter/transformer stations, 1 no. single storey delivery station, security fencing, CCTV and all associated ancillary development works | Dromalour, Coolclogh, Kanturk, Co. Cork | 14km |
| Permission | X 526532<br>Y 589817 | 2016 | 167216 | Conditional | Application Finalised | Permission for the development associated with the uprate of a section of the existing Clashavoon to Tarbert 220kV overhead line. The proposed development pertains to the length of existing overhead line between mast structure | Glencollins Upper,, Lackanastooka, Tooreenglanahee, Meentyflugh, | 15km |

| Development Name/Type | Coordinates (ITM) | Year | Planning Reference Number | Decision | Status | Description | Address | Distance from Project |
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| | | | | | | number 63 ( south-east of the Knockanure 220kV substation, Co. Kerry) and mast structure number 233 (north of the existing Ballyvouskill 220kV substation, Co. Cork). The overall length of this section of overhead line is approximately 60.4 km, of which 21.2 km is located in Co. Cork and 39.2 km is located in Co. Kerry. The proposed development in County Cork, between the Cork-Kerry county boundary north-west of mast structure number 173 and mast structure number 233, is located in the townlands of Glencollins Upper, Lackanastooka, Tooreenglanahee, Meentyflugh, Knockeenadallane, Doonasleen North, Doonasleen South, Doonasleen East, Ummeraboy East, Glantane More, Knockduff Upper, Knockduff Lower, Mullaghroe North, Derragh, Knockane, Lislehane, Lissaniska, Ahane Beg, Coolykeerane, Shanaknock, Claraghatlea North, Claragh More, Inchileigh, Mountleader, Geararoe and Cloghboola More. The proposed development in Co. Cork comprises of the renewal and alteration of a total of 61 existing mast structures, including foundation upgrade works and restringing of the existing overhead line with new conductor. The proposed development also includes all associated and ancillary works including, comprising or relating to permanent and temporary construction and excavation, involving construction of temporary guard poles, the construction and reinstatement of temporary access tracks, improvement and reinstatement of new temporary entrances, widening of existing entrances, temporary silt fencing, temporary silt traps, temporary culverts, temporary clear span bridging, and the clearance of vegetation at various locations along the route to facilitate the proposed principle development. The proposed development will be facilitated by the storage of construction materials and associated and ancillary activities, at existing hard-standing yards. These 6 yards (2 in Co. Cork and 4 in Co. Kerry) are located in the vicinity of the overhead line, in the townlands of Lislehane and Liscahane. No works or change of use, are proposed in theses existing yards and as such they do not form part of the proposed development. A Natura Impact Statement (NIS) accompanies this application. | Knock, Cloghboola More, Co. Cork | |
| Permission | X 518233<br>Y 581524 | 2019 | 194972 | Conditional | Application Finalised | Renewable energy development consisting of the provision of a 7 turbine wind farm, solar photovoltaic array, electricity substation, battery storage compound and all associated works consisting of the following, i. Up to 7 wind turbines with an overall blade tip height of up to 150 metres and all associated foundations and hard-standing areas; ii. Up to 70,000sq.m solar photovoltaic array, with up to 17 associated inverters and 2 no. control cabins; iii. 1 no. borrow pit, iv. 1 No. permanent meteorological mast with a maximum height of up to 100 meters; v. Upgrade of existing and provision of | Slievereagh and Coomnaclohy, Ballyvourney, Co. Cork | 15km |

| Development Name/Type | Coordinates (ITM) | Year | Planning Reference Number | Decision | Status | Description | Address | Distance from Project |
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| | | | | | | new site access roads, vi. 1 no. 38kV electrical substation with 1 no. control building with welfare facilities, associated electrical plant and equipment security fencing and waste water holding tank; vii battery storage compound accommodating 4 no. battery storage containers, security fencing, and associated electrical plant and equipment, viii. Forestry felling ix. 1 no. temporary construction compound, x. Site drainage xi. All associated internal underground cabling; xii. 38kV underground grid connection cabling; xiii. All associated site development and ancillary works. The proposed development will have an operational life of 30 years from the date of commissioning of the development and the application seeks a ten year planning permission. An Environmental Impact Assessment Report (EIAR) and a Natura Impact Statement (NIS) have been prepared in respect of the proposed development. | | |
| Permission | X 539546<br>Y 604845 | 2017 | 174334 | Conditional | Finalised | Permission for (1) Retention of: (i) Alterations to viewing area to front of clubhouse, (ii) Gymnasium as constructed, (iii) Alterations to site levels of training pitch, (iv) 6 no. floodlights on steel columns to training pitch and (v) All-weather pitch as constructed, (2) Retention of (i) 3 no. floodlights on steel columns to main pitch to North of site and removal of same and (3) Construction of 6 no. floodlights attached to 18m high steel columns to main pitch and all ancillary site works. | Knocknacolan, Kanturk, Co. Cork | 15.8km |
| Permission | X 540489<br>Y 565560 | 2019 | 196847 | Conditional | Appealed | A 5 MW solar farm comprising approximately 22,200 photovoltaic panels on ground mounted frames within a site area of 8.12 hectares, 2 no. single storey inverter / transformer stations, 1 no. single storey delivery station, security fencing, CCTV, and all associated ancillary development works. | Cloghmacow, Crookstown, Co. Cork | 15.8km |
| Permission | X 544470<br>Y 566623 | 2020 | 205074 | Conditional | Appealed | The development will consist of quarrying activities within the red line application area of 40.17ha of an existing permitted quarry (06/13499 and PL04.226347). Development is sought for a period of 20 years. The proposed development will comprise the extension of the existing quarry excavation area vertically by an additional 2 X 18m high benches from the current floor level of ca.4mAOD to -32mAOD and a deepening of the quarry sump from the current level of ca -22mAOD to -36mAOD within the permitted extraction footprint area of 20.2ha. The proposed development will involve the stripping of overburden and its storage for use in environmental bunds and site restoration; the extraction of rock by means of blasting, the crushing and processing of rock. The proposed development will utilise the existing quarry infrastructure and other ancillaries to complete the works. An Environmental Impact Assessment Report and Natura Impact Statement will be submitted to the planning authority with this application. | Castlemore Quarry, Crookstown, Co. Cork | 16km |

| Development Name/Type | Coordinates (ITM) | Year | Planning Reference Number | Decision | Status | Description | Address | Distance from Project |
|---|---|---|---|---|---|---|---|---|
| Permission | X 537530<br>Y 603051 | 2021 | 214525 | | Further Information | 1) Demolition of an existing dwelling. 2) Construction of 4 No. two storey semi detached dwellings. 3) Carrying out of all associated site works. | Mill Road, Kanturk, Co. Cork, (Corner of Mill Road and Percival Street) | 16.1km |
| Permission | X 534433<br>Y 563844 | 2014 | 146760 | Conditional | Application Finalised | The construction of six wind turbines, with a maximum tip height of up to 131m and associated turbine foundations and hardstanding areas, 1 no. permanent meteorological mast up to 90m in height, upgrade of existing and provision of new site tracks and associated drainage, new access junction and improvements to public road to facilitate turbine delivery, 1 no. borrow pit, underground electrical and communications cables, permanent signage and other associated ancillary infrastructure. This application is intended to replace the development already granted permission under PL04.219620 (05/5907) and subsequently extended under 11/6605. This application is seeking a 10-year planning permission. An Environmental Impact Statement and AA Screening Report have been prepared in respect of the planning application. | Lackareagh and Garranereagh, Lissarda and Barnadivane (Kneeves) Teerelton, Co. Cork | 16.5km |
| Permission | X 520819<br>Y 570175 | 2016 | 156966 | Conditional | Application Finalised | The proposed wind farm will comprise the provision of a total of 11 no. wind turbines with a maximum ground to blade tip height of up to 150m, upgrading of existing and provision of new internal access roads, provision of a wind anemometry mast (height up to 100 metres), 2 no. borrow pits, underground electrical cabling, underground grid connection electrical cabling including all associated infrastructure, junction accommodation works for the proposed turbine delivery route and provision of a temporary roadway to facilitate turbine component deliveries, 1 no. electricity sub-station with control building and associated equipment, 1 no. construction compound, upgrading of the existing site access junctions, permanent signage, and all ancillary site works. The proposed development comprises the redesign of a wind farm at this location previously considered by Cork County Council and An Bord Pleanála under pl. ref: 11/5245, and PL 04.240801 respectively. | Cloontycarthy, Cleanrath North, Cleanrath South, D, Rathgaskig, Derragh, Augeris, Gorteenakilla, Carri, Co. Cork | 16.5km |
| Permission | X 535726<br>Y 605774 | 2021 | 206830 | Conditional | Finalised | Revisions to a previously permitted horse-riding track and associated development under Reg. Ref. 17/4281 at an existing stud farm. The revisions consist of the occasional use of the site for nature / conservation visits by invited members of the public; addition of viewing points, safety fencing, kerbs and gates along the riding track; improved sightlines to the existing site access; provision of parking for 6 No. visitor cars and area for temporary portable toilet facilities for visiting days. All on site of approx. 3.9 hectares. | Meelaherragh, Kanturk, Co. Cork | 16.6km |
| Permission | X 539361<br>Y 565919 | 2015 | 155590 | Conditional | Application Finalised | Demolition of existing two storey/single storey building consisting of ground floor retail shop and overhead apartment, decommission and removal of existing petrol and diesel underground storage tanks and pump, demolition of existing farm buildings and removal of silage pit and slurry | Cloghmacow & Ballymichael, Kilmurry, Co. Cork | 17km |

| Development Name/Type | Coordinates (ITM) | Year | Planning Reference Number | Decision | Status | Description | Address | Distance from Project |
|---|---|---|---|---|---|---|---|---|
| | | | | | | tank and construction of 2 no. vehicular site entrances, new bin storage area and residential development of 23 no. detached dwellinghouses, 6 no. terraced dwellinghouses, 5 no. residential serviced sites and 23 no. domestic garages, new two storey building consisting of 1 no. ground floor retail unit and 3 no. first floor units for commercial/office/medical use and all associated site works, construction of (on a separate site to serve residential developments) a control kiosk, underground treatment unit and percolation area, new boundary fence and vehicular site entrance to serve same and all associated site works.. – Extension of duration of permission granted under planning reg no. 09/6122. An Bord Pleanála Reference: PL 04.237116 | | |
| Permission | X 541634<br>Y 564446 | 2017 | 164783 | Conditional | Finalised | A 5 MW solar farm comprising approximately 22,200 photovoltaic panels on ground mounted frames within a site area of 8.5 hectares, 2 no. single storey inverter/transformer stations, 1 no. single storey delivery station, security fencing, CCTV and all associated ancillary development works | Currabeha, Crookstown, Co. Cork | 17.1km |
| Permission | X 547674<br>Y 603316 | 2019 | 195802 | Conditional | Appealed | An extension to the existing limestone quarry and all associated site development and landscaping works in the townlands of Scart, Ballyclough, and Kilgilky South. The proposed extension is 5ha. to the east of the existing quarry and will be accessed via a new access road, to be constructed, to the west of the existing quarry, leading directly onto the L1201-57. The applicant is seeking a 15 year planning permission. The proposed development will include; (1) a change of extraction method to blasting; (2) crushing and screening of aggregates; (3) construction of the new access road and upon completion of this new access road, cessation of use of existing access onto the L5302-12 for quarrying activities; (4) installation of a prefabricated administration office and portable toilet; (5) parking area; (6) wheel wash; (7) weighbridge; (8) covered fuel storage area; (9) entrance signs; (10) lighting; (11) CCTV cameras; (12) a rainwater harvesting tank and (13) new overhead and underground power supply. An Environmental Impact Assessment Report (EIAR) will be submitted to the Planning Authority with the Planning Application. A Natura Impact Statement (EIS) will be submitted to the Planning Authority with the Planning Application | Scart, Ballyclough and Kilgilky South, Cecilstown, Mallow, Co. Cork | 17.2km |
| Permission | X 529994<br>Y 563986 | 2017 | 17185 | Conditional | Finalised | Permission for the installation of a readymix concrete plant and associated siteworks | Carrigboy, Kilmichael, Macroom, Co. Cork | 17.5km |
| Extension of Duration | X 551614<br>Y 600266 | 2021 | 214498 | Conditional | Finalised | A 5 MW solar farm comprising approximately 22,200 photovoltaic panels on ground mounted frames within a site area of 15.38 hectares, 2 no. single storey inverter/transformer stations, 1 no. single storey delivery station, security fencing, CCTV and all associated ancillary | Gortnagross, Mallow, Co. Cork | 17.6km |

| Development Name/Type | Coordinates (ITM) | Year | Planning Reference Number | Decision | Status | Description | Address | Distance from Project |
|---|---|---|---|---|---|---|---|---|
| | | | | | | development works. - Extension of duration of permission granted under planning reference: 15/7003 | | |
| Permission | X 554822<br>Y 597043 | 2016 | 167121 | Conditional | Finalised | The development of 14 no. serviced sites for future employment uses comprising 4 no. enterprise sites, 4 no. general industry sites, 6 no. sites for warehousing/distribution and all associated ancillary development works including vehicular entrance from the R638 access road network, separate pedestrian entrance from R620, services compound, foul and storm water drainage, water supply infrastructure (including fire fighting tank and potable water treatment station), 2 no. pump houses, ESB substation, landscaping and amenity areas. | Ballydahin and Gooldshill, Mallow, Co. Cork | 17.8km |
| Permission | X 532494<br>Y 607038 | 2016 | 164597 | Conditional | Application Finalised | Upgrade to the existing waste water treatment plant (WWTP) with proposed plant including balance tank, anoxic, anaerobic and aeration tanks, proposed clarifier tank, Dissolved Air Flotation (DAF) plant, underground effluent pumping station, culverts, control room, filters and concrete plinths. The proposed development will include the demolition of the existing 11 meter bio-tower at the Newmarket Co-Operative Creameries Ltd facility in Newmarket town, Co Cork, within the townlands of Scarteen Lower, Garrannawarrig Upper, Park, Garrannawarrig Lower and Liscongill. Installation of an underground pumped pipeline to convey treated water from the facility to a discharge point on the River Dalua, 4 kilometers to the south east of the facility, utilizing the R576 road corridor, including all necessary pipeline connection, drainage and vent infrastructures. Intensification of use of the existing facility through an increase in the duration of the weekly and annual milk processing period at the Newmarket creamery resulting in an increase in milk processing up to a maximum of 80 million gallons per annum. These changes will be subject to an amendment by EPA, of the existing site Industrial Emissions Directive Licence. An Environmental Impact Statement and Natura Impact Statement accompany this planning application. The proposed development includes work to Allen's Bridge, a recorded monument under the National Monuments Act and is located within the zone of potential for the historic town of Newmarket which has a Recorded Monument designation. | Scarteen Lower, Newmarket, Co. Cork | 18km |
| Permission | X 552544<br>Y 569910 | 2018 | 185155 | Conditional | Finalised | Development consists of restoration of part (c. 6.7 ha) of existing quarry (QR19 06/11798 & PL04.225332) by importation of up to 300,000 tonnes per annum of inert soil and stones and river dredging spoil (EWC 17-05-04 and 17-05-06).The proposed soil recovery facility will utilise the permitted quarry infrastructure including internal roads, site office, welfare facilities and other ancillaries to complete the works. Access to the site will be from the permitted main entrance on the N22 National Primary Road. A wheel wash | Garryhesta Pit, Knockanemore, Ovens, Co. Cork | 18.1km |

