Appendix 1.1 Author Qualification and Experience

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EIAR Chapter	Contributor & Qualifications	Years of Experience
1: Introduction	Ms. Sarah Moore, BSc., MSc, Senior Environmental Consultant, Jennings O'Donovan & Partners Limited	18
	Ms. Siobhan Roddy, BSc, Environmental Consultant, Jennings O'Donovan & Partners Limited	1
2: Project Description	Ms. Sarah Moore, BSc., MSc, Senior Environmental Consultant, Jennings O'Donovan & Partners Limited	18
	Ms. Siobhan Roddy, BSc, Environmental Consultant, Jennings O'Donovan & Partners Limited	1
	Ms. Kathlyn Feeney, BSc, Environmental Consultant, Jennings O'Donovan & Partners Limited	1
3: Alternatives Considered	Ms. Sarah Moore, BSc., MSc, Senior Environmental Consultant, Jennings O'Donovan & Partners Limited	18
	Mr. Padraig O' Dowd, B.A., GradDip, MSc, Junior Environmental Scientist, Jennings O'Donovan & Partners Limited	2.5
	Ms. Siobhan Roddy, BSc, Environmental Consultant, Jennings O'Donovan & Partners Limited	1
4: Planning Policy	Ms. Breena Coyle, BA, MSc MRTPI HD Planning and Environmental Planning Law, Senior Planner, Jennings O'Donovan & Partners Limited	15
	Ms. Sarah Jones, BSc., Environmental Consultant, Jennings O'Donovan & Partners Limited	14
	Ms. Siobhan Roddy, BSc, Environmental Consultant, Jennings O'Donovan & Partners Limited	1
	Ms. Kathlyn Feeney, BSc, Environmental Consultant, Jennings O'Donovan & Partners Limited	1
5: Population and Human Health	Ms. Sarah Moore, BSc., MSc, Senior Environmental Consultant, Jennings O'Donovan & Partners Limited	18
	Mr. Padraig O' Dowd, B.A., GradDip, MSc, Junior Environmental Scientist, Jennings O'Donovan & Partners Limited	2.5
	Ms. Siobhan Roddy, BSc, Environmental Consultant, Jennings O'Donovan & Partners Limited	1
6: Biodiversity	Mr. Brian Madden, MSc., BSc., CIEEM, Director, Biosphere Environmental Services	25+
	Mr Ryan Mitchell, BSc (Hons), Environmental Scientist, Ecologist and Project Manager, Jennings O'Donovan & Partners Limited	7+
		16+

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EIAR Chapter	Contributor & Qualifications	Years of Experience
	Mr. Tom O'Donnell BSc (Hons) MSc, CEnv, MCIEEM, Director and Principle Ecologist, O' Donnell Environmental. Mr Tony Gittins, BSc, PhD, MCIEEM, Ecological Consultant, Freelance Ecological Consultant.	29+
7 Aquatic Ecology	Dr. Edward McCormack, PhD., BSc, Principal Ecologist, Aquafact Ms. Aisling Hearty, M.Sc., Senior Ecologist, Aquafact	25+ 6
8: Soils and Geology	Mr. Sven Klinkenbergh, BSc., P.G.Dip, Geologist, RSK Limited Dr. Deirdre Walsh - BSc, PhD, Environmental Consultant, RSK Eilis Linehan, MSc, HDip, BSc, Environmental Consultant and Associate Director, RSK	10+ 10+ 12+
9: Hydrology and Hydrogeology	Michael Gill, P. Geo., B.A.I., MSc, Dip. Geol., MIEI, Environmental Engineer and Environmental Consultant, Hydro-Environmental Services Conor McGettigan, BSc, MSc, Environmental Scientist, Hydro-Environmental Services	23+ 4+
Appendix 9.1 Flood Risk Assessment	Mr. Sven Klinkenbergh, BSc., P.G.Dip, Geologist, RSK Limited Eilis Linehan, MSc, HDip, BSc, Environmental Consultant and Associate Director, RSK Dr. Jayne Stephens, BS.c, PhD, Senior Environmental consultant, RSK Mr. Conor Campbell, BSc, Environmental Consultant RSK	10+ 12+ 6 3
10: Noise and Vibration	Mr. Shane Carr, MPhil., Director, Irwin Carr Consulting	21+
11: Landscape and Visual Assessment	Mr. Richard Barker, MLA, PGD, BA, MILI, Director, Macro Works Limited Ms. Amy Doran, BA, LVIA Consultant Macro Works Limited Ms Bridget Macfarlane, BA, LVIA Consultant Macro Works Limited	25+ 9 5
12: Air Quality and Climate	Mr. David Kiely, BSc., MSc., Director, Jennings O'Donovan & Partners Limited Ms. Sarah Moore, BSc., MSc, Senior Environmental Consultant, Jennings O'Donovan & Partners Limited Mr. Padraig O' Dowd, B.A., GradDip, MSc, Junior Environmental Scientist, Jennings O'Donovan & Partners Limited Ms. Siobhan Roddy, BSc, Environmental Consultant, Jennings O'Donovan & Partners Limited	40 18 2.5 1
13. Shadow Flicker & EMI	Ms. Sarah Moore, BSc., MSc, Senior Environmental Consultant, Jennings O'Donovan & Partners Limited Mr. Padraig O' Dowd, B.A., GradDip, MSc, Junior Environmental Scientist, Jennings O'Donovan & Partners Limited	18 2.5

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EIAR Chapter	Contributor & Qualifications	Years of Experience
	Ms. Aileen Byrne, BA, H.Dip., Environmental Consultant, Jennings O'Donovan & Partners Limited	2
14: Archaeology and Cultural Heritage	Mr. Tony Cummins, BA., MA., Senior Archaeologist, John Cronin & Associates	27
15: Material Assets	Ms. Sarah Moore, BSc., MSc, Senior Environmental Consultant, Jennings O'Donovan & Partners Limited	18
	Mr. Padraig O' Dowd, B.A., GradDip, MSc, Junior Environmental Scientist, Jennings O'Donovan & Partners Limited	2.5
	Mr. Kevin Hayes, B.Eng., M.Eng., Founding Director and Engineering Contracts Manager, Ai Bridges Limited	25+
	Mr. Patrick Tinney, B.Eng. Electronics, B.Eng. Computer and IT Systems, Communications Engineer, Ai Bridges Limited	12
	Martin Murphy, BSc (Hons), MSIF. Forester, Tree Officer, Arborist, VEON Ltd.	15
	Ms. Grainne Murphy BA, MSc, GIS Technician at VEON Ltd.	4
16: Traffic & Transport	Mr. David Kiely, BSc., MSc., Director, Jennings O'Donovan & Partners Limited	40
	Mr. John Doogan, NC., NDip. CEng. (HND), Senior Roads Technician, Jennings O'Donovan & Partners Limited	35
17: Interactions of the Foregoing	Mr. David Kiely, BSc., MSc., Director, Jennings O'Donovan & Partners Limited	40
	Ms. Sarah Moore, BSc., MSc, Senior Environmental Consultant, Jennings O'Donovan & Partners Limited	18