| Development Name/Type | Coordinates (ITM) | Year | Planning Reference Number | Decision | Status | Description | Address | Distance from Project |
|---|---|---|---|---|---|---|---|---|
| | | | | | | and weighbridge will be provided as part of the proposed development and the existing workshop will be utilised as a quarantine area. A hard-stand with drainage to oil interceptor will also be provided as a designated refuelling area. The total application area including the site infrastructure covers 7.9 ha of lands. The development will be subject to the requirements of the waste management licence. An Environmental Impact Assessment Report (EIAR) will be submitted to the Planning Authority with the application. | | |
| Permission | X 532924<br>Y 563645 | 2016 | 16256 | Conditional | Appealed | Ten year permission to construct an underground electricity cable. The proposed underground electricity cable will be 38kV, will run predominantly within the public road corridor and is intended to connect the proposed Shehy More Wind Farm (Pl. Ref. 13/551, An Bord Pleanála PL04. 243486) to the National Grid via either the permitted substation at Garranareagh (Pl. Ref. 11/6605, An Bord Pleanála PL04.219620) or the currently proposed substation at Barnadivane (Kneeves) (Pl. Ref. 14/557, An Bord Pleanála PL04.244439). At time of lodging this application the proposed Shehy More Wind Farm and proposed substation at Barnadivane (Kneeves) remain under appeal with An Bord Pleanála. | Cloghboola, Cornery,Garryantornora, Tooreenalour,, Gortnacarriga, Gortaknockane, Cooragreenane, Coolr, Carrignacurra, Dromnagapple, Teeranassig, Clonmoyl, Lisnacuddy, Reanacaheragh, Barnadivane, Barnadivan | 18.6km |
| Permission | X 556344<br>Y 595308 | 2018 | 185230 | Conditional | Finalised | Retention of existing 20 metre high telecommunications support structure carrying telecommunications equipment, together with existing equipment container and associated equipment within a fenced compound as previously granted under local authority reference 12/06523. The development will continue to form part of Meteor Mobile Communications Ltd existing and future telecommunications and broadband network. | Coillte Lands, Carrigduff, Mallow, Co. Cork | 18.7km |
| Permission | X 534025<br>Y 562996 | 2011 | 116605 | Unconditional | Application Finalised | Completion of construction of 18 wind turbines, 18 transformers, a 110 KV substation, 110 KV switch station, 70 metres wind monitoring mast, construction and upgrading of site entrances, site tracks and associated works as permitted under ABP ref. no. PL 04.219620 (Pl. reg. no. 05/5907) | Barnadivane, Terelton, Lissarda | 19km |
| Permission | X 553945<br>Y 573107 | 2015 | 156625 | Conditional | Application Finalised | A 5 MW solar farm comprising approximately 22,200 photovoltaic panels on ground mounted frames within a site area of 10.5 hectares, 2 no. single storey inverter/transformer stations, 1 no. single storey delivery station, security fencing, CCTV, and all associated ancillary development works. | Curraleigh, Inniscarra, Co. Cork | 19km |
| Permission | X 557222<br>Y 574543 | 2019 | 195413 | Conditional | Application Finalised | Construction of 74 no. residential units comprising 5 no. detached 5 bed dwellings, 16 no. detached 4 bed dwellings, 50 no. semi-detached 3 bed dwellings of varying designs and 3 no. terraced 3 bed housing dwelling with all associated site development works including the culverting of an existing stream, foul and storm drainage with attenuation and flood mitigation, landscaping and amenity areas. The proposed development incorporates 1 no. new access from the R579. | Dromin, Cloghroe, Tower, Co. Cork | 20km |

| Development Name/Type | Coordinates (ITM) | Year | Planning Reference Number | Decision | Status | Description | Address | Distance from Project |
|---|---|---|---|---|---|---|---|---|
| Permission | X 551136<br>Y 575818 | 2018 | 187280 | Conditional | Finalised | The construction and operation of solar PV arrays mounted on metal frames on a 21.3ha site, inclusive of an electrical substation compound, up to 10 inverter units, a temporary construction area and ancillary facilities (inclusive of gross floor space of proposed works up to 248sqm). The planning application is accompanied by an environmental report and stage 1 screening for appropriate assessment. | Berrings, Berrings, Co. Cork | 20km |
| Permission | X 548001<br>Y 577192 | 2021 | 216514 | Further Information | | A twenty-year permission for the importation and recycling of up to 80,000 tonnes of construction and demolition (C&D) material per annum, including the construction of a new shed to manage/recycle the C&D material; and permission for the importation of up to 200,000 tonnes per annum of imported inert material (consisting of mainly soil/subsoil and stone) and the restoration/infilling of an existing quarry to provide agricultural/biodiversity uses, and all associated ancillary development works including tree planting and the provision of 4 no. bird/wildlife observation hides. The proposed development will utilise the existing quarry infrastructure including internal roads, site office, machinery shed, weighbridge, staff canteen and welfare facilities. An Environmental Impact Assessment Report (EIAR) will be submitted to the planning authority with the application. The application relates to development which comprises an activity requiring a waste licence (which has been provided by the Environmental Protection Agency under Licence Register No. W0255-02). | Tullig More and, Knockane (townlands), Dripsey, Co. Cork | 12km |

FEHILY TIMONEY

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# Appendix 1.3

## Consideration of Afforestation

# Consideration of Afforestation

Statutory Overview

The United Nations Framework Convention on Climate Change, the Kyoto Protocol, the Paris Agreement and the recent Glasgow Climate Pact have as their ultimate objective the stabilisation of greenhouse gas concentrations in the atmosphere at a level that will prevent dangerous human interference with the climate system, in a time frame which allows ecosystems to adapt naturally and enables sustainable development.

The Forest Service of the Department of Agriculture, Food & the Marine is Ireland's national forest authority. It is responsible for national forest policy, the promotion of private forestry, the administration of the forest consent system and forestry support schemes, forest health and protection, the control of felling, and the promotion of research in forestry and forest products.

The strategic goal of Ireland's forest policy 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 forest management."[1] Benefits accruing from this policy are an increase in the sustainable production of forest biomass for use in domestic markets and for renewable energy production, and an increase in levels of carbon sequestration contributing towards climate change mitigation.

The level of forest cover in Ireland is at 11% which is well below the European average of 38%. National forest policy has a goal of increasing Ireland's forest cover to 18% of total land area. Further policies underpinning this goal are a national afforestation programme of at least 8,000 hectares per annum and a requirement to replant areas following final harvesting of tree crops ("clearfelling")[2]. Where areas are being permanently clearfelled arising from a change in land use (for example, during wind farm construction), forest policy dictates that these must be replaced by afforestation of an alternative site on a hectare-per-hectare basis anywhere in the State (see Section 5.3 of the Forest Service Felling and Reforestation Policy[3] as shown in Appendix 1 - note only Infrastructure or Construction felling proposed for this project).

Areas of forestry proposed to be permanently clearfelled for this wind farm are located in upland, marginal land locations. Some of these areas are of low forest productivity due to the nature of the environment and will be replaced by alternative afforestation which will be of higher forest productivity, corresponding to the latest afforestation guidelines, thus providing increased carbon sequestration.

The clearfelling of trees in the State requires a felling licence. The legislative provisions governing such licences are set out in the Forestry Act 2014 (as amended) and the Forestry Regulations 2017 (as amended).

The associated afforestation of alternative lands equivalent in area to lands being permanently clearfelled (in this case, for wind farm construction) can occur anywhere in the State and is also subject to licencing by the Forest Service ('afforestation licencing').

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1 https://www.agriculture.gov.ie/media/migration/forestry/forestpolicyreviewforestsproductsandpeople/00487%20Forestry%20Review%20-%20web%2022.7.14.pdf

2 https://www.irishstatutebook.ie/eli/2014/act/31/section/17/enacted/en/html#sec17

3 https://assets.gov.ie/96814/4830fc08-0227-4504-83fa-2fd90a7942f2.pdf

Section 11(d) of the Forestry Act requires the Minister, in the performance of his functions, to determine whether screening for EIA or AA is required and whether EIA or AA are required and, if so, to ensure that they are carried out. This obligation applies to both forestry felling and afforestation licencing.

As the Board is aware section 34(13) and section 37H(6) of the Planning and Development Act 2000 (as amended) make clear that a person is not entitled to carry out a development merely because they have obtained planning permission, i.e. the planning permission does not obviate the need to have all other statutory and legal consents required to carry out the proposed development.

Afforestation Licence

The requirements for afforestation licencing are set out in the Forestry Regulations 2017 - this includes consideration of EIA and AA as set out in parts 7 and 8 respectively. Further detail is set out in the Environmental Requirements for Afforestation (DAFM, 2016)[4], copy included in Appendix 2. This ensures that afforestation takes place in a way that complies with environmental legislation and enhances the contribution new woodlands and forests can make to the environment and to the provision of ecosystem services, such as water protection and landscape enhancement.

The typical environmental effects of afforestation include potential effects on biodiversity, soils and geology, hydrology and hydrogeology, cultural heritage, landscape and visual, and air and climate.

In regard to biodiversity there are potential effects on existing habitats and species present at and in the vicinity of the site. In regard to soils and geology there are potential effects on the existing soil environment resulting from ground preparation, the construction of drains and tree planting. In relation to hydrology and hydrogeology there are potential effects on existing drainage patterns and water quality during site preparation. In relation to cultural heritage there are potential effects on the known and unknown cultural heritage features in the environment. In relation to landscape and visual there are potential effects on visual amenity and the landscape character of the area. In relation to air and climate there are potential effects on atmospheric carbon balances. There are also potential effects on the existing land use.

As part of the comprehensive environmental review and documentation to support any licence application, any potential negative effects arising are fully considered and avoided where possible or reduced where appropriate to an acceptable standard through mitigation measures. With careful management, and mitigation measures such as careful site selection, set-back from streams, careful drainage design and management, etc. afforestation can be carried out at appropriate locations without significant effects on the environment or adverse effects on the integrity of European sites. Before a license is granted the Minister as competent authority will carry out an EIA, if required, for the purposes of the EIA Directive and an appropriate assessment, if required, for the purposes of the Habitats Directive.

The Environmental Requirements for Afforestation sets out the typical sequence of tasks to be undertaken in order to proceed with afforestation activities (pre-application design, Forest Service licencing, site works and on-going management). It identifies key environmental issues namely water, biodiversity, archaeology, and landscape and sets objectives for their protection during design as follows:

[4] https://www.gov.ie/en/publication/642e6-forestry/#environmental-requirements

| | |
|---|---|
| **Water Objective:** | To protect water and aquatic habitats and species, during afforestation and throughout the remainder of the forest rotation. |
| **Biodiversity Objectives:** | To ensure that afforestation does not adversely impact designated conservation areas, protected habitats, or protected species of fauna or flora and their habitat.<br><br>To enhance the biodiversity value of the new forest throughout its rotation. |
| **Archaeology and built heritage objective:** | To seek to ensure that proposed afforestation development projects do not adversely impact directly or indirectly on known or suspected archaeological sites and monuments or on other important built heritage structures or features. This includes protecting their amenities and where relevant, their wider landscape setting, in particular, their relationship with other roughly contemporary or determinably linked sites, monuments, structures or features.<br>Where afforestation is approved near known or suspected archaeological sites and monuments or other important built heritage structures or features, to seek to ensure that: (i) appropriate exclusion zones, fencing, access paths and other relevant measures are incorporated into the project design; (ii) there is an appropriate response should any previously unrecorded archaeological site, monument, object, structure or feature be discovered during site work; and (iii) any approved design is sympathetic to and provides an appropriate visual setting for such sites, monuments, structures or features. |
| **Landscape Objective:** | To ensure that the proposed forest is designed so that it is visually acceptable and in keeping with landscape and amenity sensitivities. |

Design considerations and parameters are also set out in the document and include for example:

- Examination of the proximity and connectivity of the lands to Designated Conservation Areas or Priority 8 Freshwater Pearl Mussel Catchment areas
- Examination for the presence of Protected Habitats or Protected Species of fauna or flora and their habitat
- Retention of Protected Areas as well as other notable biodiversity features such as existing hedgerows, existing broadleaf scrub/woodland, veteran trees or other ecologically important features such as water flushes, etc.
- Provision of water setbacks, appropriate site drainage design and acceptable ground cultivation techniques to protect aquatic zones both during afforestation and throughout the remainder of the forest rotation
- Provision of other environmental setbacks (unplanted/undisturbed open spaces) to buffer retained habitats, archaeological features, public roads or ROWs, cultural features or utilised buildings
- Identification and protection of any existing (or later discovered) archaeological or cultural features, including setbacks, provision for future access to/protection of the site by fencing
- Sensitive planting design so that the proposed forest is visually acceptable and in keeping with the local landscape and local amenities

It should be noted that the granting of all afforestation licences is subject to conditions, including environmental conditions, that must be adhered to.

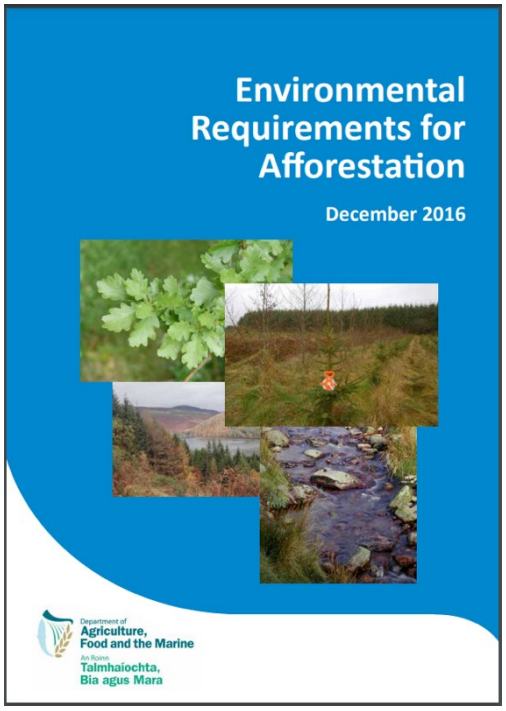


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*Figure 1: Forest Standards Manual Nov. 2015; Environmental Requirements for Afforestation Dec 2016.*

Consideration of Afforestation in the Context of Planning Submissions

The developer is seeking a ten-year planning permission which incorporates time to secure a grid connection agreement, a route to market (RESS or equivalent Power Purchase Agreement), select the preferred equipment suppliers and put the necessary capital funding in place to allow construction and delivery to commence. This application for planning permission considers the environmental impacts of the felling activities required to deliver the project infrastructure and operate the proposed wind farm.

While the environmental impacts of the felling activities are considered at this application stage it is noted the felling of trees at the site for the purposes of the wind farm is subject to and can only occur following the grant of a felling licence by the Forest Service. Planning permission for the project may not be granted or, if granted, may have amendments introduced by condition(s). Therefore, the extent of felling required to be licensed for the purpose of giving effect to the windfarm project can only be determined once planning permission for the windfarm project has been granted. Furthermore, it will be a condition of the felling licence that an equivalent area of land required to be felled shall be replanted as per Forest Service Felling and Reforestation Policy. Thus, the extent of the lands required for afforestation can also only be known once planning permission has been granted for the windfarm project. In these circumstances, the application for the licence can, in practical terms, only be made once planning permission has been granted.

It is, in any event, environmentally prudent to progress the felling and afforestation licences closest to the time when the proposed felling activities are required, rather than long in advance during the wind farm planning submission stage, when the project programme remains uncertain and the exact areas cannot be fully confirmed.

If a licence was obtained prior to seeking and/or obtaining planning permission, it is highly likely that any licencing approvals sought from the Forest Service would have expired before it could be taken up due to the time required for the planning processes and post-planning delivery preparations. The Forest Service Afforestation Licences expire after 3 years from when they are consented.

Critically given the dynamic nature of the receiving environment, the identification and licensing of alternative afforestation lands at a later point in time (post planning consent) has the added benefit of ensuring that the licensing process fully reflects current legislative requirements, and, more importantly, the most up-to-date environmental information and that the cumulative / in-combination assessment considers the wider environmental impacts at that point in time

As mentioned above, key environmental issues relating to afforestation include water, soils, biodiversity, archaeology, landscape and climate. Each is subject to regular updates in terms of best practice, guidelines, standards and national policies. For example, the EPA regularly update the water quality status of rivers across the country, and planning authorities review their landscape strategies in line with their review of County Development Plans every six years. Delaying the identification of alternative afforestation lands until such time as they are required enables identification of optimum lands available (from an environmental) perspective for afforestation at that time.

In light of the foregoing and for the purposes of this project, the developer commits that the location of any replanting (alternative afforestation) associated with the project will be greater than 10km from the wind farm site and also outside any potential hydrological pathways of connectivity i.e. outside the catchment within which the proposed project is located. On this basis, it is reasonable to conclude that there will be no more than imperceptible indirect or in-combination effects associated with the replanting.

In addition, the developer commits to not commencing the project until both a felling and afforestation licence(s) is in place and therefore (as discussed above) this ensures the afforested lands are identified, assessed and licenced appropriately by the relevant consenting authority.

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https://assets.gov.ie/109253/e9ad373a-4767-4596-bc90-2b166f8e6f06.pdf

# Appendix 1

Section 5.3 of the Felling and Reforestation Policy (DAFM, 2017)

## 5.3 Supporting renewable energy and energy security

### *5.3.1 Overview*

The development of renewables is at the heart of the Government's energy policy, as laid out in the document *Strategy for Renewable Energy: 2012-2020* (Department of Communications, Energy & Natural Resources, 2012). Under Directive 2009/28/EC, Ireland is legally obliged to ensure that by 2020 at least 16% of all energy consumed in the State is from renewable sources. Ireland must ensure that there is a steady, progressive and measurable increase between now and the year 2020, in the amount of renewable energy consumed in the electricity, heat and transport sectors, commensurate with the achievement of the national target.

Underpinning the Government's energy and economic policy objectives are five Strategic Goals reflecting the key dimensions of the renewable energy challenge to 2020. The first Strategic Goal refers to wind and aims to have "*Progressively more renewable electricity from onshore and offshore wind power for the domestic and export markets.*"

It is Forest Service policy to facilitate wind energy as much as possible within the context of sustainable forest management and efforts to expand the national forest estate.

### *5.3.2 Policy on felling licences for wind farm development*

Where a developer intends to construct a wind farm that is within or partially within a forest or that will require tree felling, it is extremely important that the developer consults the Forest Service at the *earliest possible stage* of the project. This may help to develop a collaborative approach that will ensure that all forestry issues are identified and mitigated at the earliest opportunity.

In line with general Forest Service policy, where grant-aided forestry is to be used for wind farm development, any grants and premiums already paid out by the Forest Service in relation to the areas felled for the turbine bases, roads and infrastructure must be repaid where the forest is still in receipt of afforestation premiums and / or still in contract under the Afforestation Scheme.