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Curriculum Vitae

David Kiely *B.E., M.Sc., Eur.Ing., C.Eng., FIEI, MICE, F.RConsEI*

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Profession
Civil Engineer

Position with firm
Director

Years of Experience
38

Educational Qualifications
- Bachelor of Engineering, University College Dublin, 1982
- Master of Science in Environmental Protection, Regional Technical College, Sligo, 1996
- Project Supervisor Design Process, 2014

Professional Qualifications
- FEANI – European Engineer, European Federation of National Engineering Associations
- Fellow of Engineers Ireland
- Fellow of the Association of Consulting Engineers of Ireland
- Member of the Institution of Civil Engineers, U.K.

Technical Publications:
- Killybegs Water Supply Scheme Lough Adeery Dams – McAleenan, F.M., Kiely, D and Cooper, G.A., 1993
- Treatment of Wastewater and Water Sludges in Ireland – Kiely. D 1996
- Primary Treatment Options for Fish Processing Effluent in Ireland – Dick, R.E., Ferguson, J.A.E., Duddy, A-M. and Kiely, D., 2000

KEY HIGHLIGHTS

A Director and Partner at Jennings O'Donovan & Partners Limited, David is currently responsible for the following:

- Project Manager for Planning Applications, Environmental Impact Statement, Response to Appeal to An Bord Pleanála.
- Project Director for Pre-Construction activities such as Planning Compliance, Access Route improvements, Procurement, Civil Works Design, Environmental, Health and Safety, Contract Negotiations (including Turbine Supply).
- Project Director for construction administration of Turbine Supply Contract, Civil Works Contract and Grid Connection Cabling Contract.
- Responsible for Development, Monitoring and Control of Project Budgets.
- Overseeing the design of Wind Farm Infrastructure and Turbine Bases.
- Geotechnical Evaluation of Wind Farm Sites.
- Overseeing the preparation of various forms of reports and studies.
- Technical Review of various forms of Contract Documentation.
- Tender Evaluation and Contract Administration of major Contracts.
- Project Management.
- Due Diligence Specialist Support to Potential Investors.

EXPERIENCE

1990 – Present Jennings O'Donovan & Partners Limited

- **Timahoe North Solar Project, Co. Kildare**
  JOD are currently providing Owner's Engineer services to Bord na Móna for the construction of a photovoltaic solar farm with the capacity of 108 MWp. The project entails the construction and operation of 2 areas (Northern and Southern) of solar photovoltaic arrays mounted on metal frames over an area of approximately 200ha and having a maximum overall height of 3m above ground level. The solar farm will consist of approximately 166,320 sqm of PV modules, 12 single story inverter/ transformer stations, internal access tracks and underground cable connections. **Project Director**

- **Mainscourt Solar Project 38kV Substation & 38kV Grid Connection, Co. Dublin**
- **Martinstown Solar Project 20kV Substation & 20kV Grid Connection, Co. Meath**
- **Painestown Hill Solar Project 20kV Substation & 20kV Grid Connection, Co. Meath**
- **Dysart Solar Project 20kV Substation & 20kV Grid Connection, Co. Kildare**
- **Pollardstown Solar Project 20kV Substation & 20kV Grid Connection, Co. Kildare**
- **Knockadosan Solar Project 20kV Substation & 20kV Grid Connection, Co. Wicklow**
- **Beaulieu Solar Project 10kV Substation & 10kV Grid Connection, Co. Louth**
- **Creevy Solar Project 10kV Substation & 10kV Grid Connection, Co. Roscommon**
  JOD are currently providing project management and PSDP consultancy services to deliver these Solar Park Substation and Grid Connection projects through the pre-construction and construction phases. The role involves preparation of Tender/ Contract Documents, Interfacing with Clients Legal and Financial advisors, preparation of Preliminary Health & Safety Plan, and negotiate and act on behalf of Client during Tender Process for Balance of Plant Contracts with Electrical Technical Advisor. **Project Director**

- **Barnesmore Wind Farm Repower Project, Co. Donegal (65MW)**
  SID Planning Permission, Environmental Impact Assessment Report (EIAR) and Public Consultation on this 13 turbine Wind Farm with a total output of 65MW. **Project Director**

- **Killala Community Wind Farm, Co. Mayo (17MW)**
  Preparation of planning application including EIAR and associated documents for a 5 turbine wind farm in County Mayo. Preparation of a Section 5 application for a grid connection between the wind farm and a 110kV substation. Planning Permission for a 6th Turbine. Owner's Engineer for construction of the 5-turbine wind farm incl. 38kV substation. Complete August 2019. Owner's Engineer for construction of T6 complete November 2020. **Project Director**

- **Cronalaght Wind Farm, Co. Donegal (18MW)**
  Pre-construction, preparation of contract documents and tender assessment, construction administration and PSDP for this wind farm consisting of 5 x 3.45MW wind turbines. Construction complete. **Project Director**

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David Kiely CV *(cont'd)*

- **Lumcloon (100MW) BESS & Derrycarney 110kV Substation, Co. Offaly**
  This project consisted of the construction of a 100MW BESS project, the project is an open area BESS compound containing battery units and medium voltage power station (MVPS) enclosures, a 110/33kV Transformer and associated bay and a 33kV Substation. The construction of the new Derrycarney 110kV AIS loop in Substation and compound. The projects construction phase is ongoing. **Project Director**
  Jennings O'Donovan carry out the role of Owners Engineer; including Contract Negotiation, administering the D&B Contract, General Project Management, reviewing Civil & Electrical Designs, acting as SPOC with EirGrid, monitoring quality and programme, site attendance and placement of a Resident Engineer, Monitoring interfaces, assessing payments and issuing Payment Certificates, Declaration of Identify, assisting in queries related to Financial Close.

- **Shannonbridge (100MW) BESS, Co. Offaly**
  This project consisted of the construction of 100MW BESS project, the project is an open area BESS compound containing battery units and medium voltage power station (MVPS) enclosures, a 220/33kV Transformer and associated bay and a 33kV Substation. The projects construction phase is ongoing. **Project Director**
  Jennings O'Donovan carry out the role of Owners Engineer; including Contract Negotiation, administering the D&B Contract, General Project Management, reviewing Civil & Electrical Designs, acting as SPOC with EirGrid, monitoring quality and programme, site attendance and placement of a Resident Engineer, Monitoring interfaces, assessing payments and issuing Payment Certificates, Declaration of Identify, assisting in queries related to Financial Close.