***Photo 8*** *A wind farm within a forest plantation. Forest Service policy is to facilitate wind energy within the context of SFM and the expansion of the national forest estate.*

Wind farm construction typically encompasses three categories of tree felling: infrastructure; construction; and turbulence. Each category requires a felling licence. Table 6 and the following sections detail the specific requirements regarding each category. Also, Case Study 2 provides for three worked examples of wind farm development, and associated licensing issues.

#### *5.3.2.1 General requirements*

Notwithstanding any requirement for the wind farm developer to produce an Environmental Impact Statement (EIS) in respect of the development and the requirement to assess the impact of tree felling / reforestation proposals in an EIS, when felling licence applications are made, the Forest Service may require the developer to report on the potential loss of soil and biomass $CO_2$, and the reduction in productivity of the forest area associated with different wind farm forest management and landscape plans. Potential impacts to be reported on and assessed may also include site stability, water quality, habitats and species, landscape, archaeology, and other issues that may be deemed appropriate by the Forest Service.

If Planning Permission has been granted for the development by the local authority or by an Bord Pleanála, a copy of the full Planning Permission should be submitted to support the felling licence application. Also, if an EIS or a Natura Impact Statement have been prepared, these need to be submitted to support the felling licence application.

**Table 6** Requirements for each category of felling associated with wind farm development, regarding reforestation, alternative afforestation, and the refunding of grant and premiums.

| Category of tree felling | | Reforestation of felled area required? | Alternative afforestation required? (See Note 1) | Refunding of grant & premiums required? (See Note 2) |
|---|---|---|---|---|
| Infrastructure felling | | No | Yes | Yes |
| Construction felling | | Yes | No | No |
| Turbulence felling | ≤20 ha | Yes | No | No |
| | >20 ha | Yes | Yes, 10% turbulence fell area – see Section 5.3.2.4 | No |

**Note 1** If 'YES', the alternative site must be of an area equivalent in size. Section 5.7 sets out the procedures required. If the forest area proposed for permanent removal is still in receipt of premiums and / or is still in contract under the Afforestation Grant & Premium Scheme, the alternative site may be eligible under the Afforestation Grant & Premium Scheme.

**Note 2** If 'YES', the refunding of any afforestation grants and premiums already paid out by the Forest Service is required if the forest area proposed for permanent removal is still in receipt of premiums and / or is still in contract under the Afforestation Grant & Premium Scheme. Also, if 'YES' or 'NO', if premiums are still being paid, premium payments on the area will cease.

#### ***5.3.2.2 Infrastructure felling***

Infrastructural felling relates to trees that are permanently removed from the site in order to make way for infrastructure associated with the wind farm, such as access roads and turbine bases.

For infrastructure felling, the afforestation of alternative land and the repayment of grant and premium payments are required – see Table 6 and Section 5.7 for details. In addition, where the infrastructure fell area is still in receipt of premiums, then premium payments will cease, i.e. the felled area will not continue to receive premium payments.

#### ***5.3.2.3 Construction felling***

During the construction phase of the wind farm development, there are forest areas that require the temporary removal of tree cover to facilitate construction, e.g. 'borrow pits' for stone. Once construction is completed, the land is reforested.

For construction felling, the afforestation of alternative land and the repayment of grant and premium payments are not required – see Table 6. In addition, where the construction fell area is still in receipt of premiums, then premium payments will cease, i.e. the felled area will not continue to receive premium payments.

#### ***5.3.2.4 Turbulence felling***

Turbulence felling is deemed to be felling in the vicinity of turbines for the purpose of avoiding air turbulence that can be created by the forest canopy. It is carried out in order to increase the efficiency of the turbine by reducing turbulence in the airflow, and to reduce vibrations through the turbine blades, thereby lowering stress on the turbine components.

Turbine manufacturers assess the forest layout, age profile and management plans for the forest along with topography and wind mast data. Based on that assessment, some manufacturers will require turbulence felling as part of the terms of supplying turbines for a particular site. In the case of many wind farms, the manufacturer's requirements are therefore not known until late in the planning of the project, as no turbine will have been selected. In general, manufacturers recommend that tree height is restricted within 300 metres, in the dominant wind direction.

Turbulence felling may be allowed in certain cases, and subject to reforestation requirements. For completeness and to ensure that the EIS itself is valid, it is important that the EIS takes into account the maximum turbulence felling that could potentially occur under the project.

Felling Licence requirements in relation to turbulence felling include the following:

1. The repayment of afforestation grants and premiums already paid out by the Forest Service is not required. In addition, where the turbulence fell area is still in receipt of premiums, then premium payments will cease, i.e. the felled area will not continue to receive premium payments.
2. The granting of a licence for a turbulence felling will be subject to the normal checks carried out by the Forest Service in respect of silvicultural, environmental and landscape considerations, etc. A felling coupe is defined for this purpose as a contiguous or adjacent area, any part of which is felled in a 2 (calendar) year period.
3. A distinction is made between turbulence felling ≤20 ha and >20 ha. Excluding the area

for the turbine bases, etc. from the limit, the 20 ha limit specified in this section is a total limit for the entire wind farm development. The limit is not interpreted as 20 ha per turbine or any other interpretation that is deemed by the Minister to be in excess of a total of 20 ha per wind farm development. In terms of reforestation, the following applies:

- Where the felling coupe area for turbulence felling is less than or equal to 20 ha, this is considered consistent with sustainable forest management. Where the cumulative total area of 20 ha or less is adjacent to one or more turbines and it is proposed to fell this area in accordance with normal good forest practice, such felling will not be considered turbulence felling. There is no requirement to afforest additional land. The area where the trees are being felled must be reforested.

**Case Study 2: Windfarm development**

The following tables provide examples of typical windfarm applications.

**Site 1** Sitka spruce, 10 yrs. Reforest with North Coastal Lodgepole pine.

| Felling type | Area (ha) | Reforest felled site | Alternative afforestation | Refund Afforestation Grant & Premium |
|---|---|---|---|---|
| Infrastructure | 10 | No | Yes (10 ha) | Yes |
| Construction | 2 | Yes | No | No |
| Turbulence | 35 | Yes | Yes (3.5 ha) | No |

**Site 2** Sitka spruce, 25 yrs. Reforest with Sitka spruce.

| Felling type | Area (ha) | Reforest felled site | Alternative afforestation | Refund Afforestation Grant & Premium |
|---|---|---|---|---|
| Infrastructure | 5 | No | Yes (5 ha) | No |
| Construction | 0.5 | Yes | No | No |
| Turbulence | 16 | Yes | No | No |

**Site 3** Sitka spruce, 14 yrs. Reforest with Sitka spruce.

| Felling type | Area (ha) | Reforest felled site | Alternative afforestation | Refund Afforestation Grant & Premium |
|---|---|---|---|---|
| Infrastructure | 5 | No | Yes (5ha) | Yes |
| Construction | 0.5 | Yes | No | No |
| Turbulence | 16 | Yes | No | No |

- Where the felling coupe area for turbulence felling is greater than 20 ha, the applicant is required to reforest the area. In addition, 10% of the turbulence felling coupe area must be afforested on an alternative site to allow for the increase in soil carbon emissions at afforestation and the loss of potential carbon sequestration due to the proposed method of forest management. See Section 5.7 for details regarding the afforestation procedure.
- Subsequent to a licence being granted for 20 ha or less, any cumulative felling applied for above the 20 ha limit will be considered to be turbulence felling. Therefore, the original area of 20 hectares or less that was licensed will also then be regarded as turbulence felling. For example, if 20 hectares are felled in the first year and a further 12 hectares of felling is applied for in (e.g.) Year 3, then the additional 12 ha (if granted) and the original 20 ha will be treated as 32 ha of turbulence felling. The rules for turbulence felling will then apply to all 32 ha.

# Appendix 2

Environmental Requirements for Afforestation (DAFM, 2016)

# Environmental Requirements for Afforestation

December 2016

Department of Agriculture, Food and the Marine

An Roinn Talmhaíochta, Bia agus Mara

The Forest Service of the Department of Agriculture, Food and the Marine is responsible for ensuring the development of forestry within Ireland in a manner and to a scale that maximises its contribution to national socio-economic well-being on a sustainable basis that is compatible with the protection of the environment. Its strategic objectives are:

1. To foster the efficient and sustainable development of forestry
2. To increase quality planting
3. To promote the planting of diverse tree species
4. To improve the level of farmer participation in forestry
5. To promote research and training in the sector
6. To encourage increased employment in the sector

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# Section 1
# Introduction

## 1.1 Context

National forest policy - as set out in *Forests, Products and People* (2014) - is to increase the forest area in accordance with sustainable forest management (SFM) principles, in order to support a long-term sustainable roundwood supply, and associated employment and economic activity. As the consenting authority for afforestation, the Forest Service of the Department of Agriculture, Food & the Marine must ensure that this increase takes place in a way that complies with environmental legislation and that enhances the contribution new woodlands and forests can make to the environment and to the provision of ecosystem services, such as water protection and landscape enhancement.

The overall aim of these *Environmental Requirements for Afforestation* is to ensure that the establishment of new woodlands and forests is carried out in a way that is compatible with the protection and enhancement of our environment, including water quality, biodiversity, archaeology and landscape. (Sites proposed for afforestation must also meet the minimum timber productivity requirement set out in the Forest Service *Land Types for Afforestation* document, and this assessment should be carried out by the Registered Forester before advancing to application stage.)

In assessing an application for afforestation, the Forest Service is required to consider potential impacts across a range of issues and sensitivities. This includes in-combination impacts regarding water, biodiversity, landscape, social issues, etc. The following lists the primary components of the legal, regulatory and funding framework that apply:

- European Communities (Forest Consent & Assessment) Regulations 2010 (S.I.558 of 2010), as amended
- European Union rules governing the Forestry Programme

*Sensitively sited, designed and established plantations adding to Ireland's expanding forest resource.*

- Forestry Programme
- Legally protected species and habitats and associated designations (e.g. Special Areas of Conservation, Special Protection Areas, Natural Heritage Areas) and procedures (e.g. Appropriate Assessment)
- Water Framework Directive
- Legislation regarding archaeology and built heritage, including the National Monuments Acts 1930 to 2014
- Forest Service requirements, procedures and protocols, e.g. the terms and conditions of the Afforestation Scheme (if grant aid is being sought), the *Forestry Standards Manual*; the *Forestry & Freshwater Pearl Mussel Requirements*; the *Forestry & Kerry Slug Guidelines*; the *Forestry & Otter Guidelines*; and the *Forest Protection Guidelines*.

(For further details, refer to the **SUPPORTING DOCUMENT** on the Forest Service website - see below for details.)

Any statutory approval (with or without grant aid) for afforestation is conditional on adherence to the measures set out in these *Environmental Requirements for Afforestation*, to the conditions of approval, and to the standards and procedures set out in the *Forestry Standards Manual*. Where a parallel approval for grant aid has been issued, the Afforestation Scheme Terms & Conditions also apply.

***Any divergence from the measures set out in these Requirements must be fully described in the initial application and depicted clearly on the Biodiversity Map, for consideration by the Forest Service.***

## 1.2 About these Environmental Requirements

The *Environmental Requirements for Afforestation* replace those measures relating to afforestation contained within the following Forest Service Environmental Guidelines: *Forestry & Water Quality Guidelines*, *Forestry & Archaeology Guidelines*, *Forestry & the Landscape Guidelines*, and *Forest Biodiversity Guidelines*. (Note, however, that these guidelines still apply to other Forest Service regulated activities, as specified in any approval, consent or licence issued.)

The *Environmental Requirements for Afforestation* are set out in three stages. These reflect the typical sequence of activities undertaken by an Applicant and her / his Registered Forester and the corresponding environmental requirements that apply, throughout afforestation and up to the end of the premium period (or 15 years, for non-grant aided forests). These three stages are as follows:

1. Pre-Application Design
2. Site Works
3. Ongoing Management

This document is accompanied by a web-based document entitled *Environmental Requirements for Afforestation: SUPPORTING DOCUMENT* (see www.agriculture.gov.ie/forestservice/grantsandpremiumschemes2015-2016/). This web-based document is an integral part of the Requirements and is referred to throughout, as the '**SUPPORTING DOCUMENT**'.

# Section 2
# Design

## 2.1 Overview

During Stage 1: Pre-Application Design, the Registered Forester assesses the site and carries out various checks, and subsequently designs the afforestation proposal in a way that addresses the various environmental features and sensitivities identified. This design is then reflected in the subsequent application (Form 1) for technical approval (and financial approval, if sought) submitted to the Forest Service for assessment. Please note, it is the responsibility of the Applicant to provide the relevant information needed to enable the Forest Service to make a full assessment of the application.

## 2.2 Background checks

Various sources of information can be checked by the Registered Forester early in the pre-application design stage, to identify environmental features and sensitivities. Relevant safeguards can then be incorporated into the design to avoid possible negative impacts and to enhance positive impacts. Potentially, this may also shorten and streamline the assessment process.

iNET provides the primary source of information and provides a platform for mandatory Form 1 checks regarding water, designated sites, archaeology, etc. However, other important sources of environmental information are available - see the **SUPPORTING DOCUMENT**. Dialogue with the Applicant may also reveal more subtle sensitivities that might exist.

## 2.3 Basic requirements at design stage

The basic design-stage requirements in relation to water, biodiversity, archaeology and landscape are set out below. Note the following:

- If faced with a particularly sensitive and complex site in relation to a particular environmental feature or sensitivity, a Registered Forester may propose measures above and beyond the minimum requirements set out in this document. Examples include wider-than-normal water setbacks due to a downstream Special Area of Conservation (SAC).
- Furthermore, a relevant expert (e.g. hydrologist, ecologist, archaeologist, landscape architect) may be engaged early in the process, to assess the feature / sensitivity and to propose appropriate measures. This may result in a more refined application and may avoid complexities and delays in the application process. For example, it may avoid the need for the Forest Service to seek further information, and may allay the concerns of local people and statutory consultees.
- An individual site or part of a site may be deemed eligible from a productivity perspective (following the Land Types for Afforestation assessment process) but unsuitable from an environmental perspective. These sites may become apparent to Registered Foresters at the early design stage, following his / her onsite assessment and background checks, and *should not be advanced to application stage*.

## 2.4 Water

**OBJECTIVE: TO PROTECT WATER AND AQUATIC HABITATS AND SPECIES, DURING AFFORESTATION AND THROUGHOUT THE REMAINDER OF THE FOREST ROTATION.**

The Registered Forester must assess the potential risk of sedimentation and nutrient runoff entering into 'receiving waters' (streams, rivers, lakes), both during afforestation and throughout the remainder of the rotation, and adapt the forest design and planned operations accordingly. Key factors include soil type, slope, available pathways for water, the erodibility of the soil and subsoil, downstream SACs, and the status objective of the waterbody itself. Regarding the latter, particular regard is needed if the proposed afforestation site is within the catchment area of a high status objective waterbody or a waterbody at risk of decline in status.

For guidance, the **SUPPORTING DOCUMENT** gives examples of scenarios that (alone or in combination) can heighten the risk to water.

During site assessment, identify and map (on the required Biodiversity Map) the water features defined in Table 1, each of which require a water setback.

### *2.4.1 Water setback*

A water setback(*) is an area of a defined width, positioned adjoining the water features defined in Table 1, and left largely undisturbed during afforestation and throughout the remainder of the rotation, specifically for the protection of water. All new drains installed as part of the afforestation project must terminate in sediment traps *outside* the water setback. The relevant setback for each water feature is set out in Section 2.8.

(* Formerly referred to as 'aquatic buffer zone'.)

*The protection of water quality and aquatic habitats and species is a key requirement for all new afforestation projects.*

**Table 1** Water features requiring water setbacks.

| **Type of water feature** | **Definition** |
|---|---|
| Aquatic zone | A permanent or seasonal river, stream or lake shown on an Ordnance Survey 6 inch map. (Note, the EPA water layer on iNET may not capture all aquatic zones onsite.) |
| Relevant watercourse | A watercourse that is not shown on an OS 6 inch map but which:<br>➢ is connected to an aquatic zone onsite, adjoining the site or elsewhere; and<br>➢ has the potential to carry significant amounts of sediments / nutrients, or shows evidence of erosion / deposition.<br>Relevant watercourses are often artificial, and include existing drains and channels and other potential pathways that may contain flowing water during and immediately after rainfall.<br>Note, not every watercourse may be a 'relevant watercourse'. For example, a well-vegetated agricultural drain on moderately sloping ground may not be a relevant watercourse. |
| Hotspot | An area (often localised) that is a potential source for sediment / nutrient loss during afforestation and / or future forestry operations. Examples include soft wet ground, flushes and springs, and pockets where machine access is difficult due to low ground-bearing capacity. |
| Water abstraction point | Abstraction point of any surface waters, borehole, spring or well used for the abstraction of water for human consumption in a water scheme. |

### *2.4.2 Drainage and cultivation*

Drainage and cultivation are necessary on most afforestation sites, to enable establishment. Typical methods include conventional mounding (with mound drains), ripping, inverted mounding and scrap mounding. Key factors are as follows:

- It is critical that water collected within drains flows slowly, both during afforestation and throughout the remainder of the forest rotation. This minimises the potential for erosion and the transport of sediments and nutrients to receiving waters. This requires an assessment of soil, slope and likely rainfall, and the selection and refinement of the most appropriate option(s), incorporating correct drain alignment, spacing and depth, and the proper deployment of sediment traps. Refer to the *Forestry Standards Manual* for specifications regarding drains, sediment traps, mounding, ripping, etc. Additional information is contained in the *Forest Road Manual* and *Forest Drainage Engineering: A Design Manual*. For details on operational safeguards (e.g. sediment trap distribution), see Section 3.7.1.
- All new drains must terminate in an appropriately-sized sediment trap located *outside* the water setback. New drains *must not* enter into or traverse the water setback itself (an exception exists for flat difficult-to-drain sites – see Section 3.7.1 for details.)

*A well-defined water setback early in the afforestation process, with natural ground vegetation emerging.*

- Match drainage and cultivation to the specific conditions that exist in different parts of the site, selecting the least intensive options and specifications needed to successfully establish and grow the forest. Where site conditions allow (e.g. on naturally free-draining sites), consideration should first be given to the least impacting techniques, such as ripping and inverted mounding. In water-sensitive parts of the site, inverted mounding or simple pit planting should be considered.
- The drainage and cultivation proposed for different plots must be determined during the design stage and accurately depicted on the submitted Biodiversity Map. Also depict any additional safeguards deemed necessary (see Section 3.7.1).
- Of particular concern are peat soils, steep slopes capable of generating higher water velocities, and old land drains and other possible pathways that may become reactivated. Also of particular concern is the capacity of the new drainage network to withstand high rainfall events, without the failure of sediment traps and water setbacks.

### *2.4.3 Water crossings*

Water features may need to be crossed for site development works and ongoing site management. Crossings may be temporary in nature or may comprise permanent structures intended to link in with a future forest road.

The following requirements apply:

- Any work in an aquatic zone should be limited to the period May to September, inclusive.
- Crossings should be designed so that:
  - the number of crossings over a given aquatic zone is minimised;
  - disruption to the bank, bed and adjacent water setback is minimised;
  - the water flow is crossed at a right angle;
  - cement or uncured concrete is kept out of the aquatic zone, with 'cast-in-place' concrete isolated from any water which might enter the aquatic zone, until the

concrete is cured;

- local stone is used for bridge kerbs and end treatments for culverts;
- all timber treatment is carried out off-site.

- Consult with the Inland Fisheries Ireland at least 6 weeks prior to constructing any crossing of an aquatic zone.
- If planning a permanent structure intended to link in with a future forest road, consider whether or not the location of the crossing is environmentally appropriate for that future use.
- Bridge construction is necessary where culverts may restrict fish migration.
    - All supports and buttresses should be completely out of the stream.
    - Do not create shallow or shooting flow at the bridge aprons, to ensure that water velocities do not impede fish movement.
- Fords are not desirable and should only be used where the design is approved by Inland Fisheries Ireland.
- All culverts should be well-bedded and of sufficient size to carry normal flow, to accommodate 25-year storm events, and to avoid blockages and washouts. Ends should be tapered to match the embankment slope. If greater than 1.0 metre in diameter, culverts should be buried to a depth of 30 cm or 20% of their height (whichever is greater) below the streambed, and the original bed material placed in the culvert.

If proposing a crossing, submit full design details with the afforestation application, and clearly indicate the proposed location on the Biodiversity Map. Also provide details regarding removal and site restoration, where the proposed crossing is temporary in nature.

## 2.5 Biodiversity

**OBJECTIVES:**

- **TO ENSURE THAT AFFORESTATION DOES NOT ADVERSELY IMPACT DESIGNATED CONSERVATION AREAS, PROTECTED HABITATS, OR PROTECTED SPECIES OF FAUNA OR FLORA AND THEIR HABITAT.**
- **TO ENHANCE THE BIODIVERSITY VALUE OF THE NEW FOREST THROUGHOUT ITS ROTATION.**

Biodiversity is the variety of living organisms, including: (i) the diversity of species; (ii) the genetic diversity or variation within the species; and (iii) the ecosystems in which species live. Conifer, broadleaf and mixed woodlands and forests can contribute greatly to biodiversity, both within their boundaries and as wildlife corridors and refuges in the wider landscape.

### *2.5.1 Protected habitats and species*

Afforestation can impact of a range of habitats and species protected under various legislation. Table 2 sets out various scenarios that may apply, and the likely outcome regarding any proposed afforestation application. Applicants are encouraged to seek ecological input early in the design stage in situations where one or more of these scenarios apply, and to tailor any subsequent application accordingly before submission to the Forest Service.

*Yellow brimstone. Sensitive design at afforestation will enhance the forest's biodiversity value throughout the entire rotation.*

**Table 2** Various scenarios that may apply regarding protected habitats and species, and the likely outcome regarding the proposed afforestation application. (Note, the use of the term 'the project' below relates to afforestation and management of the forest rotation.)

| | |
|---|---|
| **1. Is the plot(s) within a Special Area of Conservation (SAC), Special Protection Area (SPA), a Natural Heritage Area (NHA) or proposed NHA, a Nature Reserve, a National Park, or a Refuge for Flora and Fauna?**<br><br>These sites are designated for the conservation of habitats and species. For example, SACs are designated under the Habitats Directive to create a coherent European ecological network in order to ensure the restoration or maintenance of habitats (Annex I) and animal and plant species (Annex II) of Community interest at a favourable conservation status.<br><br>*Relevant legislation:* EU Habitats Directive; EU Birds Directive; Wildlife Act 1976; Wildlife (Amendments) Act 2000; European Communities (Birds and Natural Habitats) Regulations 2011 (S.I.477 of 2011) | If '*Yes*', the Forest Service may require an ecological report demonstrating how the project can take place in a manner compatible with the ecological objectives of the designation.<br><br>➢ In relation to NATURA sites (SACs and SPAs), the Forest Service will undertake screening and where necessary, appropriate assessment, and can only approve the project if it is satisfied that it will not adversely affect the integrity of the NATURA site, either alone or in combination with other plans or projects. See the Forest Service *Forestry Standards Manual* for details of this Appropriate Assessment Procedure.<br><br>➢ *Do not submit any area of a habitat listed as a qualifying interest of the SAC*.<br><br>➢ The Forest Service is not in a position to approve afforestation applications within Hen Harrier SPAs, pending the completion of the Threat Response Plan.<br><br>➢ In relation to proposed afforestation within NHAs, the Forest Service requires the submission of a completed Notifiable Action Form (which documents National Parks & Wildlife Service consent) with the initial Afforestation Application (Form 1). |
| **2. In non-designated areas, is there a habitat listed in Annex I of the Habitats Directive, known to be present or observed within the plot(s)?**<br><br>See **SUPPORTING DOCUMENT** for a list of Annex I habitats (and the corresponding Fossitt (2000) habitat classification) that may occur on afforestation sites.<br><br>*Relevant legislation:* Habitats Directive. | If '*Yes*', the Forest Service may require an ecological report assessing the habitat and its extent and identifying mitigation measures capable of ensuring that the project can take place in a manner compatible with the maintenance or restoration to a favourable conservation status of that habitat.<br><br>NOTE, at a site level, the Forest Service will not approve the afforestation of a non-designated Annex I habitat that is deemed to be a favourable condition, based on an assessment of its area, structure and function, and future prospects. Such habitat must be excluded from the application or incorporated as a retained habitat. In both cases, an appropriate habitat setback will also be required so as not to impact on future prospects. |

| | |
|---|---|
| **3. Is the plot(s) within one of the Priority 8 Freshwater Pearl Mussel (FPM) Catchments (as listed in the SUPPORTING DOCUMENT)?**<br><br>FPM is a freshwater shellfish that is highly vulnerable to siltation and nutrient runoff and other water impacts, and is a highly threatened species of European importance.<br><br>The *Strategy for Conservation of the Freshwater Pearl Mussel* (September 2011) prioritises the conservation of FPM populations within 8 sub-basin catchments. See the **SUPPORTING DOCUMENT** for details.<br><br>*Relevant legislation:* Habitats Directive; European Communities Environmental Objectives (Freshwater Pearl Mussel) Regulations 2009 (S.I.296 of 2009) | If '*Yes*', afforestation approval is dependent *inter alia* upon the submission and subsequent evaluation by the Forest Service, of a Form A (Site Assessment) and Form B (Mitigation Measures) from the *Forestry & Freshwater Pearl Mussel Requirements*. The Forest Service may also request a NATURA Impact Statement (NIS).<br><br>Note that, if approved, afforestation within these catchments is likely to be limited to native woodland establishment under GPC9 and GPC10. |
| **4. Is the plot(s) within the 6 km zone of any other Freshwater Pearl Mussel Catchment listed in the SUPPORTING DOCUMENT?**<br><br>For details of FPM, see above.<br><br>*Relevant legislation:* Habitats Directive; European Communities Environmental Objectives (Freshwater Pearl Mussel) Regulations 2009. | If '*Yes*', afforestation approval is dependent *inter alia* upon the submission and subsequent evaluation by the Forest Service, of a Form A (Site Assessment) and Form B (Mitigation Measures) from the *Forestry & Freshwater Pearl Mussel Requirements*. The Forest Service may also request a NIS. |
| **5. Is there an Annex IV species or its habitat (if in the species range) known to be present or observed within the plot(s)?**<br><br>Species listed in Annex IV of the Habitats Directive are strictly protected. It is an offence to deliberately disturb the species or damage or destroy its breeding or resting places wherever it occurs, whether inside or outside designated areas. Annex IV species include otter, Kerry slug and bats.<br><br>*Relevant legislation:* Habitats Directive. | ➢ If *'Yes'* for otter, follow the requirements set out in the Forest Service *Forestry & Otter Guidelines*.<br><br>➢ If *'Yes'* for Kerry slug, follow the requirements set out in the Forest Service *Forestry & Kerry Slug Guidelines*<br><br>➢ If *'Yes'* for any other Annex IV species, the Forest Service may require an ecological report demonstrating how the project can and will be designed and implemented in a manner compatible with the protection of the species and its habitat. |

| | |
|---|---|
| **6. Is there an Annex II species and / or its habitat known to be present or observed within the plot(s)?**<br><br>Species listed in Annex II of the Habitats Directive are animal and plant species of Community interest whose conservation requires the designation of SACs. Outside of SACs, these species are protected against damage that impacts their favourable conservation status (or ability to achieve that status) (for example, damage that reduces the natural range of the species). There are a number of Annex II species, included the Killarney Fern, Yellow Marsh Saxifrage and River Lamprey.<br><br>*Relevant legislation:* Habitats Directive; Environmental Liability Directive; European Communities (Environmental Liability) Regulations 2008 (S.I.547 of 2008). | If '*Yes*', the Forest Service may require an ecological report confirming the presence of the species or its known habitat, a determination regarding whether or not the project would impact on the species' favourable conservation status (or its ability to achieve that status), and if so, required mitigation. |
| **7. Is the application located on sandstone geology in West Cork or Kerry, as illustrated in Figure 1 of the Forest Service *Forestry & Kerry Slug Guidelines*?**<br><br>As an Annex IV species under the Habitats Directive, the Kerry slug (*Geomalacus maculosus*) is strictly protected wherever it occurs. It is an offence to deliberately disturb the species or damage or destroy its breeding or resting places wherever it occurs, whether inside or outside designated areas. It is also an offence under national legislation (Wildlife Act 1976, Wildlife (Amendment) Act 2000) to deliberately destroy or damage the slug or its habitat.<br><br>*Relevant legislation:* Habitats Directive; Wildlife Act 1976; Wildlife (Amendment) Act 2000. | If '*Yes*', follow the decision path set out in the Forest Service *Forestry & Kerry Slug Guidelines*. Detail both the outcome of this process and any resulting amendments to forestry operations required (as set out in these Guidelines) in the proposed application for afforestation. |
| **8. Is there a population of a species protected under the Flora (Protection) Order 2015 (S.I.356 of 2015) known to be present or observed within the plot(s)?**<br><br>The Flora (Protection) Order 2015 protects various plants (see **SUPPORTING DOCUMENT**). It is an offence (save under a licence granted under Section 21 of the Wildlife Act 1976) to (*inter alia*) wilfully alter, damage, destroy or interfere with the habitat or environment of these plants. This applies to wherever the plants are found, whether inside or outside designated areas.<br><br>See SUPPORTING DOCUMENT for relevant sources of information.<br><br>*Relevant legislation:* Wildlife Act 1976; Wildlife (Amendment) Act 2000; Flora (Protection) Order 2015 (S.I.356 of 2015). | If '*Yes*', the Forest Service may request the submission of an ecological report confirming the presence (or otherwise) of the species, and required mitigation. |
| ***Note regarding species of animal protected under the Wildlife Act 1976 and the Wildlife (Amendment) Act 2000***<br><br>Mammal, amphibian, reptile and invertebrate species protected under the Wildlife Act 1976 and the Wildlife (Amendment) Act 2000 (see **SUPPORTING DOCUMENT** for list) are protected from injury, or from disturbance / damage to their breeding or resting place, wherever these occur. The majority of these species are considered by other scenarios listed above. Further cover is provided by specific Forest Service requirements for Kerry slug and otter and guidance for bat species, Therefore, to avoid duplication, the above does not contain a specific question dealing directly with the Wildlife Act 1976 and the Wildlife (Amendment) Act 2000. | |

### *2.5.2 Areas for Biodiversity Enhancement*

During onsite assessment, identify Areas for Biodiversity Enhancement, or ABEs. Their function is (*inter alia*) to conserve existing habitats and biodiversity features onsite and to promote the development of biodiversity generally within the new forest.

ABEs comprise environmental setbacks, future operational areas and retained habitats, as described below.

- An **environmental setback** is a (largely) unplanted and undisturbed open space of a defined width (as set out in Section 2.8) installed to protect a particular environmental feature or sensitivity. Different types apply (as listed below) depending on the feature or sensitivity involved:
    - water setback
    - retained habitat setback
    - archaeological setback
    - public road setback
    - utilised building setback
    - landscape setback

  In addition to their main protective role, these environmental setbacks are important biodiversity features in their own right, providing open and edge habitats along the forest margin. As described later, this role can be enhanced further through simple design and additional planting.
- A **future operational area** is an open space left unplanted in order to facilitate the future management of the plantation (e.g. a rideline) or to accommodate future infrastructure (e.g. a forest road or landing bay). In addition to their primary management function, these operational areas are also important biodiversity features in their own right, and this value can be enhanced further through simple design and additional planting.
- A **retained habitats** is an existing onsite habitat selected for retention within the future forest. These can be area-based features (e.g. a localised flush), linear features (e.g. a hedgerow) or point features (e.g. a veteran tree). Design must aim to protect and enhance these habitats throughout the forest rotation, and to allow associated native flora and fauna to develop. This may involve the addition of a habitat setback, to prevent future impacts (e.g. overshadowing) from the growing forest canopy – see Section 2.8 for details.

  (Note, it may be necessary to exclude from the afforestation application, areas containing certain habitats or species that require grazing to persist. Otherwise, these areas will become overgrown as the result of fencing.)

Ensure that future operational areas for future forest roads do not overlap with environmental setbacks for water, archaeology and retained habitats.

Tables 3 and 4 list the various features that are eligible as ABEs for the purpose of grant and premium calculation.

**Table 3** Site features and their eligibility as ABEs. (Also see Table 4 regarding woody habitats.)

| **Site features** | **Eligible as ABE?** |
|---|---|
| Water setback | Yes |
| Retained habitat setback | Yes |
| Archaeological setback | Yes |
| Public road setback | Yes |
| Utilised building setback | Yes |
| Landscape setback | Yes |
| Hedgerows and other woody habitats | See Table 4 |
| Created lakes / reservoirs | Yes |
| Railway setbacks | Yes |
| Drains | Yes |
| Future operational areas left for planned forest roads, turning bays, ridelines, etc. | Yes |
| Unplantable areas | No |
| Areas of shallow, rocky soil | No |
| Rock and scree | No |
| Aquatic zones (as defined in Table 1) | No |
| Rights-of-way held by 3rd parties | No |
| Areas with turbary or grazing rights held by 3rd parties | No |
| Major water mains | No |
| Power line corridors | No |
| Gas pipeline corridors | No |
| Public roads | No |
| Other features | If deemed appropriate by the Forest Service |

**Table 4** Woody habitat types, their eligibility as ABEs, and available options.

| **Type of woody habitat** | **Eligibility as ABE and available options**(*) | **Comment** |
|---|---|---|
| Area of scrub (e.g. elder) and non-high forest species (e.g. blackthorn, hawthorn, willow) | Eligible as ABE. Therefore, either:<br>➢ include as retained habitat; OR<br>➢ clear(**) and plant; OR<br>➢ exclude from the application. | Non-high forest species often have a high biodiversity value. |
| Individual high forest trees (e.g. oak, ash, beech, hazel(***), birch, pine) | Eligible as ABE. Therefore, include as retained habitat (i.e. point features). | Individual trees such as these can have a high biodiversity value. |
| Areas of high forest trees (see above examples) less than 0.1 ha in size | Eligible as ABE. Therefore, either:<br>➢ include as retained habitat; OR<br>➢ exclude from the application. | Groups comprising trees such as these can have a high biodiversity value. |
| Areas of high forest trees (see above examples) 0.1 ha or greater in size | Not eligible as ABE. Therefore, exclude from the application. | Such areas meet the definition of a forest, and existing forests cannot receive afforestation payments. |
| Hedgerows | Eligible as ABE. Therefore, either:<br>➢ include as retained habitat *plus* setback; OR<br>➢ include as retained habitat. | Apply habitat setback as per Section 2.5.4. Otherwise, no habitat setback required. |
| Rhododendron / laurel | Not eligible as ABE. Therefore, either:<br>➢ clear and plant, OR<br>➢ exclude from the application. | These are non-native invasive species and must not be retained as ABE. |
| * Each relevant option can be applied to all of the corresponding woody habitat type onsite, or to different sections of it.<br>** Under a Felling Licence, if required. Note, the retention of alluvial woodland comprising willow may require prioritisation within the wider landscape, due to ecological considerations and water protection.<br>*** Hazel may be classed as 'scrub' where it has encroached in the last 5 years. | | |

### *2.5.3 ABE criteria*

ABE eligibility criteria are as follows:

- Between 10-15% of the afforestation site must be treated with particular regard to biodiversity, comprising a combination of open spaces (i.e. environmental setbacks and future operation areas) and retained habitats. Where ABEs add up to more than 15% of the total area, the claim area must be reduced accordingly, as set out in the *Forestry Standards Manual*.
- ABEs must comprise areas suitable for planting, but where the potential for a commercial forest crop is foregone for the purpose of retaining habitats and creating open spaces in order to (*inter alia*) promote biodiversity within the future forest. Areas that are unsuitable for planting are not eligible as ABEs.
- ABEs must be an integral part of the site. For example, an ABE plot cannot be in an adjoining field / land parcel or in a separate plot away from the main area of the plantation.