- **Ballycumber Wind Farm, Co. Wicklow (18MW) / 38kV Grid Connection**
  Project consisting of 6 x 3.2MW wind turbines, onsite 38kV substation, preparation of Land Transfer maps (Haul Route) and 23.5km of 38kV underground grid connection, liaison with ESBN and Wicklow County Council Area Engineers regarding Grid Route selection 20km of transport route accommodation works, and all civil and electrical associated works. Planning compliance / Section 5 submission through to client takeover. **Project Director**

- **Rathsherry Wind Farm, Co. Antrim (21.15MW)**
  Planning compliance, civil works design and pre-construction activities for 9 x 2.35MW turbines. Owner's Engineer for construction stage civil works. **Project Director**

- **Meenadreen Extension Wind Farm, Co. Donegal (95MW)**
  Planning stage, planning compliance, civil works design and pre-construction activities for 38 No. 2.5MW turbines. Owner's Engineer for construction of civil works. PSDP Assigned Certifier. Project encompasses four consented wind farms viz Meenadreen Extension, Straness, Croaghnameal and Lough Cuill, and includes 7.4km of 110kV contestable grid connection, Mulreavy AIS and Clogher GIS 110kV sub-stations. Also includes Operations Building. Construction complete January 2017. **Project Director**

- **Sliabh Bawn Wind Farm, Co. Roscommon (58MW)**
  Project Director for Planning Permission, Environmental Impact Assessment, Public Consultation, Response to Appeal to An Bord Pleanala. Permission granted 2012. The project comprised 20 No. 3MW turbines curtailed to 58MW together with a new 33kV/110kV substation. Owner's Engineer for construction of civil works. Construction complete 2016. **Project Director**

- **Long Mountain and Glenbuck Wind Farms, Co. Antrim (34.5MW)**
  Project Director / Owner's Engineer for Planning Compliance and Civil Works Balance of Plant Contract. Construction complete. **Project Director / Owner's Engineer**

- **Altaveedan Wind Farm, Co. Antrim**
  Project Director / Contractor's Designer for Civil Works. Civil Works complete 2016. **Project Director / Contractor's Designer**

- **Altamuskin, Gortfinbar and Eshmore Wind Farms, Co. Tyrone (36MW)**
  Project Director / Owner's Engineer for Planning Compliance and Civil Works Balance of Plant Contract. Construction complete December 2016. **Project Director / Owner's Engineer**

- **Molly Mountain Wind Farm, Co. Fermanagh (18MW)**
  Project Manager for Turbine Supply and Pre-Construction Works. Project Director for Construction Phase. Negotiate Turbine Supply contract and Turbine Service Agreement for 5 x 3MW turbines. Planning Compliance. Technical Assistance for Financial Close. Project management during Construction Phase. Complete 2015. **Project Manager / Director**

- **Seegronan Wind Farm, Co. Tyrone (18.4MW)**
  This development consists of the construction of 6 No. wind turbines of up to 110m high each including associated transformers, hardstandings, substation, associated access roads and all ancillary works associated with the wind farm development. Project complete December 2016. **Project Director**

- **Crockandun Wind Farm, Co. Derry (18MW)**
  This Project consists of the construction of 6 No. wind turbines of up to 125m high each including associated transformers, hardstandings, substation, borrow pits, associated access roads and all ancillary works associated with the wind farm development. Construction complete February 2017. **Project Director**

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David Kiely CV *(cont'd)*

- **Booltiagh 110kV Substation Extension, Co. Clare**
  Owner's Engineer for the Booltiagh 110kV substation extension located in Booltiagh townland, County Clare. The existing 110kV substation is connected to the 110kV transmission network via connections to both Ennis 110kV substation and Moneypoint 110kV substation. The Booltiagh Substation was extended to facilitate the connection of Gate 3 wind farms in the area. Project complete. **Project Director**

- **Letteragh Wind Farm, Co. Clare**
  Design and project management services for the planning, design, construction, and commissioning of Letteragh Wind Farm consisting of 6 x 2.3MW wind turbines. **Project Director**

- **Tullynamoyle Wind Farm, Co. Leitrim, and Extensions (53MW)**
  Project Director for Planning for original 6 wind turbines project (Phase 1 and 2), 6 turbine extension (Phase 3), 3 turbine extension (Phase 4) and 6 turbine extension (Phase 5) to give overall capacity of 53MW. Planning Stage, Procurement (including Turbine Supply and Turbine Supply Agreement), Financial Close and Construction (including Engineer for Turbine Supply Contract) for Phase 1 (9.2MW) complete 2012. Phase 2 (13.8MW), Phase 3 (28MW) and Phase 4 (35MW) complete November 2017. Phase 5 (18MW) granted planning permission. Planning application for Phase 5 extension of 16MW. **Project Director**

- **Holyford Wind Farm, Co. Tipperary (9MW)**
  Project Director for Pre-Construction and Construction Stages for Civil Works BOP Contract and 5.8km, 20kV overhead line grid connection. Complete 2013. **Project Director**

- **Screggagh Wind Farm, Co. Tyrone (20MW)**
  Project Director for Planning and Construction Stages for 8 x 2.5MW wind turbines. Complete 2011. Act as Engineer for Turbine Supply Contract. **Project Director**

- **Ballycurreeen Wind Farm, Co. Waterford (4.6MW)**
  Project Director for Planning, Pre-Construction and Construction Stages of 2 x 2.3MW wind farm. Act as Owner's Engineer for Turbine Supply Contract. Complete 2014. **Project Director**

- **Church Hill & Crigshane Wind Farms, Co. Tyrone (50.6MW)**
  Project Director for Planning Compliance, Civil Works Design, Road Improvement Works, Tendering and Construction Management for 2 wind farms with combined output of 50.6MW (22 x 2.3MW). Complete 2012. **Project Director**

- **Caherdowney Wind Farm & Garrow 110kV Sub-Station Extension (9.2MW)**
  Project Director for Pre-Construction and Construction Stages (planning compliance, civil and environmental) for 4 x 2.3MW turbines. Complete 2012. **Project Director**

- **Cloghboola Wind Farm, Co. Kerry (46MW)**
  Project Director Planning Applications for revised layout and sub-station for wind farms in SPA. Owner's Engineer for Phase 1 Construction work. Complete 2007. Civil / Structural design for new 110kV sub-station energised in 2014. **Project Director**

- **Yellow River Wind Farm, Co. Offaly (96MW)**
  Project Director for Planning Application through S.I.D. route. **Project Director**