- Generally, identify ABEs using the following sequence:
  - Step 1: Identify environmental setbacks (for water, archaeology, landscape, etc.) and future operational areas, to allow for the environmental features / sensitivities identified and management needs envisaged.
  - Step 2: Select the 'best quality' habitats(*) onsite for retention, together with any habitat setbacks deemed necessary to prevent future impacts (e.g. overshadowing) from the growing forest canopy.
- Applicants must not remove habitats prior to submission of the afforestation application. Otherwise, the application may be refused.
- The submitted Biodiversity Map must show any proposed ABEs (i.e. environmental setbacks, future operational areas and retained habitats) as Bio Plots and as linear or point features, and state the equivalent area. The *Forestry Standards Manual* sets out the mapping requirements. It is critical that the Biodiversity Map accurately depicts all relevant environmental features and sensitivities (including biodiversity features), proposed cultivation and drainage, and the location of setbacks and other protective measures.

  (* A basic level of ecological assessment by the Registered Forester will help to identify which habitats will have the greatest biodiversity value. When identifying and mapping retained habitats, use the Level 2 (or Level 3, if possible) habitat classification in Fossitt's *A Guide to Habitats in Ireland* (2000) (PDF available at www.heritagecouncil.ie).)

### *2.5.4 Hedgerows*

Hedgerow networks are one of the most widespread semi-natural habitats in the countryside, due to their extent, connectivity, structure and composition. In addition to their biodiversity value, hedgerows form part of the cultural and historic heritage of the country, and are important landscape features. As such, they must be regarded carefully during pre-application design and subsequent site works.

All hedgerows must be retained. In general, do not break through hedgerows during afforestation. Similarly, do not use hedgerow trees as makeshift straining posts for fencelines.

A habitat setback (5 metres minimum) should also be considered in relation to particular hedgerows onsite, to ensure their continued presence as the surrounding canopy develops. This decision should be informed by the quality of the hedgerow (in terms of its age, species composition and structure), its landscape importance, and other attributes (e.g. whether or not the hedgerow represents a townland boundary or if it is associated with another habitat such as a stream).

Other situations can arise where a hedgerow setback is desirable, e.g. to create a future wind-firm edge to enable staggered felling later, or to realise the potential role of a hedgerow as part of water management onsite.

Hedgerows with setbacks will also act as links and corridors for many species of flora and fauna between other areas of semi-natural habitat within the wider landscape. Therefore, consider applying setbacks to one or more contiguous lengths of hedgerow that run from one side of the afforestation site to the other, to promote this habitat connectivity.

## 2.6 Archaeology and built heritage

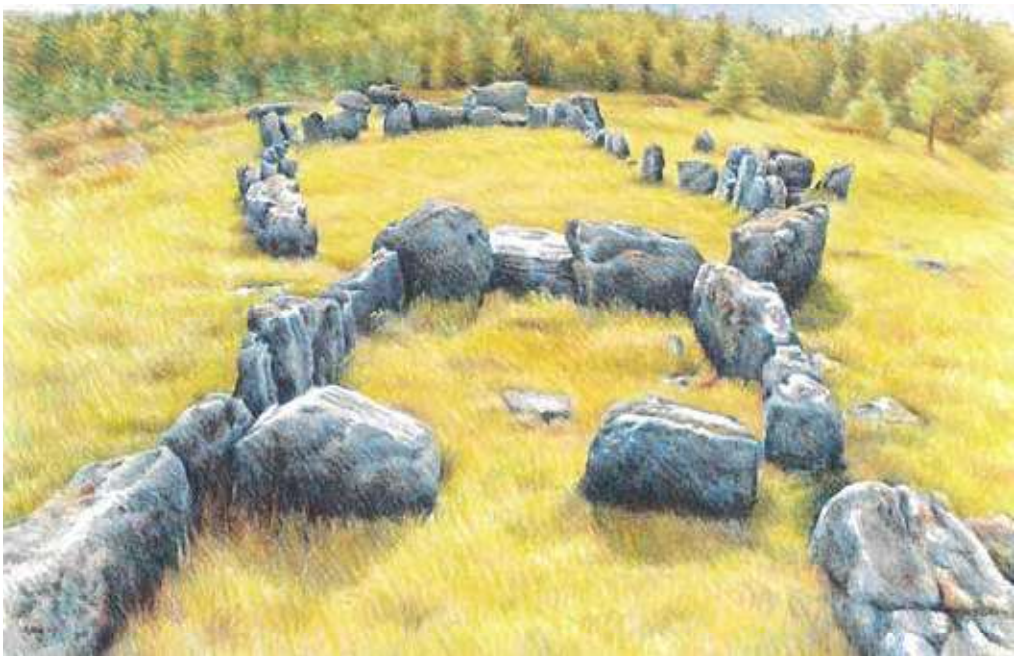
**OBJECTIVES:**

- **TO SEEK TO ENSURE THAT PROPOSED AFFORESTATION DEVELOPMENT PROJECTS DO NOT ADVERSELY IMPACT DIRECTLY OR INDIRECTLY ON KNOWN OR SUSPECTED ARCHAEOLOGICAL SITES AND MONUMENTS OR ON OTHER IMPORTANT BUILT HERITAGE STRUCTURES OR FEATURES. THIS INCLUDES PROTECTING THEIR AMENITIES AND WHERE RELEVANT, THEIR WIDER LANDSCAPE SETTING, IN PARTICULAR, THEIR RELATIONSHIP WITH OTHER ROUGHLY CONTEMPORARY OR DETERMINABLY LINKED SITES, MONUMENTS, STRUCTURES OR FEATURES.**
- **WHERE AFFORESTATION IS APPROVED NEAR KNOWN OR SUSPECTED ARCHAEOLOGICAL SITES AND MONUMENTS OR OTHER IMPORTANT BUILT HERITAGE STRUCTURES OR FEATURES, TO SEEK TO ENSURE THAT: (I) APPROPRIATE EXCLUSION ZONES, FENCING, ACCESS PATHS AND OTHER RELEVANT MEASURES ARE INCORPORATED INTO THE PROJECT DESIGN; (II) THERE IS AN APPROPRIATE RESPONSE SHOULD ANY PREVIOUSLY UNRECORDED ARCHAEOLOGICAL SITE, MONUMENT, OBJECT, STRUCTURE OR FEATURE BE DISCOVERED DURING SITE WORK; AND (III) ANY APPROVED DESIGN IS SYMPATHETIC TO AND PROVIDES AN APPROPRIATE VISUAL SETTING FOR SUCH SITES, MONUMENTS, STRUCTURES OR FEATURES.**

### *2.6.1 Potential impacts*

The Irish countryside is rich in the physical remains of human activity stretching back over the millennia. These vary from the more obvious and iconic monument types such as megalithic tombs, standing stones, ringforts, crannógs, churches and graveyards, burial grounds and medieval castles, to the less well-known and less visible or entirely below-ground surface monument types such as ancient timber and gravel roadways (toghers), cooking places (fulachta fiadh) and settlement sites. All archaeological sites and monuments can have or may survive solely as associated artefacts and features. Examples include stone or metal tools, pottery sherds, post holes or refuse pits. These are often only uncovered during ploughing, drainage works, construction or turf cutting.

Archaeological sites and monuments and other important built heritage structures and features are part



*A central court tomb, Magheraghanrush or Deerpark, Co. Sligo (Coillte property). (Illustration Aislinn Adams)*

of our national heritage. There is a wealth of information to be gathered from such sites, monuments, structures and features, both from those which are visible above the ground and from those which have little or no surface expression. In addition to their educational value in terms of informing current and future generations and visitors about the history and development of our culture and society, they are also important recreational and tourism resources at local, regional and national levels.

### *2.6.2 Procedures*

Land proposed for afforestation may contain or be located adjacent to archaeological sites and monuments and built heritage structures and features. For the purpose of these Requirements, these are grouped into three categories:

- **'Designated' archaeological sites and monuments**, which include those: entered onto the Record of Monuments and Places (RMP) or the Register of Historic Monuments (RHM); National Monuments in the ownership or the guardianship of the Minister for Arts, Heritage, Regional, Rural & Gaeltacht Affairs or a Local Authority; or those subject to a Preservation Order (PO) or a Temporary Preservation Order (TPO). Also included are sites and monuments newly discovered at the pre-application design stage or during the site works stage, post-approval. Examples include megalithic tombs, cairns, barrows, mounds, ringforts, enclosures, churches and graveyards, castles, tower houses and children's burial grounds.
- **'Designated' buildings and structures or parts of structures which form part of the architectural heritage and which are of special interest**, i.e. those entered onto the Record of Protected Structures (RPS) in the relevant County Development Plan or those entered into the National Inventory of Architectural Heritage (NIAH). Examples include vernacular cottages and houses, country houses and lodges, designed gardens and parklands, parish churches, historic creameries, military fortifications, mine engine houses, water mills, canals, locks and lock houses, and old school houses.
- **'Non-designated' built heritage structures**, e.g. lime kilns, sheep folds, creamery stands, stiles, townland boundaries, pumps and pump houses, mill ponds, and derelict dwellings / farm buildings.

Given the nature of afforestation (site selection, ground preparation operations, canopy development, and making provisions for future management operations), the potential for damage to our archaeological and built heritage clearly exists. For example, soil cultivation and drainage works can directly or indirectly disturb or impact both upstanding and sub-surface archaeological sites and monuments and associated features and artefacts. Even the digging of drains and sediment traps near such sites or monuments may cause organic deposits and artefacts (e.g. structural timbers, wooden artefacts or leather) preserved by anaerobic conditions to decay quicker as the soil deposit dries out. Similarly, changes caused to soil chemistry (e.g. from needle fall) may cause metal artefacts or ceramics to decay quicker.

The early identification of the nature, extent, setting, visual envelope and linkages of archaeological sites and monuments or other important built heritage structures or features, and the incorporation of these considerations both at the pre-application design stage and during site works (where afforestation is approved near known or suspected archaeological sites and monuments) will help to avoid or minimise the risk of damage.

Examples of measures to avoid, reduce or mitigate adverse impacts include:

- avoidance of areas of known or suspected elevated archaeological potential;
- incorporation of appropriate archaeological setbacks;

- access routes;
- unplanted lines of sight;
- arranging for in-works supervisory safeguards such as archaeological monitoring; and
- the sensitive design of the forest edge adjoining archaeological setbacks, to provide an appropriate setting.

The Registered Forester must identify known archaeological sites and monuments or other important built heritage structures or features, on and adjoining a site proposed for afforestation, through review of the relevant layers on iNET, and through a thorough onsite assessment.

The Forester should also utilise readily accessible sources of information. For example, the online digital service - the Historic Environment Viewer - provided by the Department of Arts, Heritage, Regional, Rural & Gaeltacht Affairs, facilitates access to the databases of the National Monuments Service (NMS) Sites and Monuments Record (SMR) and the NIAH. In addition, the RPS for each county is normally accessible on-line, and can usually be found as an appendix to the published County Development Plan. See the *Forestry Standards Manual* for further details.

Where possible, include all reference numbers (e.g. RMP number) on the Biodiversity Map submitted with the application. Doing so may expedite the Forest Service assessment of the application.

Once the various archaeological sites and monuments and other important built heritage structures or features (including those both 'designated' and 'non-designated') have been identified, the relevant minimum archaeological setbacks detailed in Section 2.8 apply, as well as any other measures proposed to address considerations such as the nature, extent, setting, visual envelope and linkages of these sites, monuments, structures or features.

### *2.6.3 Conditions attached to or further information required in approvals*

As a general rule, the archaeological conditions that may be attached to any approval for afforestation will be taken from, but are not limited to, one or more of a tiered hierarchy of archaeological mitigation responses. These include:

- archaeological setbacks (including fenced-off exclusion zones);
- access routes;
- unplanted lines of sight;
- increasing the size of the archaeological setbacks;
- the exclusion of a larger area or areas of archaeological potential;
- archaeological monitoring of specified areas by an independent archaeological consultant retained by the Applicant or the Registered Forester;
- refusal of either part or all of the development, pending the consideration by the Forest Service and NMS of an archaeological assessment and an archaeological impact statement prepared by an independent archaeological consultant retained by the Applicant or the Registered Forester; or
- refusal after submission, where warranted due to significant adverse impacts that are evident at the very outset of the Forest Service assessment, or which become so as the assessment continues.

Note, as explained above, where it is evident to the Forest Service at the outset or where it becomes

*Ogham Stone, Knickeen, Co. Wicklow (Coillte property).*

evident as the assessment progresses, that a proposed development is likely to have significant adverse impacts on archaeological, historical or cultural sites or features, and which in its opinion cannot be adequately addressed by conditions based on the tiered hierarchy of archaeological mitigation responses listed above, the application may be refused entirely.

### *2.6.4 Archaeological finds at the pre-application design stage*

Note that, during the onsite assessment or with local knowledge, the Registered Forester may also encounter a previously unrecorded archaeological site or monument at the pre-application design stage. If discovered, the location of any new or suspected new archaeological site or monument must be included on the Biodiversity Map, and a clear reference included in the map's table legend. Furthermore, a clear description must be provided in the 'Other Environmental Considerations' section of the Afforestation Application Form 1.

The Forest Service will consider such reports as part of its assessment of the application. Following referral to the NMS, it may impose one or more relevant archaeological conditions, with a default position being to favour preservation *in situ* of any new archaeological site or monument so identified (in accordance with the principles and approach as set out in Part III of *Framework and Principles for the Protection of the Archaeological Heritage* (Department of Arts, Heritage, Gaeltacht and the Islands, 1999)).

Where an archaeological object is discovered at this stage, it must by law be reported within a reasonable time period (and not longer than 96 hours) to the Garda Síochána or the National Museum of Ireland. Also, unless there is reasonable cause to believe that removal or interference is necessary to preserve it or to keep it safe, it must not be disturbed. The unsupervised recovery of archaeological objects by untrained persons can greatly diminish or entirely eliminate any knowledge or research value that might be gained from a particular discovery. It is important that, wherever possible, archaeological objects are recovered in a structured scientific manner, with careful recording made of their association with other objects, structures, features and soil layers.

(Note, see Section 3.8 for details regarding archaeological finds discovered during site works.)

## 2.7 Landscape

**Objective: To ensure that the proposed forest is designed so that it is visually acceptable and in keeping with landscape and amenity sensitivities.**

The predominantly open landscape of Ireland is a result of the progressive clearance of the natural woodland cover through the centuries, primarily for agriculture. In such an open landscape, afforestation is a major change. Registered Foresters should therefore apply attention to shape, scale, species diversity, margins, open spaces and views, to ensure that the new forest complements the character of the landscape, and to avoid intrusive and monotonous plantations. Careful design of forests at the pre-application design stage is important, as only limited improvements can be made later on.

The Registered Forester should consult with the relevant County Development Plan (both Draft and Final Plans), which will identify areas of particular landscape sensitivity and important views. The Registered Forester should also view the site from various vantage points and approaches, to identify how best to design the forest(*).

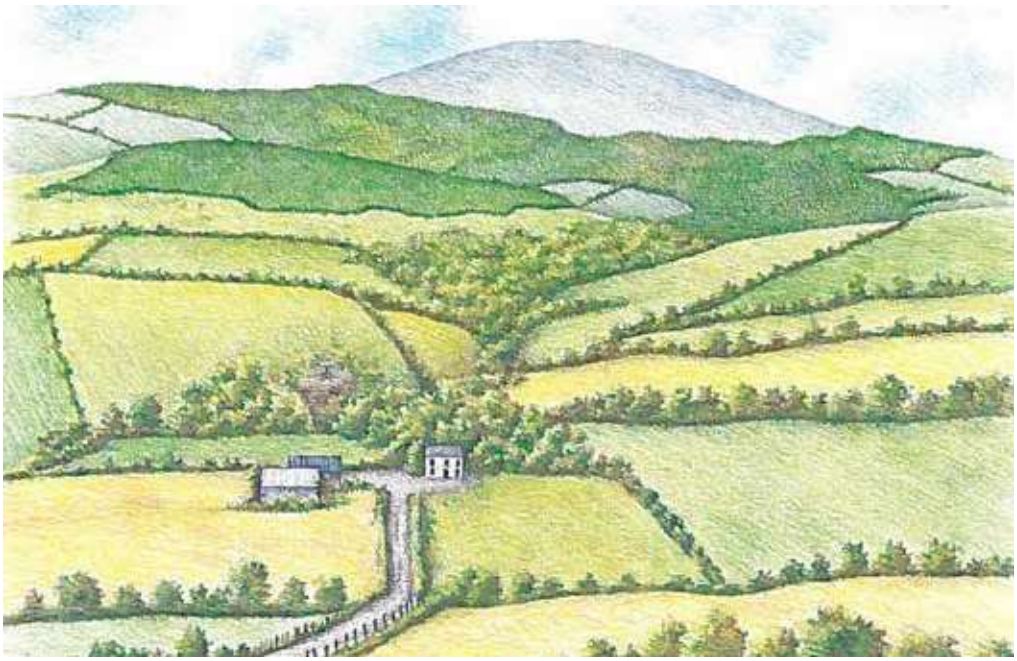
(* Within sensitive landscapes, it may be advisable for Registered Foresters to submit a series of photographs of the site, as viewed from various approach roads and local vantage points, together with an OS Discovery map indicating where each photo was taken. This will enable to Forest Service to assess how the afforestation will fit into the landscape, as viewed from these positions. Some digital cameras and smartphones have a function to take panoramic photographs, which are ideally suited for this purpose.)

Achieving an acceptable landscape design can be a subjective exercise. However, the following measures can be applied as required, taking account of the size of the proposed plantation, its position in the landscape, and its visibility from key vantage points, near and far. For example, a plantation on a visible hillside within a sensitive landscape will require a greater degree of design compared to a plantation within a lowland area with hedgerows, where measures may be limited to well-designed setbacks adjoining dwellings and public roads.

It is important that any measure applied is done so at an appropriate scale, in order to have the desired impact.

*When appropriately sited and with sensitive layout and design, new woodlands and forests make a significant contribution to the landscape. (Photo Gillian Mills)*

*Shape, margins and diversity are key considerations in forest landscape design. (Illustration Aislinn Adams)*



### *2.7.1 Shape*

- Shape is the dominant landscape feature. It refers to the forest outline and also to the pattern of different species within it.
- Overall straight or horizontal lines and geometric or regular shapes should be avoided, where possible. These are often imposed by property boundaries, but can be mitigated by landscape setbacks (see Section 2.8).
- The planting of single, small groups and irregular belts of native species (e.g. birch, rowan, oak and Scots pine, as site conditions allow) along the forest edge or within any environmental setback will also add visual interest – see Sections 3.5.3 and 3.5.4.
- On hillsides, planting should conform to the overall pattern in the landscape, whether natural landforms or field patterns, and follow the same rounded or irregular shapes.
- Large open landscapes are more suited to relatively large forested areas, while smaller and more regular shapes fit in better within a lowland pattern of fields and hedgerows.

### *2.7.2 Margins*

- Avoid abrupt margins between the forest and open ground, between different species and between different Grant & Premium Category (GPC) plots.
- On sites approaching the skyline, the upper margin should be in line with the predominant landscape characteristics, be they irregular or smooth. Avoid leaving a narrow parallel band of open ground near the skyline. The open ground should reflect the scale of the hill or ridge. At lower points, planting can be carried right over the skyline.
- In upland areas, long straight vertical boundaries should be avoided. Instead, a diagonal trend should be maintained.
- Along highly visible forest margins, localised areas of spruce and pine trees towards the outer 10-15 metres of the forest can be planted at wider and irregular spacing. This measure, when

used in conjunction with forest edge planting, can promote the sense of a natural tree line, therefore softening the external margin.

- In lowland areas, straight boundaries can be acceptable where they reflect the agricultural field pattern.
- On lower margins, plantations can be blended into the agricultural landscape by introducing and extending broadleaf plots and additional broadleaves upwards in amongst conifer plots, especially following hollows in the landform.

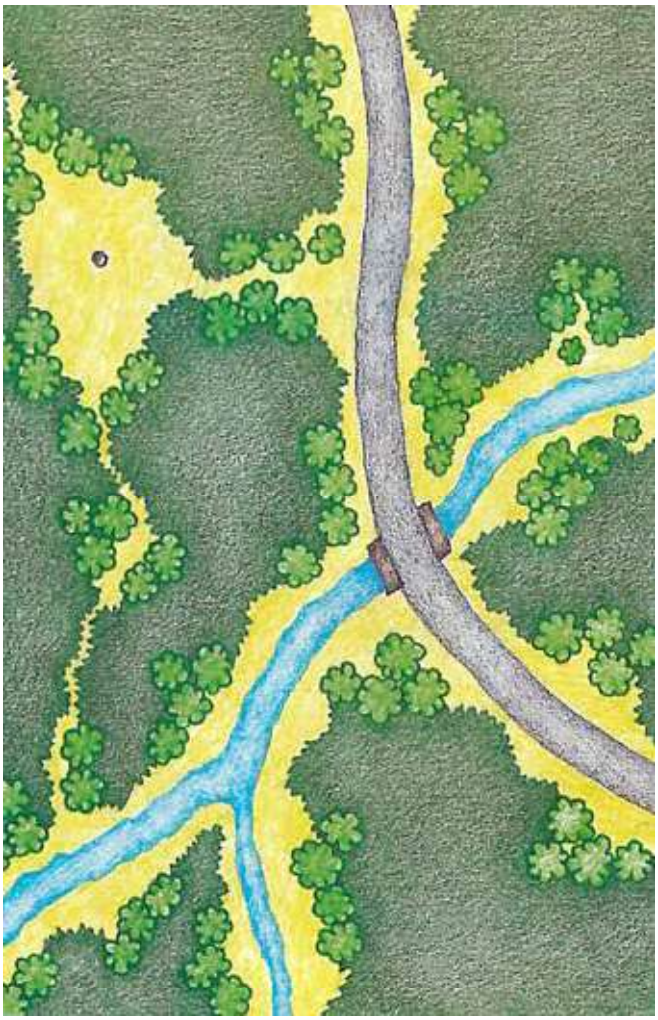
### *2.7.3 Diversity*

- Diversity can be promoted by using a variety of species and by incorporated and reinforcing open spaces and retained habitats.
- Too much variety, however, should be avoided. It is usually desirable that one species dominates by about two-thirds.
- To be considered eligible under the Afforestation Scheme, the proposed plantation must have a minimum of 10% broadleaves, either as plots of minimum width and / or as single, small groups and irregular belts of additional broadleaves. Furthermore, each plot must comply with one of the GPCs described in the *Forestry Standards Manual*, and its corresponding requirements, including species composition.
- Promote an interlocking pattern along the margin between plots of different species. This can be achieved by extending groups and single trees of one species into the other, within the scope allowed under the GPCs involved.
- Avoid creating long rows of single species or rows or blocks of alternate species.
- Avoid species boundaries crossing the skyline.
- Plot outlines and group planting should follow ground vegetation patterns – this will help maintain a natural appearance.
- Reinforce the outline of retained woody habitats, by planting broadleaves in adjoining tongues or groups.
- The planting of single, small groups and irregular belts of native species (e.g. birch, rowan, oak and Scots pine, as site conditions allow) along the forest edge or within any environmental setback will add visual interest – see Sections 3.5.3 and 3.5.4.

### *2.7.4 Environmental setbacks and future operational areas*

Within the overall plantation boundary, the pattern created by environmental setbacks and future operation areas must be taken into account. The layout and design of these open spaces is set out elsewhere in this document. As an overall measure, where these features intersect with each other, introduce appropriately-scaled bell mouths in order to eliminate stark junctions and corners that may be visible from outside the plantation. The use of forest edge planting and environmental setback planting (see Sections 3.5.3 and 3.5.4) can also soften harsh angles.

*Integrate environmental setbacks and future operational areas, to create a more natural landscape design. (Illustration Aislinn Adams)*



### *2.7.5 Other considerations*

- Where possible, ridelines and firebreaks through forests should follow landform and make use of natural features. They should follow an irregular route that avoids dividing a plantation into equal parts, and they should not be sited at right angles or parallel to contours.
- Landscape setbacks and appropriate edge design for public roads and dwellings are important – see Section 2.8 for requirements.

## 2.8 Environmental setbacks

An environmental setback is a (largely) unplanted and undisturbed open space of a defined width, installed to protect a particular environmental feature or sensitivity. Different types apply, depending on the feature or sensitivity involved, i.e.

- water setback
- retained habitat setback
- archaeological setback
- public road setback
- utilised building setback
- landscape setback

Table 5 describes the minimum setback width (as measured horizontally) and setback treatment for each of the above. Note, the Forest Service may stipulate, on a site-specific basis, greater setback widths than those prescribed, or setbacks in relation to other types of features or sensitivities (e.g. swallow holes).

In all cases:

- Where different setbacks overlap, the greater setback width applies.
- The setbacks described in Table 5 are eligible as ABEs.
- In general, setbacks are to remain undisturbed at afforestation and throughout the remainder of the rotation, and allowed to develop naturally. Setbacks will typically develop a sward of natural ground vegetation accompanied over time by (potentially) pockets of native woody growth.
- The ongoing treatment of setbacks during Site Works and Ongoing Site Management are detailed in those chapters.

*Water setbacks and setbacks from other environmental features and sensitivities are a key part of forest design. (Illustration Aislinn Adams)*

**Table 5** Environmental setback type and purpose, and corresponding minimum setback distance and additional design requirements.
Note, all setbacks are measured in metres *horizontally*.

## WATER SETBACK

**Purpose: To create at the outset, a buffer of natural ground vegetation positioned between defined water features and the forest crop and associated operations, in order to protect water quality and aquatic ecosystems from possible sediment and nutrient runoff from the site at afforestation and throughout the remainder of the forest rotation.**

***Minimum setback width, as measured from the nearest bank / edge of the water feature, as observed on-the-ground (setback applies to each side of the water feature, e.g. to both banks of an aquatic zone):***

*Aquatic zone* (as per Table 1):

| **Slope leading to the aquatic zone (apply as appropriate, where slope varies over the site)** | **Setback width** | **Setback width for peat soils and for sites within the catchment area of high status objective waterbodies (see note opposite)** |
|---|---|---|
| Moderate (even to 1-in-7 / 0-15%) | 10 metre | 20 metre |
| Steep (1-in-7 to 1-in-3 / 15-30%) | 15 metre | 25 metre |
| Very steep (1-in-3 / >30%) | 20 metre | 25 metre |

*Relevant watercourse:* 5 metre

*Hotspot:* 5 metre

*Drinking water abstraction point:* 20 metre

***Additional design:***

- Widen the water setback at various points along its length, to include adjoining wet hollows and other low-lying areas where water gravitates towards as it drains from the land.
- Based on the immediate landform / topography, vary the setback to avoid artificial lines and to create a naturally undulating forest edge.

NOTE, if the afforestation site is within the catchment area of a high status objective waterbody, the required setback width (as per the 3rd column opposite) can be reduced by 10 metres (from the landward side) if an appropriate GPC9 or GPC10 plot is included instead of this 10 m strip. For example, where a 25 m setback applies, this can be reduced to 15 m by applying the following sequence: aquatic zone → 15 m unplanted water setback → GPC9 or GPC10 plot. Standard requirements for GPC9 & GPC10 plots apply, as per *NWS Establishment GPC9 & GPC 10: Silvicultural Standards.*

## HABITAT SETBACK

**Purpose: To create adequate space adjoining a retained habitat to avoid or reduce any impacts arising from the emerging forest and its canopy.**

Different habitats identified as retained habitats (either as biodiversity plots or as linear or point biodiversity features) may require an unplanted habitat setback to prevent undue impact (such as shading) from the emerging forest. Setback width depends on the habitat and the potential impact(s). Apply careful design, e.g. focus the habitat setback mainly on the south-western, southern and south-eastern side of the habitat, to minimise the blockage of sunlight as the adjoining forest canopy grows. Note that the retained habitat itself must remain undisturbed (unless otherwise agreed or prescribed).

## ARCHAEOLOGICAL SETBACK

**Purpose: To physically separate the archaeological site or monument or other important built heritage structures or features from afforestation works, the emerging forest, and future forest operations.**

| Site, monument, building, structure | Minimum setback from the outermost extent of the archaeological site, monument, important built heritage structures or features, as evident onsite |
|---|---|
| 'Designated' archaeological sites and monuments (see note opposite) | 20 metre exclusion zone |
| 'Designated' buildings and structures or parts thereof which form part of the architectural heritage and which are of special interest (see note opposite) | 30 metre exclusion zone for upstanding structures (e.g. building)<br>Otherwise, 20 metre exclusion zone |
| Non-designated built heritage structures, e.g. lime kilns, sheep folds, creamery stands, stiles, pumps and pump houses, mill ponds, and derelict dwellings / farm buildings | 10 metre unplanted setback (demarcating fencing not required)<br>Where there is a cluster of such structures (e.g. a ruined dwelling and a number of out-buildings, often enclosed in a yard or by a boundary wall), the 10 metre unplanted setback to be measured from the enclosing boundary wall, or edges of the outermost buildings.<br>Where there are associated features such as boundary walls, mill races, or historic foot paths, 5 metre unplanted setbacks may also be applied to those features. Similarly for townland boundaries. |

NOTE, for designated archaeological sites and monuments and for designated buildings and structures (as defined in Section 2.6), the following applies:

- It is essential that the full extent (i.e. the outermost extent) of these features is known, so that the exclusion zone can be correctly identified. Where there is any doubt, the Registered Forester should seek advice from the relevant designating authority or the Forest Service Archaeologist.
- The boundary of the exclusion zone must be clearly demarcated by fencing, and pedestrian access routes must also be maintained or established (see Section 3.5.1 for details).

## PUBLIC ROAD SETBACK

**Purpose: To ensure adequate clearance to prevent tunnelling along the public road, to retain sightlines, and to create visual diversity for road users.**

***Minimum setback, as measured from the surfaced edge of the public road:***

10 metre (average, within any one application) (For conifer plots, note the additional requirement regarding edge planting – see Section 3.5.3.)

***Additional design:***

- Based on the immediate landform / topography, vary the setback to avoid artificial lines and to create a naturally undulating forest edge.
- Provisions for future extractions should be planned and associated open spaces retained along the forest edge. Retain locally important views from the public road, by introducing open spaces through the forest. Also introduce open spaces that highlight natural features visible along the roadside.
- Increase setback, where appropriate, to allow for greater visibility at bends in the road.

**UTILISED BUILDING SETBACK**

**Purpose: To prevent encroachment and isolation, the blocking of light and the curtailment of views in relation to dwellings, associated buildings, and roofed farm buildings.**

***Minimum setback, as measured from the outer wall of the roofed building:***

*Dwelling houses:*

- 60 metre minimum
- Smaller setback allowable (to a minimum of 30 metre), if written agreement of the neighbouring dweller is provided at Form 1 stage

*Roofed farm buildings:* 10 m

*Temporary buildings (e.g. timber sheds, kennels & buildings less than 25 $m^2$):* No setback required

***Additional design:***

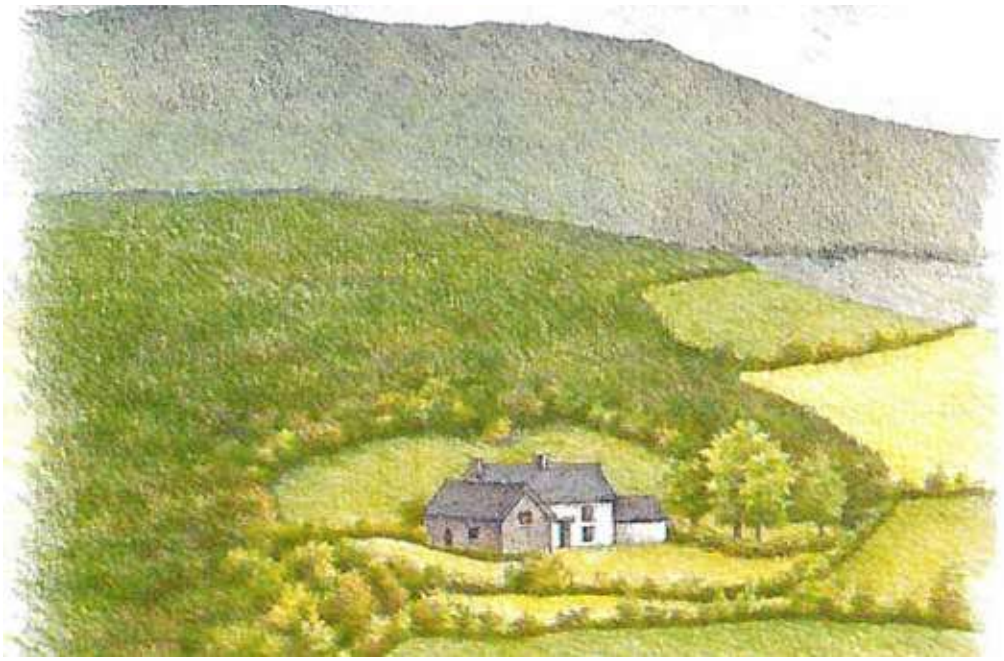
- Setback distance is most critical when a building is surrounded by forest on two or more sides.
- Based on the immediate landform / topography, vary the setback to avoid artificial lines and to create a naturally undulating forest edge.
- Consider retaining locally important views from the dwelling, by introducing open spaces through the forest. Also introduce open spaces that highlight natural features visible from the dwelling.
- In relation to setbacks from dwellings, setback planting is encouraged within the 30 m to 60 m zone, if agreed to by the neighbouring dweller.