- **Lisheen II Wind Farm, Co. Tipperary (24MW)**
  Project Director for geotechnical investigations, civil works and turbine foundation design (including piled bases) for civil sub-contractor as part of overall EPC Contract. 12 x 2MW turbines. Complete 2012. **Project Director**

- **Corkermore Wind Farm, Co. Donegal (12MW Phase 1)**
  Project Director for Pre-construction and Construction Stage (planning compliance, pre-construction and construction) for civil works BOP Contract. 6 x 2MW turbines. Complete 2011. **Project Director**

WORK EXPERIENCE

July 1988 – March 1990	Enco Civil Engineering Ltd., Slough, U.K.
May 1987 – June 1988	Doherty Civil Engineering Ltd., Essex, U.K.
October 1985 – April 1987	Hawkins, Hawkins & Osborn, Consulting Engineers, Umtata Office, Transkei, South Africa
October 1982 – September 1985	Department of Water Affairs, Namibia, South West Africa

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Curriculum Vitae

Sarah Moore *MSc, BSc*

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Profession
Environmental Consultant

Position with firm
Environmental Consultant

Years of Experience
18

Educational Qualifications

- MSc Environmental Engineering, Grade 1.1 Honours, Queens University, Belfast, 2007
- BSc Environmental Science, Grade 2.1 Honours, University of Limerick, 2004

KEY HIGHLIGHTS
Sarah is an Environmental Consultant with 18 years experience. She is proficient in the use of ArcGIS Pro and Microsoft Office Programmes including Excel, Word and PowerPoint. She completed Project Management Certification.

EXPERIENCE
Sept 2018 – Present Jennings O'Donovan & Partners Limited

- **Clooncunny, Co Sligo (10 WTG)**
  Planning Permission, Environmental Impact Assessment Report (EIAR) and Public Consultation on this Wind Farm in Co. Sligo. The total output and whether the application will be to the Local Authority or An Board Pleanála is to be confirmed. Consultation with relevant statutory authorities and other stakeholders. Management of specialist sub-consultants necessary to support the EIAR submission. **Project Manager**

- **Gortyrahilly Wind Farm, Co. Cork (14 WTG)**
  SID Planning Permission, Environmental Impact Assessment Report (EIAR) and Public Consultation on this 14 turbine Wind Farm. Consultation with relevant statutory authorities and other stakeholders. Management of specialist sub-consultants necessary to support the EIAR submission. **Deputy Project Manager**

- **Tullynamoyle Wind Farm Extension, Co. Leitrim**
  Preparation of planning application for a four turbine extension including EIAR, Request for Further Information (RFI) response and a response to An Bord Pleanála following a Third-Party Appeal. **Senior Environmental Scientist**

- **Various Wind Farm Planning Applications in Republic of Ireland and Northern Ireland**
  Preparation of Construction Method Statements (CMS) Construction and Environmental Management Plans (CEMP) including technical schedules such as Spoil Management Plan, Waste Management Plans, Surface Water Management Plans, Water Quality and Inspection Management Plans etc. to accompany wind farm planning applications and for planning compliance following the grant of planning permission. **Senior Environmental Scientist**

- **Cregg Wind Farm, Co. Cavan:**
  Preparation of CEMP and CMS reports for the installation of 7 no. turbines with a maximum overall height for each turbine of 125m. **Project Manager**

- **Site Security and Welfare Facilities for various Irish Water Sites**
  Preparation of environmental reports including EcIAs, Environmental Reports, NIS and Invasive Species Survey Reports for up to fifty sites. **Senior Environmental Scientist**

- **Ramelton/Milford/Rathmullan Sewerage Scheme:**
  Preparation of environmental reports including EcIAs, Environmental Reports, NIS and Invasive Species Survey Reports. **Senior Environmental Scientist**

- **Galway Social Housing Project, Galway County Council**
  Preparation of Appropriate Assessment Screenings and Invasive Species Survey Reports for social housing sites in various locations in Co. Galway. **Senior Environmental Scientist**

- **IDA Business Park, Co. Sligo**
  Completed Invasive Species Surveys across the site. Preparation of an Invasive Species Management Plan. Procured and managed an invasive species contractor for the site. **Senior Environmental Scientist**

- **GIS Support, Energia**
  Preparation of drawings using ArcGis Pro to accompany Foreshore License Applications for offshore wind farm. **Project Manager**

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Sarah Moore CV *(cont'd)*

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- **GIS Support, Leitrim County Council**
  Preparation of maps and data extrapolation to support the County Development Plan. **Project Manager**

Oct 2007 – June 2016 **AECOM (Formerly URS Ireland Limited, Dublin)**
Environmental Consultant

Key responsibilities included:
- Groundwater and soil sampling
- Environmental Site Assessment
- Planning conditions compliance monitoring
- Supervision of site work e.g. drilling
- Report writing
- On-site liaison and Client support
- Preparation of Health & Safety Plans (Risk Assessments)
- Management of on-site Health & Safety (Inductions, tool-box talks, ensure correct PPE worn etc)
- Data management for large projects
- Site Investigation and Remediation (SIR)
- Quantitative Risk Assessment (QRA)
- IPPC compliance monitoring
- Well construction and rehabilitation

- **Various ESB Sites (incl. Bellacorrick, Lanesborough, Moneypoint, Poolbeg)**
  Key responsibilities included:
  - Trial pitting and soil sampling
  - Supervision of groundwater well installation and geotechnical logging
  - Groundwater sampling
  - Surface water sampling

- **Alkermes – Secondment to the EHSS Department**
  Key responsibilities included**:**
  - Managing the collection and analysis of water, groundwater and air samples to comply with IPPC requirements
  - Monitoring of on-site treatment systems
  - Review of results and report collation
  - Investigating and reporting non-compliances
  - Liaising with Laboratories if results are out of trend
  - Submitting quarterly reports to The County Council and EPA
  - Preparation of the AER and PRTR
  - Site walkdowns and Risk Assessments
  - Preparation of SOP's
  - Training

- **Pollutant Release and Waste Transfer Register (PRTR Project) – Secondment to Environmental Protection Agency (Wexford and Castlebar)**
  Key responsibilities included:
  - On-site support for the PRTR project
  - Answering any queries relating to AER s and PRTR received from EPA licensed facilities (e.g. Waste, UWWTPs, Pharma Chem, Food and Drink etc) received through the AER Helpdesk
  - Validating annual PRTR data
  - Following up with facilities where errors were found during validation
  - Data management and Trend analysis
  - Writing progress reports for EPA senior Inspector
  - Preparation of annual Reports, Preparation of Guidance Documents for licensed facilities