**LANDSCAPE SETBACK**

**Purpose: To disrupt artificially straight lines and sharp angles along other visible sections of the plantation's outer perimeter, and to create stronger visual 'tie-in' with adjoining hedgerows and other semi-natural / natural features.**

Setback and design as appropriate. Will vary, depending on site details – see Section 2.7.

*Appropriate setbacks from dwellings, designed with appropriate edge planting with native broadleaf species, will avoid overshadowing and a sense of isolation. (Illustration Aislinn Adams)*



## 2.9 Future operational areas

Future operational areas are areas left unplanted in order to facilitate the future management of the plantation (e.g. a rideline) or to accommodate future infrastructure (e.g. a forest road or landing bay). In addition to their primary management function, these operational areas are also important biodiversity features in their own right, and this value can be enhanced further through simple design and additional planting. The following applies:

- Edge design should take account of good landscaping practices and the local topography. Avoid creating an unnaturally straight forest edge. Instead, taking account of the immediate landform, create a more naturally undulating edge.
- Where possible, orientate in an east-west direction, to maximise sunlight throughout the day and the seasons.

## 2.10 Open spaces and deer management

Forest design at afforestation should incorporate measures to facilitate future deer management. Environment setbacks and future operational areas may provide suitable open spaces to apply control, complete with appropriate shooting positions and safe back stops. However, these may need to be augmented by additional future operational areas, specifically for this purpose. Also, in the case of open spaces likely to be used for deer management purposes, avoid landscape and biodiversity planting within these spaces and along the adjoining forest edge, in order to retain clear lines of sight.

*A deer hide overlooking an open space. During afforestation, incorporate features that will facilitate deer management in the future.*

## 2.11 Site inputs

At design stage, planned site inputs such as fertilisers and herbicides should be tailored to the specific requirements of each plot. Aim to achieve successful establishment with the minimal level of artificial inputs possible.

Regarding fertilisers, phosphorus (P) is the main nutrient fertiliser applied at afforestation, with nitrogen (N) and potassium (K) occasionally applied as remedial fertilisation. Note that peaty soils have a very low capacity to bind phosphorus. Slow-release formulations may be appropriate on more sensitive parts of the site.

The afforestation application must detail:

- the proposed fertiliser type and application rate; and
- the proposed method of vegetation control (including herbicide type and application rate, if applicable).

Note that further operational safeguards regarding fertiliser and herbicide application are set out in Section 3.7.

## 2.12 Further environmental assessment

Stage 1: Design culminates in the submission of a Form 1 for afforestation approval. This triggers the Forest Service assessment of the proposal. In some situations, the Forest Service may seek specific environmental information regarding the proposal, before it can continue with its assessment. In such cases, a request for further information will be sent to the Applicant and his / her Registered Forester.

In a minority of cases, the information sought may entail the following, which typically involve the input of a specialist:

- Ecological Report

- Archaeological Assessment / Archaeological Impact Statement
- Water Management Plan
- Visual Impact Assessment
- NATURA Impact Statement (NIS)
- Environmental Impact Statement (EIS)

See the **SUPPORTING DOCUMENT** for further details.

# Section 3
# Site Works

## 3.1 Overview

Stage 2: Site Works spans the period between the receipt of the technical approval for afforestation up to the completion of initial site works and (where grant-aided) Form 2 submission.

The technical approval will set out conditions that must be adhered to. If uncertainty exists regarding any condition, contact the Forest Service for clarity before proceeding with any work.

Note the following:

- Site works can only commence after receipt of the technical approval (note, in order to be eligible for grant aid, projects submitted under the Afforestation Scheme must await financial approval, before commencing.)
- The Registered Forester must secure written Forest Service agreement before pursing any material change to a project post-approval. Not doing so may invalidate the technical approval and the financial approval (where relevant) issued.

## 3.2 Site management

The Registered Forester must ensure that all operators are fully aware of, and properly implement, all relevant measures set out in these Requirements and all environmental conditions attached to the technical approval issued. This should be carried out *via* onsite management and supervision. 'Tool box' meetings are encouraged, whereby the Registered Forester reviews the various sensitivities and safeguards during an onsite meeting with the operators before operations commence.

Onsite activities should also be reviewed periodically during the site works, to ensure that related safeguards are in place and that contingency planning (see below) is functioning.

## 3.3 Oversight by other specialists

Conditions attached to the technical approval may stipulate the onsite presence of a specialist during site works. For example, a condition may stipulate the archaeological monitoring of specified areas. Archaeological monitoring involves having a suitably qualified archaeologist present during certain operations, or during the course of the carrying out of certain parts of approved development works, in order to identify and protect archaeological deposits, features or objects that may be uncovered or otherwise impacted by those operations. In such cases:

- an independent archaeological consultant must be retained by the Applicant or Registered Forester to carry out the monitoring;
- as set out in Section 3.8, the archaeologist will be empowered by the approval conditions to stop any works in the immediate area of any new discoveries *inter alia*, so as to ensure the timely notification of the relevant authorities, the proper recording of any exposed archaeological material, and the preservation by record or preservation *in situ* of the

elements of the archaeological heritage, as appropriate;

- there will be a condition requiring the archaeological consultant to submit a full report on the results of the archaeological monitoring (including any discoveries made and any subsequent archaeological work undertaken) to the Forest Service, the NMS and the National Museum of Ireland; and
- failure to ensure that the archaeological monitoring is undertaken during the course of the carrying out of the specified parts of approved development or to submit the required report on this monitoring before or at latest at Form 2 stage, may be deemed to be:
  - a breach of the statutory approval for afforestation; and / or
  - a breach of the specific environmental conditions attached to the approval for grant aid and may: (i) delay the progress of the Form 2 (Application for 1st Grant Instalment); and (ii) be subject to a penalty.

Sanctions may also applied, as set out in the *Terms & Conditions for the Registration of Foresters and Forestry Companies*.

## 3.4 Contingency measures

Ensure that an adequate contingency plan is prepared. This plan must clearly inform operators how to react and who to contact, should an unexpected event arise that may create a risk to the environment, e.g. a period of intense rainfall, an accidental spillage of chemicals, the discovery of an unidentified archaeological site, monument or object. The plan should be readily available onsite and all operators should be made familiar with its content.

The **SUPPORTING DOCUMENT** contains a template contingency plan, to be completed as relevant.

## 3.5 Treatment of setbacks

As set out in Stage 1: Design, the following setbacks, comprising (largely) unplanted and undisturbed open spaces of a defined width, are required to protect different environmental features and sensitivities:

- water setbacks
- retained habitat setbacks
- archaeological setbacks
- public road setbacks
- utilised building setbacks
- landscape setbacks

See Table 5 for setback widths and design details. The treatment of these setbacks during Stage 2: Site Works is set out below.

***The Registered Forester must ensure that all operators are aware of the importance of any environmental setbacks required onsite, their location and extent, and what is and is not permitted within them (as per Table 6 below). An environmental setback must not be used for any forest operation or for any other purpose which could compromise its protective function or which could***

***damage the environmental feature or sensitivity being protected.***

***Under the* Forestry Schemes Penalty Schedules*, failure to adhere to the required environmental setbacks can incur significant penalties.***

### *3.5.1 Installing environmental setbacks*

It is good forest practice to mark out environmental setbacks *before* operations commence, to avoid incursions. The following guidance applies:

- Mark off the setback using temporary markers, e.g. posts or bamboos with hi-vis tape, securely driven into the soil with approximately 1.5 metres remaining visible above ground.
- Marker spacing will vary depending on setback shape, e.g. 10 metre spacing for setbacks which vary in width; 30 metre spacing for long linear setbacks.
- Linear setbacks (e.g. archaeological sight lines) can be demarcated by markers set along the centre line.
- Also use markers to indicate the position of any additional enhancement planting proposed along the forest edge or within the setback itself (see below).

***Note that specific requirements apply regarding 'designated' archaeological sites and monuments and 'designated' buildings and structures or parts of structures which form part of the architectural heritage and which are of special interest:***

- Unless the conditions attached to the technical approval specify otherwise, erect a permanent fence comprising two strands of plain wire on the outer edge of the archaeological / built heritage exclusion zone. Adhere to the standard Forest Service fencing specifications, including the use of IS 436 stakes (see the *Forestry Standards Manual*)(*). Note, where the outer edge of an archaeological monument / built heritage structure or feature is not evident on-the-ground, the advice of the Forest Service Archaeologist or a consultant archaeologist retained by the Applicant or her / his Registered Forester should be sought. (*This fence must be stock proof, if it represents an external boundary of the plantation.)
- Existing access routes to an archaeological site must be left unplanted and undisturbed, and must be left open for pedestrian access by archaeological officials throughout the rotation. If there is no existing access route, leave an unplanted 4 metre wide route suitable for pedestrian access from the direction of the nearest public road, forest road or track.

### *3.5.2 Subsequent treatment*

Table 6 details what is and is not permitted within the various environmental setbacks.

**Table 6** Treatment of environmental setbacks during site works. Note, if setbacks overlap, the more environmentally stringent set of requirements apply.

| | *Operation* | | | | | | |
|---|---|---|---|---|---|---|---|
| ***Setback type*** | ***Forest edge planting*** | ***Environmental setback planting*** | ***Demarcation fencing with stakes and wire*** | ***Machine traffic*** | ***Cultivation / Drainage*** | ***Fertiliser application / Vegetation management*** | ***Temporary onsite storage of fertiliser, fuel, etc. associated with afforestation*** |
| **Water setback** | Encouraged – see Section 3.5.3. | Encouraged – see Section 3.5.4. | Not required | Exclude | Exclude.<br>New drains must not enter into or traverse the water setback, or discharge directly into the aquatic zone or into an existing drain (with an exception detailed in Section 3.7.1). | Permitted if required to establish setback planting, based on the following requirements:<br>➢ Fertiliser application limited to the manual application of an appropriate slow-release formulation into the planting pit.<br>➢ Regarding vegetation management, herbicide use is prohibited. Use non-herbicide methods instead, such as trampling, mulches and mats. | Exclude |
| **Habitat setback** | Encouraged – see Section 3.5.3. | Exclude | Not required | Exclude | Exclude | Exclude | Exclude |
| **Archaeological setback** | Encouraged – see Section 3.5.3. | Exclude | Required for designated archaeological features – see Section 3.5.1 for details. | Exclude | Exclude | Exclude | Exclude |

| *Setback type* | *Forest edge planting* | *Environmental setback planting* | *Demarcation fencing with stakes and wire* | *Machine traffic* | *Cultivation / Drainage* | *Fertiliser application / Vegetation management* | *Temporary onsite storage of fertiliser, fuel, etc. associated with afforestation* |
|---|---|---|---|---|---|---|---|
| **Public road setback** | Mandatory for roadside conifer plots – see Section 3.5.3. | Exclude | Not required | Permitted | Exlude | Exclude | Permitted, subject to safeguards under Section 3.7.5. |
| **Utilised building setback** | Mandatory for setbacks from dwellings – see Section 3.5.3. | In relation to setbacks from dwellings, setback planting is encouraged within the 30 m to 60 m zone, if agreed to by the neighbouring dweller. See Section 3.5.4. | Not required | Permitted | Exclude | Permitted if required to establish setback planting, based on the following requirements:<br>➢ Fertiliser application limited to the manual application of an appropriate slow-release formulation into the planting pit.<br>➢ Regarding vegetation management, herbicide use is prohibited. Use non-herbicide methods instead, such as trampling, mulches and mats. | Permitted, subject to safeguards under Section 3.7.5. However, if within a setback from a dwelling, exclude the preparation and storage of herbicides (and other pesticides, if used). |
| **Landscape setback** | Encouraged – see Section 3.5.3. | Encouraged – see Section 3.5.4. | Not required | Permitted | Permitted, for setback planting. | Permitted, for setback planting. | Permitted, subject to safeguards under Section 3.7.5. |

### *3.5.3 Forest edge planting*

- Forest edge planting comprises the planting of single, small groups and irregular belts of native species (e.g. birch, rowan, oak and Scots pine, as site conditions allow) along the outer edge of conifer GPC plots, typically those adjoining environmental setbacks.
- This measure enhances the landscape and biodiversity value of the forest edge.
- Forest edge planting is mandatory within conifer plots adjoining:
  - utilised building setbacks created for dwellings; and
  - public road setbacks, where the strip 10 metres to 20 metres from the road must be planted with broadleaf trees, to give a minimum two-thirds coverage within this strip.
- Forest edge planting is encouraged in relation to all other environmental setbacks, as site conditions allow - see Table 6.
- Where applied, forest edge planting must not encroach into the environmental setback itself, in order to maintain the necessary setback width. Forest edge planting forms part of the GPC plot.
- Where applied as single trees, ensure that the tree is adequately protected against grazing, using a standard tree shelter or a deer guard, as necessary.
- Where applied as groups, adopt a robust planting design using trees with compatible growth rates, planted with necessary protection against grazing. Group size may vary from 5-10 trees to 50 trees and over, depending on landscape scale. In deer-prone areas, wider spacing and the use of deer guards may be appropriate - specify details on the Certified Species Map.

### *3.5.4 Environmental setback planting*

- Environmental setback planting comprises the planting of single, small groups and irregular belts of native species (e.g. birch, rowan, oak and Scots pine, as site conditions allow) ***within*** an environmental setback.

*Forest edge planting, using deer shelters.*

- This measure enhances the environmental role of the setback itself, e.g. planting within a landscape setback will create better visual 'tie-in' between the surrounding landscape and the forest edge.
- Apply environmental setback planting as per Table 6 and as site conditions allow.
- Where applied as single trees, ensure that the tree is adequately protected against grazing, using a standard tree shelter or a deer guard, as necessary.
- Where applied as groups, adopt a robust planting design using trees with compatible growth rates, planted with necessary protection against grazing. Group size may vary from 5-10 trees to 50 trees and over, depending on landscape scale. In deer-prone areas, wider spacing and the use of deer guards may be appropriate - specify details on the Certified Species Map.
- Environmental setback planting should not exceed 20% of the area of the setback.
- Note, setback planting may be counter-productive within setbacks likely to be important for deer management, as it may obstruct sight lines.
- The following applies specifically in relation to planting within water setbacks:
    - Strategic planting within water setbacks may help to deliver direct in-stream ecosystem services such as bank stabilisation, cooling / shading, and food drop into the aquatic ecosystem.
    - Pursue water setback planting only where agreed in advance with Inland Fisheries Ireland and (where relevant) NPWS.
    - Limit to single or small groups (5-10 trees) of native riparian species (birch, willow, and occasional alder and pedunculate oak) at strategic points within the water setback.
    - Such trees should be pit-planted and protected from grazing, as necessary.

## 3.6 Treatment of future operational areas

Treat future operational areas (as described in Section 2.5.2) as follows, to enhance their landscape and biodiversity value:

- As per good practice, mark out these areas *before* operations commence (see Section 3.5.1).
- Based on the immediate topography, vary their width to avoid artificially straight lines and to create a naturally undulating forest edge.
- Consider forest edge planting (see Section 3.5.3).

## 3.7 Operational safeguards

Mandatory measures to protect the environment during operations are set out below. Conditions attached to the technical approval may also contain additional measures to be adhered to. Also note Section 3.1 (regarding material changes post-approval) and Section 3.4 (regarding contingency planning).

### *3.7.1 Drainage and cultivation*

A key requirement regarding drainage and cultivation is the protection of aquatic zones (streams, rivers and lakes) from any sediment and nutrients contained in water draining off the site, both during afforestation and throughout the remainder of the forest rotation. The following measures apply.

- Review Section 2.4.2 regarding key factors dictating selection and design.
- It is critical that water collected in drains flows slowly, both during afforestation and throughout the remainder of the rotation.
- Adhere to the overall drainage and cultivation plan approved for the project, and to the specifications set out in the *Forestry Standards Manual*.
- Select machinery based on soil, drainage and slope, to minimise the risk of rutting.
- In relation to water setbacks for aquatic zones and other water features (see Section 2.8):
    - Ensure that all new drains end in an appropriately-sized sediment trap or an interceptor drain(*) positioned ***outside*** of the water setback. This will allow discharged water to seep through the water setback, enabling ground vegetation to filter out sediments and nutrients.
    - Do not carry out any cultivation within the water setback itself.
    - New drains must not enter into or traverse the water setback, or discharge directly into the aquatic zone or into an existing drain(**).