- **ABB Project (EXXON Mobil Sites)**
  Key responsibilities included:
  - Coordination and Supervision of Nationwide Site Investigations (Trial pits, drilling, well installations)
  - Soil and Groundwater sampling
  - Logging Soil profiles in accordance with BS5930:1999 and BS EN ISO 14688
  - Scheduling and tracking of large volumes of water and soil samples
  - Data Management and interpretation
  - Report Writing and Remediation design proposals

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Sarah Moore CV *(cont'd)*

- **Corrib Gas-Line Project (Tideway BV Dredging Contractors) June 2008 – Nov 2008**
  Key responsibilities included:
  - Environmental advisor to Tideway BV
  - Implementation of Environmental and Health and Safety policies and procedures
  - Environmental Induction for all Tideway personnel
  - Tool-box Talks

- **IPPC Facility Compliance Monitoring at Various Sites including Pharmaceutical and Manufacturing Facilities**
  Key responsibilities included:
  - Supervision and Implementation of IPPC compliance monitoring
  - Quarterly monitoring of groundwater
  - Intrusive investigation of contamination sources
  - Proactive reporting and communication of any environmental improvements required on site
  - Reporting on the results of monitoring for EPA reporting

Aug 2004 – Aug 2005: **Thomson Scientific, Limerick**
Scientific Indexer

Key responsibilities included:
- Indexing of scientific journals to make them searchable on the internet

Jan 2003 – Sept 2003: **Garrett Engine Boosting Systems, Waterford**
Environmental Coordinator with the HSE Department (Student Placement)

Key responsibilities included:
- Designed and implemented in-house environmental monitoring regime
- Routine environmental site inspections
- Waste Audits and management of waste transferred off-site
- Document Control
- Introduction of a new Du Pont Safety system
- Co-ordinate with Maintenance Department to ensure safety issues were dealt with immediately e.g. broken lights on forklift etc

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Curriculum Vitae

Breena Coyle *BA, MSc MRTPI HD Planning and Environmental Planning Law*

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Profession
Principal Planner

Position with firm
Town Planner

Years of Experience
15

Educational Qualifications

- MSc Environmental Planning (2.1 honours degree), Queens University Belfast, 2008
- Bachelor of Arts – History & Geography (2.1 honours degree), NUI Galway, 2005

Professional Qualifications

- Chartered Member of the Royal Town Planning Institute
- Member of the Irish Planning Institute

KEY HIGHLIGHTS

Breena is an enthusiastic and motivated planner with over 15 years' experience in the private sector and have a thorough knowledge of the planning system.

Having spent all of her experience in the private sector consultancy, Breena has gained wide exposure to all aspects of the planning system and mediate well between key stakeholders, community groups and local planning authorities to achieve an agreeable outcome.

During her time at The JTS Partnership, she progressed her career obtaining valuable experience and verbal/written skills, demonstrating good knowledge of the planning process, planning legislation, government advice and policy, circulars and guidance notes.

Her experience allows her to exercise considered judgment in the provision of advice/recommendations, and she understands the importance of economic regeneration and commercial awareness.

Breena has gained excellent communication skills during her planning career having worked within teams and mediate well between clients, local planning authorities and other community groups/organizations to achieve an acceptable outcome. Her skills in negotiation, both verbal and written, have delivered projects on time to a successful conclusion within the agreed fee budget.

EXPERIENCE

May 2018 – Present **Jennings O'Donovan & Partners Ltd.**

- **Richfield Solar PV Farm, Co. Wexford (21MWp)**
  Planning and Environmental Report to construct a 21MWp solar PV array with associated inverters/transformers, two containerised substations, a transformer and grid compensation equipment adjacent to the existing Richfield Wind Farm substation building, CCTV cameras, lighting, access tracks, fencing and associated electrical cabling, ducting and an electrical and communications cable ducting to connect to the existing Richfield Wind Farm substation together with all ancillary development. **Senior Planner**
- **Charafenna Wind Farm, Co. Leitrim**
  Planning Permission and Environmental Impact Assessment Report (EIAR) on this 7 turbine Wind Farm (MW TBC). **Senior Planner**
- **Barnesmore Windfarm Repowering, Co. Donegal (60MW)**
  Various planning aspects including overseeing the Pre-Application and Strategic Infrastructure Planning Application Process to An Bord Pleanála. **Senior Planner**
- **Farranrory Wind Farm, Co. Tipperary (45MW)**
  Responsible for the overall project management of the planning application process and Environment Impact Assessment Report. **Senior Planner**
- **Dreenacreenig West Wind Farm Drimoleague, County Cork (4.6 MW)**
  Preparation of a planning application for Substitute Consent and planning permission for wind farm and grid connection to An Bord Pleanála. Co-ordination and overall project management of the EIAR process. **Senior Planner**
- **Tullynamoyle Wind Farm, Co. Leitrim, and Extensions (34.5MW)**
  Various planning aspects including overseeing the planning application process. **Senior Planner**
- **Belturbet to Corraquill Lock 1**
  Responsible for the co-ordination and preparation of the Part VIII Planning Application for a proposed 6km recreational trail from Belturbet town centre to Corraquill along the Woodford River. The trail comprises of approximately 3km of Greenway and 3km of Blueway along existing and proposed roadways and trails, with a pedestrian bridge designed to cross the Rag River incorporating the existing concrete abutments. **Senior Planner**

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Breena Coyle CV *(cont'd)*

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2009 – May 2018 **The JTS Partnership, Canterbury, Kent.**
Principal Planner

Duties and responsibilities included:

- Assisting managing partner to discharge client instructions and working under their direction.
- Dealing with residential, commercial and mixed-use developments at all stages of the planning process throughout the UK.
- Responsible for the preparation and submission of planning applications and appeals, site appraisals, local plan representations, enforcement and master planning.
- Working closely with local plan teams on emerging development plan policy and up-to-date supplementary planning guidance. Engaged in local planning authorities' preparation of local plans and give advice on planning policy matters to clients, carrying out research into a variety of topics as part of the work on policy documents, writing briefs, employ and manage consultants for specialist work and projects.
- Monitoring and participate in consultations on local plans, prepare local plan representations including attendance at local plan examinations, reviewing and monitor the development of planning policy including the council's evidence base, annual monitoring reports, parish plans and supplementary planning documents.
- Generate new client instructions and work and manage client accounts.
- Assess and give advice by letter, telephone, site or office meetings to clients (developers or individuals) on medium/large sized and potentially controversial development proposals which may become the subject of formal planning applications including the interpretation of planning policies.
- Providing advice to clients and identify and resolve most issues that need to be addressed to discharge an instruction.
- Addressing Planning Committee meetings.
- Preparing evidence for, and representing clients at Planning Hearings and Inquiries.

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Curriculum Vitae

Sarah Jones *MSc, BSc (Hons)*

Profession
Environmental Scientist and Planner

Position with firm
Environmental Scientist and Planner

Years of Experience
14

Educational Qualifications

- Master of Science (MSc), Environmental Sustainability, focus on EIA, Irish Environmental Legislation and Planning, Energy Efficiency, Sustainable Development, Circular Economy, Bioeconomy, Conservation and Environmental Management. UCD 2022
- Bachelor of Science Degree (BSc hons), Geography 2.1, focus on Environmental Management, Conservation and GIS; Manchester Metropolitan University, 2007
- Completion of the PRINCE2 project management course up to the Practitioner level, professional training in Microsoft Office products, particularly Excel up to expert level, a professional writing for business course and the Citrix Sales Solution Course

KEY HIGHLIGHTS

Sarah has 14 years combined environmental science, project management, planning, procurement, team leadership and business development experience. Sarah has lived and worked in Ireland for the last 6 years, completing a Master of Science degree in Environmental Sustainability with a focus on Environmental Impact Assessment and Environmental Policy and Protection. Prior to that Sarah worked as the procurement manager for a construction company. Before moving to Ireland, Sarah worked as a project manager and business development manager for a technology company in Manchester. Her strengths are using her initiative to analyse and solve problems to achieve targets and meet objectives. She has a passion for work, is motivated and works hard to achieve goals. Sarah works well in pressurised conditions and is flexible to changing situations. Sarah also has excellent communication, interpersonal and mediation skills.

EXPERIENCE

February 2022 – Present **Jennings O'Donovan & Partners Limited**

- **Richfield Solar PV Farm, Co. Wexford (21MWp)**
  Planning and Environmental Report to construct a 21MWp solar PV array with associated inverters/transformers, two containerised substations, a transformer and grid compensation equipment adjacent to the existing Richfield Wind Farm substation building, CCTV cameras, lighting, access tracks, fencing and associated electrical cabling, ducting and an electrical and communications cable ducting to connect to the existing Richfield Wind Farm substation together with all ancillary development. **Project Manager**

- **Firlough Wind Farm and Hydrogen Plant, Co. Mayo (78MW)**
  EIAR Environmental Impact Assessment Report (EIAR) for a 78MW, 13 turbine wind farm, substation and all ancillary works and the construction of an underground Grid Connection via a looped connection between the Wind Farm Substation and the existing 110 kV overhead powerline. The project includes a Hydrogen Plant comprising 80 MW of modular alkaline electrolyser and all associated infrastructure including; compressors, cooling equipment, refuelling points, water abstraction, storage and processing, and the Hydrogen Plant Substation which will be connected to the Wind Farm via an underground electrical Interconnector. **Deputy Project Manager**

- **Gortyrahilly Wind Farm, Co. Cork (60MW)**
  SID Planning Permission, Environmental Impact Assessment Report (EIAR) and Public Consultation on this 12 turbine Wind Farm with a total output of 60MW. Consultation with relevant statutory authorities and other stakeholders. Management of specialist sub-consultants necessary to support the EIAR submission. **Author Planning Statement**

- **Inchamore Wind Farm, Co. Cork (33MW)**
  Planning Permission and Environmental Impact Assessment Report (EIAR) on this 5 turbine Wind Farm with a total output of 33MW. **Author Planning Statement?**

- **Charafenna Wind Farm, Co. Leitrim**
  Planning Permission and Environmental Impact Assessment Report (EIAR) on this 7 turbine Wind Farm (MW TBC). **Deputy Project Manager**

March 2022 – March 2023
Guest lecturer at Trinity College Dublin, Introduction to Sustainability for Operations Management.

November 2017 – August 2020 **McNamara Construction Ltd.**
Purchasing Manager

Duties included:

- Strategically manage the procurement needs of multiple, simultaneous construction projects in Ireland and the U.K.
- Present solutions and communicate reports on budgets, progress and results.

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Sarah Jones CV *(cont'd)*

- Make procurement decisions; reviewing specifications, understanding needs and sourcing and evaluating products, services and materials to ensure sustainability and compliance with best practice and environmental and planning regulations.
- Manage the procurement requirements of projects in line with build schedules to ensure on time and in budget project delivery.
- Ensure correct document management is applied and manage systems administration. Ensure compliance with regulations and contribute to gaining and renewing various ISO accreditations.
- Negotiate pricing and contracts.
- Manage the purchasing team as well as managing and coordinating with offsite interdisciplinary teams.
- Manage team training; assessing learning needs, monitoring development and job satisfaction.
- Manage resources and inventory and resolve issues.

Achievements:

- Successful management and development of the procurement team as the business grew.
- Introduction of a stock management inventory database system and lifecycle thinking/recycling improvements to reduce waste and improve efficiency.
- Significantly grown and improved relationships with a network of suppliers.

September 2016 – October 2017

I took the opportunity to travel independently for a year.

March 2013 – September 2016 **Softcat Ltd.**
Salary Sacrifice Project Manager

Duties included:

- Managed multiple large scale concurrent projects to tight deadlines ensuring our partners and clients where happy throughout and budgets were managed and adhered to.
- Undertook strategic analysis of data to review trends and monitor performance to ensure supply kept up with demand.
- Managed internal and external stakeholders, resolved issues and produced and presented well written reports.
- Gained learning from each project applying new learnt knowledge to develop and improve the system.
- Managed and trained team members.
- Additional to my official role, I streamlined and improved the processes used to produce the company's monthly Management Information data return, implementing a new automated system for monitoring and flagging issues, reducing work hours required to complete monthly.
- Took the lead to promote and champion the company's environmental strategies for the public sector team, encouraging a more mindful use of resources and encouraging change of behaviours within that group.

Achievements

- Took the lead on a new area of business, managing the team and developing the business.
- Developed strategies to increase revenue and get new clients, excelling beyond company targets and expectations.
- Implemented change by improving processes, automating, effectively managing suppliers and developing system checks.
- Managed the reconciliation and invoicing system, simplifying processes and creating a system of monitoring and resolving problems before they escalated, reducing invoicing time by 80%.

September 2011 – March 2013 **Softcat Ltd.**
Public Sector Account Manager

Duties included:

- Built relationships with clients to provide sales solutions, services and develop a lasting, trusting and collaborative partnership.
- Sourced, developed and qualified new opportunities, working with specialists and suppliers to create and present an attractive and successful client solution directly and via tender.
- Negotiated prices, produced interesting and compelling proposals and client reports, managed bids and communicated with vendors to ensure projects were delivered on time and to budget.
- Effectively managed client contracts and licence renewals, ensuring customer satisfaction and guiding them through the sales process, while maintaining margins and ensuring targets were met.
- Trained team members and participated in a mentoring program for graduates

Achievements

- Organised, managed and led Technology in Education events for colleges and universities.
- Gained new client relationships with several large universities.