  (* Interceptor drains are constructed along the outer edge of the water setback. They collect the discharge from the drained area and allow it to overflow into the water setback. See *Forestry Standards Manual* for details.)

  (** An exception applies to flat difficult-to-drain sites, where it may be necessary to link drains directly into the aquatic zone or an existing drain, provided it can be assured (based on site factors and / or sediment traps and other safeguards) that sediment and nutrients will not enter the aquatic zone. (If linking into an existing drain, the following applies: Existing drains may be 'greened over' to varying degrees, and this vegetation plays an important role in filtering out sediments and nutrients. Therefore, if the existing drain needed to be cleaned out, consider doing so in sections over several years, as opposed to a single operation.) Note, no linkage into aquatic zones and existing drains is permitted where the *Forestry & Freshwater Pearl Mussel Requirements* apply or anywhere within the Priority 8 Freshwater Pearl Mussel Catchments. This restriction may result in the site falling under the category 'Unsuitable Land Type' (see FS-DAFM *Land Types for Afforestation*) and therefore ineligible for funding under the Afforestation Scheme.)
- In general, do not carry out any drainage or cultivation within any other environmental setback. See Table 6 for details.
- Collector drains that receive water from mound drains should be no more than 80 metres apart. The angle of descent within these collector drains, as measured within the channel of the drain itself, should be no greater than 2 degrees (1-in-30). Collector drains should be excavated to a depth no more than 15 cm below the depth of the mound drains. The

*Conventional mounding (left) and invert mounding for more sensitive sites (right).*

intersection between mound drains and collector drains must be offset along the length of the collector drains, to ensure that individual mound drains do not continue in long unbroken runs down the slope.

- Regarding sediment traps:
  - The number, design and size of sediment traps must be sufficient to protect against the sedimentation of any receiving aquatic zone during afforestation and throughout the remainder of the forest rotation.
  - In order to capture sediment as close to the source as possible, sediment traps must be installed *throughout* the drainage network. The number of sediment traps installed must reflect the risk of sediment becoming mobilised.
  - Sediment traps are required at the end of all new drains leading to the water setback. These sediment traps must be located ***outside*** the water setback.
  - Sediment traps should be located on level ground (where possible) and should be rectangular in nature, with the longer side orientated parallel to the flow.
  - Sediment traps can represent a site hazard and may require specific health and safety measures such as fencing.
  - Monitor sediment traps throughout operations. If sediment traps are filling up, clear out the built-up sediment and deposit it on level ground several meters away.
- Stop all drainage and cultivation operations during periods of rainfall, in situations where rainfall level and site conditions create the risk of sediment becoming mobilised onsite. Operations can only recommence once an adequate period of time has elapsed for the risk to abate. This safeguard is triggered by tracking weather forecasts and by contingency planning.
- Where the drainage network and sediment traps are under pressure and signs of failure are evident, additional measures will be required, often in the form of additional sediment traps. In complex situations, the input of a hydrologist or an engineer may be required.

*In-drain sediment trap (left) and a sediment trap adjoining a water setback (foreground) (right).*

Additional safeguards include the following:

- Small dams positioned within drains and comprising timber, stone or staked geotexile, can be used to slow water flow and to encourage sediment deposition. These should have a 'V'-shape in their centre, to control the overflow of water and to prevent the scouring out of the sides of the channel during flood events.
- It may be necessary to install large settling ponds into which site drains flow. These settling ponds must be appropriately sized (i.e. sufficient to contain flow from high rainfall events), strategically located within the main body of the plantation and away from aquatic zones, and properly maintained.
- Favour plots of more species-diverse GPCs in areas adjoining water setbacks, where site conditions allow.
- Design the drainage network in a way that will eliminate or reduce water-related risks during operations later in the forest rotation, e.g. roading, thinning.
- Develop windfirm edges within the forest (e.g. using ridelines or retained hedgerows with habitat setbacks) to enable the future harvesting of smaller coupe sizes over staggered periods of time.

### *3.7.2 Fertiliser application*

A key consideration regarding fertiliser application during site works is to eliminate the risk of run-off into receiving waters. The following apply:

- Match fertiliser type and application rate to specific plots – aim to achieve successful establishment with the minimal level of fertiliser input possible. Do not apply fertiliser if it is not needed.
- Where available, granular formulations should be used to reduce the potential for drift and wash-off into receiving waters.
- Fertiliser application is not permitted within the water setback (some exceptions apply - see Table 6) or within 20 metres of the aquatic zone, whichever is greatest. Manual fertiliser application only is permitted from this point back to 50 metres from the aquatic zone.
- In general, fertiliser application is not permitted within water setbacks or other environmental setbacks. However, some exceptions apply - see Table 6.
- Do not apply fertiliser if heavy rainfall is predicted, or during heavy rainfall and / or high winds. Following heavy rainfall, commence application only after the site has dried out sufficiently for runoff not to pose a risk.
- Apply fertiliser manually, where possible.
- Consider using alternative slow-release fertilisers in more sensitive parts of the site.

### *3.7.3 Vegetation management using herbicides and other methods*

Vegetation management during afforestation typically involves the use of herbicide. Regarding the use of pesticides, including herbicides:

- The use of pesticides is governed by the European Communities (Sustainable Use of Pesticides) Regulations 2012 (S.I.155/2012). Users of pesticides should familiarise themselves with these Regulations and adhere to them.
- Only a registered professional user can apply pesticides authorised for professional use. A professional user is any person who applies / sprays professional use products (regardless of the quantity or method of application), including operators, technicians, employees and self-employed people, both in the farming and other sectors.
- All users of pesticide products registered for professional use must follow the principles of Good Plant Protection Practice, available for download at www.pcs.agriculture.gov.ie/sud/professionalusersprayeroperators/
- Appendix I to the above Good Plant Protection Practice document sets out general principles of integrated pest management, which all professional users are required to follow. Appendix II sets out other legal requirements relating to the safe use of plant protection products.
- Any pesticide to be used in forestry must be approved for use in Ireland. Details of approved products can be checked on the Pesticide Control Service section of the DAFM website (see www.pcs.agriculture.gov.ie).

*Herbicide application within the forestry context must foll must follow the principles of Good Plant Protection Practice.*

A key consideration regarding herbicide application during site works is to eliminate the risk of runoff into receiving waters. The following apply:

- Aim to achieve successful establishment with the minimal level of herbicide input possible. Do not apply herbicides if they are not required.
- Do not apply herbicide if heavy rainfall is predicted, or during heavy rainfall and / or high winds. Following heavy rainfall, only recommence application after the site has dried out sufficiently for runoff not to pose a risk.
- Fully adhere to the manufacturer's instructions and also measures set out in the Forest Service *Forest Protection Guidelines* and *Guidelines for the Use of Herbicides in Forestry*.
- Do not apply herbicides within the following areas, relying instead on non-herbicide methods such as trampling, mulches and mats:
    - within the water setback or within 20 metres of the aquatic zone, whichever is greatest;
    - within the water setback of a relevant watercourse or hotspot;
    - within specified distances from different types of water abstraction points, as prescribed by S.I.155/2012 - see Table 7;
    - within 15 metres of a landscape feature known to be a groundwater vulnerable area, including karst areas, sinkholes and collapse features; or
    - within a utilised building setback created for a dwelling.
- Herbicides are not permitted in sites within SACs and SPAs without completing a risk assessment (this may form part of a NIS, where sought). Preference should be given to low risk plant protection products or biological and cultural control measures in cases where their use is unavoidable.

**Table 7** Distances from different types of water abstraction points, within which pesticide (including herbicide) application is prohibited under Schedule 2 of S.I.155/2012.

| ***Type of abstraction point*** | ***Prohibited distance*** |
|---|---|
| Abstraction point of any surface waters, borehole, spring or well used for the abstraction of water for human consumption in a water scheme supplying 1 $m^3$ or less of water per day or serving 10 or less persons | 5 metres |
| Abstraction point of any surface waters, borehole, spring or well used for the abstraction of water for human consumption in a water scheme 25 m supplying 1 - 10 $m^3$ of water per day or serving 10 - 50 persons | 25 metres |
| Abstraction point of any surface waters, borehole, spring or well used for the abstraction of water for human consumption in a water scheme 100 m supplying 10 $m^3$ or more of water per day or serving 50 - 500 persons | 100 metres |
| Abstraction point of any surface waters, borehole, spring or well used for the abstraction of water for human consumption in a water scheme supplying 100 $m^3$ or more of water per day or serving 500 or more persons | 200 metres |

### *3.7.4 Other pesticide use*

Other pesticides may be needed on rare occasions within the context of afforestation. In such cases, the above requirements regarding herbicides apply at a minimum, and more stringent measures may also be required. Regarding the risk of Pine Weevil outbreak (e.g. an afforestation site adjoining a recent conifer clearfell), any necessary dipping of planting stock must be carried out off-site in the forest nursery, with onsite application permitted only in response to an ongoing outbreak. Alternative control measures are encouraged, e.g. the use of larger planting stock.

### *3.7.5 Preparation, storage and use of potentially hazardous material*

Spillage or leakage of fertilisers, herbicides (and other pesticides), fuel and machine oils can be highly damaging to the environment, especially water. The following apply regarding these materials:

- Minimise onsite storage and preparation.
- If unavoidable, store and prepare (if relevant) at a dry, elevated location at least 50 metres from any aquatic zone and at least 20 metres from all other water features (as listed in Table 1). This also applies to all machine refuelling, maintenance and repair work.
- Do not discharge any substance into an aquatic zone, relevant watercourse or hotspot, or into any drain or sediment trap.
- Do not rinse out containers onsite.
- Do not clean equipment within 50 metre of any aquatic zone or within 20 metres of any other water feature (as listed in Table 1). All wash waters must be disposed of carefully.
- Collect and retain spent machine oil for appropriate disposal off-site.
- Remove all empty fertiliser bags, pesticide and oil containers, and all general refuse, from the site during and after site works, for appropriate disposal off-site.
- Regarding pesticides (including herbicides), adhere to the principles of Good Plant Protection Practice (see Section 3.7.3) and to relevant sections of the *Forest Protection Guidelines* and *Guidelines for the Use of Herbicides in Forestry*.

## 3.8 Archaeological finds discovered during site works

Previously unidentified archaeological sites or artefacts may be exposed during the course of site work, particularly during cultivation and drainage. These include artefact scatters, objects such as pottery, flint and other stone artefacts, bronze or iron tools and quern stones, as well as burials and structural features such as the foundations of buried structures or trackways. For example, the presence of a spread of black soil or charcoal and burnt and heat-shattered stone is likely to indicate the presence of a levelled cooking place (i.e. a fulacht fiadh) or other human activity in the past.

If an archaeological find is discovered, the following applies:

- The Garda Síochána, the National Museum of Ireland or the National Monuments Service must be notified immediately.
- The archaeological object(s) or feature(s) must be left undisturbed. A minimum exclusion zone 20 metres in radius centred on its location, and preferably larger, must be immediately created until the site of the find has been investigated.
- Where an archaeological object is discovered other than by a qualified archaeologist operating under an excavation licence issued by the NMS, it must be reported in the same way as described in the Section 2.6.4.
- Where feasible, all operations should be switched to some other part of the afforestation site, as far away as practically possible, until the investigation is complete.

As outlined above, clear contingency planning must be in place covering the possibility whereby an unidentified archaeological site or object is discovered during site works.

## 3.9 Burning

The burning of woody vegetation may occasionally be necessary to facilitate afforestation. This is normally carried out during the season prior to planting.

***Note that, under the Wildlife (Amendment) Act 2000, it is an offence to cut, grub, burn or otherwise destroy, during the period 1st March to the 31st August inclusive, any vegetation growing on any land not then cultivated.***

Furthermore, under no circumstances should such material be burned on or near a known or suspected archaeological site or monument or other important built heritage structure or feature or within the archaeological setback / exclusion zone, as this could cause damage to the site, monument, structure or feature as well as to underlying archaeological deposits.

For details, see the Forest Service *Prescribed Burning: Code of Practice - Ireland* (www.agriculture.gov.ie/forestservice/firemanagement/)

## 3.10 Form 2 submission

Where the project has received financial approval and the 1st grant instalment is being sought, the Registered Forester must walk the site within 2 months prior to submitting the relevant Form 2, and satisfy her- / himself that the plantation is compliant (*inter alia*) with all relevant measures set out in these Requirements and with all environmental conditions attached to the technical approval issued. If not, rectify any outstanding issue(s) before submitting the Form 2.

As set out in the *Forestry Standards Manual*, a subsequent Forest Service inspection may stipulate remedial works is cases where the plantation is not compliant.

# Section 4
# Ongoing Management

## 4.1 Overview

Stage 3: Ongoing Management spans the period from the completion of initial site works (and payment of the 1st grant instalment, if grant-aided) up to Year 15 (i.e. the end of the premium period, if applicable).

During this part of the forest rotation, there are generally no major site inputs required. However, basic environmental measures apply, in addition to any specific conditions attached to the original approval. Other silvicultural requirements also apply during the premium payment period, as set out in the *Forestry Standards Manual* (e.g. the maintenance of stocking levels, fence lines and fire breaks, fertiliser application) all of which must be carried out appropriately to prevent environmental impacts.

Key will be the ongoing monitoring of the site, to ensure compliance with silvicultural and environmental standards, requirements and conditions and also to check that potential threats to the environment do not emerge (particularly in relation to drains and sediment traps) and that various protective measures (principally setbacks) are functioning as intended.

## 4.2 Site inputs

Site inputs during Stage 3 are generally limited to the first 4 years up to submission of the Form 3 (if grant-aided). At this point, the forest should be fully established(*), with all plots having at least 90% of the original stocking spread evenly throughout the plot, with originally approved species represented proportionately, and with trees free from competing vegetation and free-growing (see the *Forestry Standards Manual*). Such inputs include herbicide application and possible fertiliser application, if nutrient deficiencies arise. Both inputs must adhere to measures set out in Sections 3.7.2 and 3.7.3 of these Requirements. (*Note, establishment may take longer on some sites.)

Regarding fertiliser application, assess exact requirements through a foliage analysis, following the procedures set out in the *Forestry Standards Manual*.

(Over larger areas, aerial fertilisation may be required. No aerial fertilisation can be undertaken unless an Aerial Fertilisation Licence as been obtained from the Forest Service. Refer to the separate *Aerial Fertilisation Requirements* for details.)

Ensure that any necessary filling-in prior to Form 3 submission reflects the diversity of the original planting, in relation to biodiversity and landscape.

## 4.3 Drains and sediment traps

Check drains and sediment traps regularly up to Year 4 and periodically thereafter, particularly during and after heavy rainfall, in order to assess how effectively they are working.

If sediment traps are filling up, clear out the built-up sediment and dispose of it on level ground several meters away. Where the drainage network and sediment traps are under pressure and signs of failure are evident, additional measures will be required, often in the form of additional sediment

traps. In complex situations, the input of a hydrologist or an engineer may be required.

In most cases, drains will stabilise and 'green-up' with colonising vegetation over time.

## 4.4 Treatment of setbacks

As set out in Stage 1: Design and Stage 2: Site Works, the following setbacks, comprising (largely) unplanted and undisturbed open spaces of a defined width, are required to protect different environmental features and sensitivities:

- water setbacks
- retained habitat setbacks
- archaeological setbacks
- public road setbacks
- utilised building setbacks
- landscape setbacks

The treatment of these setbacks during Stage 3: Ongoing Management is as follows:

1. The intended protective function of these setbacks must be maintained throughout this stage of the forest's development. This generally entails leaving these areas undisturbed and allowing natural ground vegetation to develop. Management may be required in some cases, e.g. to control woody growth within a setback adjoining a dwelling, to retain an important view or to prevent fire risk.
2. Monitor the development of forest edge planting and environmental setback planting (where undertaken) and maintain trees as appropriate (e.g. vegetation management, replacement of mortalities, adjustment and eventual removal of tree shelters) until the trees are established and free of grazing pressure.

*A well-established water setback adjoining a broadleaf plot.*

3. Adhere to the specifications set out in Table 6 regarding permitted operations within setbacks.
4. The type of natural vegetation that will emerge within the various setbacks will vary according to soil, elevation, aspect, grazing pressure, etc. On most sites, a mosaic of natural ground vegetation and pockets of woody growth will typically emerge throughout this stage.
5. Monitor and apply appropriate control to prevent the colonisation of setbacks by rhododendron and other exotic invasives. This requirement also applies to paths required in relation to 'designated' archaeological sites and monuments and 'designated' buildings and structures, to maintain access by archaeological officials.
6. The colonisation of the water setback with exotic invasives, in particular, Japanese knotweed, Himalayan balsam and rhododendron, is of significant concern regarding water quality. Where best practice involves herbicide use, consult with Inland Fisheries Ireland and other relevant bodies in advance. Controlling such species is difficult and expensive, and often requires a wider catchment approach for progress to be sustained.

Note, 2 and 5 above also apply to the treatment of future operational areas (see Section 2.9) during this stage of the rotation.