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Curriculum Vitae

John Doogan *Dip.C.Eng.*

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Profession
Civil Engineering Technician

Position with firm
Senior Technician

Years of Experience
35

Educational Qualifications

- National Cert in Computer Programming
  Bolton Street College of Technology, Dublin, 2001
- City and Guilds Computer Aided Draughting and Design
  Croydon College, London, 1992
- National Diploma in Civil Engineering (HND)
  Bolton Street College of Technology, Dublin, 1987

KEY HIGHLIGHTS

John has over 35 years experience of road design for wind farms, major road projects and for commercial projects in Ireland, Britain and the Middle East. John has also extensive experience in the compilation of compulsory Purchase Order Documents, landowner negotiations, wayleaves, Traffic Impact Assessments and Junction Design. His Key Technical and Process Capabilities include:

- Geometric Design of Roads and Junctions to the NRA DMRB using MX and Autodesk Civil 3d road design software.
- Contract Drawings
- Compilation of Compulsory Purchase Order Documents
- Landowner negotiations
- Traffic Impact Assessment reports and Junction Analysis using Arcady, Picady and Trics traffic modelling Software
- Structural Inspections and Testing of concrete structures
- Traffic Management Plans
- Haul Route Design & Upgrade for Wind Farms
- Internal Site Road Design for Wind Farms
- Drainage Design

EXPERIENCE

2003 – Present Jennings O'Donovan & Partners Limited

Summary of Experience in Roads and Traffic Engineering:
Geometric Design of Roads and Junctions to the NRA DMRB using MX and Autodesk Civil 3d road design software. Production of Contract Drawings, for Roads Schemes using Autocad drawing software. Compilation of Compulsory Purchase Order Documents including land searches, landowner negotiations and production of Deposit / Server maps and Schedules. Traffic Impact Assessment reports and Junction Analysis using Arcady, Picady and Trics traffic modelling Software. Structural Inspections and Testing of concrete structures including visual inspections and reinforcement cover surveys.

- **Proposed Beach Access to Tullan Strand, Bundoran**
  Preparation of a Preliminary Design Report for a proposed pedestrian and emergency vehicle access to Tullan Strand, Bundoran, Co. Donegal. The project involved the preparation of a Preliminary Report which recommended a preferred option for safe pedestrian and emergency vehicle access to Tullan Strand. The report reviewed all feasible route options and documented the environmental constraints, land ownership, traffic impact assessment, maintenance, compliance with design standards and typical costs to implement each option. **Project Manager**

- **IDA Business Park, Sligo - Traffic Management & Upgrade Works**
  Carried out a survey and review of the current traffic management arrangements and pedestrian facilities within the IDA Sligo Business Park. The Park is approx. 42 hectares in size. The objective of the works was to provide a new surface course and replacement of the existing cushion ramps with full length 'flat top' ramps. Pedestrian Crossings were reinstated at existing locations, and three additional Pedestrian Crossing provided. Chamber covers sunken below the road surface were raised, milled line markings replaced, tactile paving provided at the junction between Access Road No. 2 and 3, and repairs to existing tactile pavement at the junction between Access Road No. 1 and 2. **Project Manager**

- **IDA Business Park, Sligo - Infrastructure Review & Upgrade Works**
  Carried out a review of the existing Infrastructure within the IDA Sligo Business Park. The review included the condition of roads, lighting, water mains, foul and surface water drainage, footpaths and signage within the Business Park. **Project Manager**

- **Killybegs Fishery Harbour Centre, Co. Donegal**
  Carried out a review of all existing signage within the Killybegs fishery harbour centre to assess the suitability of existing signage and provided recommendations tor installation of new and replacement signs in accordance with the Traffic Signs manual. **Senior Technician**

- **Wind Farm Access Road, Various locations**
  Design of wind farm access roads and crane hardstands for various wind farm projects in Ireland and overseas. Road design carried out to accommodate abnormal load vehicles used for the transportation of wind turbine components. **Senior Technician**

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John Doogan CV *(cont'd)*

- **Wind Farm Haul Route Assessment, Various locations**
  Assessment of public road network for abnormal load vehicles transporting wind turbine components, including site surveys, autotrack analysis, design of road widening, relocation of street furniture and service diversions; **Senior Technician**

  Wind Farm projects worked on include:

  - Altgolan
  - Barnesmore
  - Bracklyn
  - Carrickallen
  - Carrowleagh
  - Cloghan
  - Clunahill
  - Coolberin
  - Corkermore
  - Cornavarrow
  - Croaghnameal
  - Cronalaght
  - Crossmore
  - Derrykillew
  - Dooish
  - Dreenacreenig
  - Drumlins
  - Dunbeg
  - Dunmore
  - Eshmore
  - Faughary
  - Foiladaun
  - Glenbuck
  - Gortfinbar
  - Gortyrahilly
  - Hollyford
  - Inchamore
  - Killala
  - Kiltumper
  - Letteragh
  - Lisdowney
  - Long Mountain
  - Maas
  - Meenadreen
  - Pigeon Top
  - Rathsherry
  - Seegronan
  - Sliabh Bawn
  - Slieveglass
  - Taghart
  - Thornog
  - Tullaghboy
  - Tullynamoyle
  - Yellow River

- **Killybegs Fishery Harbour Centre, Co. Donegal**
  Carried out a review of existing traffic management and safety measures within the Killybegs fishery harbour centre and compilation of a traffic management plan for the harbour area detailing traffic calming measures, junction upgrades and pedestrian facilities. **Senior Technician**

- **Cootehill New Street, Co. Cavan**
  Design of proposed new street in Cootehill town centre including route selection, public consultation, traffic management and geometric design. **Senior Technician**

- **N6 Ballinasloe to Athlone Dual Carriageway**
  Production of Compulsory Purchase Order Drawings and Landowner Schedules. Assisting with the Preliminary Geometric Design using MX Software and responsible for the compilation of Contract Drawings using Autocad for 20.0 km of Dual Carriageway, 1.0 km of Link road, one Interchange, eight Overbridges, four Underbridges including a railway and river crossing, three at grade Roundabout Junctions and accommodation works for the N6 Ballinasloe to Athlone Dual Carriageway in County Roscommon; **Senior Technician**

- **N13 Trentaboy to Bullock Park, Co. Donegal**
  Production of Contract Documents for a 3.5Km Re-surfacing Contract on the N13 in County Donegal; **Senior Technician**

- **Bundoran / Killybegs Sewerage Scheme – Advance Works, Co. Donegal**
  Production of Preliminary Design and Compulsory Purchase Order documents for access roads to Bundoran and Killybegs waste water treatment plants; **Senior Technician**

- **Traffic Impact Analysis, Junction Design and Internal Road Layouts**
  Production of Traffic Impact Analysis reports, Junction Design and Internal Road layouts for Commercial and Residential Developments including Traffic Calming, Road markings and Signage; **Senior Technician**

- **Quarry Entrance from N59 at Ballisodare, Co. Sligo**
  Production of Construction Drawings and Setting Out Details for a new Ghost island Junction on the N59 National Route; **Senior Technician**

- **Student Housing Roundabout on the R245, Letterkenny, Co. Donegal**
  Production of Construction Drawings and Setting Out Details for a new 40m inscribed circle diameter roundabout junction on a regional route; **Senior Technician**

- **Creamery Roundabout on the R245, Letterkenny, Co. Donegal**
  Production of Preliminary Design Drawings of new 50m inscribed circle diameter roundabout junction on a regional route; **Senior Technician**

WORK EXPERIENCE

September 1997 – September 2003	M.C. O' Sullivan & Co. Ltd., Consulting Engineers (RPS Group plc)
September 1989 – September 1997	Mott Mac Donald Group Ltd.
February 1989 – September 1989	Warren Pickrell Associates

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Curriculum Vitae

Padraig O'Dowd *M.Sc, GradDip, B.A., GradIEMA.*

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Profession
Environmental Scientist

Position with firm
Junior Environmental Scientist

Years of Experience
2.5

Educational Qualifications

- Green Tech Skillnet's Skills Connect Programme - Work in Wind Energy Ireland Naas, Co. Kildare, May 2022 – Jun 2022.
- NFQ Level 9, Graduate Diploma in Design Thinking for Sustainability, University College Dublin (UCD), 2022
- NFQ Level 9, Masters of Science in Design Innovation, Maynooth University, 2020
- NFQ Level 8, Bachelor of Arts, Honours Creative Design, Atlantic Technological University (ATU) Sligo, 2019

Certifications/Licences

- Project Management & Impactful Leadership Training for Wind Energy Blue Sky - The Project Management Experts.
- Marine Spatial Planning, Irish Planning Institute

KEY HIGHLIGHTS

Graduate Environmental Scientist at Jennings O'Donovan, adept in EIAR reports and skilled in ArcGIS. As an experienced design and research professional, Padraig contributes to sustainability across various domains, fostering a zero-carbon future. His diverse skillset encompasses strong analytical, writing, and networking abilities, ensuring impactful collaboration on a range of projects.

Padraig's key skills include:

- Early-stage Investigative Research
- R&D
- Design Development
- Innovation & Disruption
- Stakeholder Engagement
- Grant Writing
- Time Management
- Teamwork
- Sustainable Approaches
- Systemic Thinking
- Data Management & Analysis

EXPERIENCE

September 2023 – Present **Jennings O'Donovan & Partners Limited**

- **Altnagapple Wind Farm, Co. Donegal (18MW)**
  Planning Permission and Environmental Impact Assessment Report (EIAR) on this 4 turbine Wind Farm with a total output of 18MW. **Graduate Environmental Scientist**
- **Clonarrow Wind Farm, Co. Offaly (24MW)**
  Planning Permission and Environmental Impact Assessment Report (EIAR) on this 4 turbine Wind Farm with a total output of 24MW. **Graduate Environmental Scientist**
- **Kellystown Wind Farm, Co. Louth (40MW)**
  Planning Permission and Environmental Impact Assessment Report (EIAR) on this 5 turbine Wind Farm with a total output of 40MW. **Graduate Environmental Scientist**
- **Gortloughra Wind Farm, Co. Cork (54MW)**
  Planning Permission and Environmental Impact Assessment Report (EIAR) on this 9 turbine Wind Farm with a total output of 54MW. **Graduate Environmental Scientist**
- **Cabragh Wind Farm, Co. Sligo (17 – 19MW)**
  Planning Permission and Environmental Impact Assessment Report (EIAR) on this 4 turbine Wind Farm with a total output of 17 – 19MW. **Graduate Environmental Scientist**
- Other responsibilities:
  - Conducting cumulative wind farm assessments.
  - Contributing to wind farm feasibility studies, analysing data and helping make informed decisions about the project's viability and development.
  - Reviewing wind farm photomontage portfolios.
  - Report writing and ecological quadric results.
  - Aiding in the development of the company's sustainability strategy report. ensuring that the company is abiding by ISO - 50001 Energy Management.
  - AA screening on proposed developments for ecological protection and assessment.

OTHER EXPERIENCE

October 2022 – September 2023 **Research and Green Tech Skillnet**

- Successfully prepared seven grant applications for EU (European Union) and national-funded projects, highlighting strong grant writing skills abiding by Erasmus+, SEAI (Sustainable Energy Authority of Ireland) RD&D 2023, and Horizon Europe guidelines creating a pipeline.

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Padraig O'Dowd CV *(cont'd)*

- Conducted evidence-based research aligned with strategic goals, supporting overall strategies with findings and recommendations.
- Demonstrated strong writing and presentation skills, effectively communicating with stakeholders throughout research projects.
- Maintained accuracy and completeness of information in the updated Master Copy Applications 2023 Excel sheet for external review.
- Gained valuable experience by working in two different departments, expanding my skill set and adapting to dynamic work environments working in teams of three and four.
- Built connections whilst working at conferences such as "The Offshore Wind Conference, "Irish Wind Industry Awards Conference," and "The Annual Conference."
- Mentored and led four students in a design research project focusing on the renewable energy sector for four weeks through a collaboration between Wind Energy Ireland and the UCD Innovation Academy that he created.
- Fostered inclusive collaborations with professionals, emphasising communication and mutual support for successful project outcomes.
- Assisted with multiple tender proposals for upcoming GTS courses, demonstrating strong project management and coordination skills.
- Conducted research and developed the ERSG: Education, Research, Skills, Group, bridging the gap between industry and academia in the wind sector.

Intern – Research Assistant

January 2022 – April 2022 **University College Dublin, Innovation Academy**

- Conducted research on "Systems Thinking & Sustainable Development for the Workplace of the Future" using design thinking methods with a team of four.
- Explored potential benefits of experiential learning for employees and employers.
- Improved internal structures at UCD Innovation Academy through the application of design thinking.
- Expressing potential opportunities for "Augmented Reality Lab," "Sustainability Living Lab" and "Makers Space Lab."
- Enhanced course structure to align with industry needs focusing on soft skills.

Intern – Research Assistant

March 2020 – August 2020 **Ballast Design, Signs & Branding**

- Developed creative design solutions for branding, advertising, and marketing collateral.
- Collaborated with clients and team members to understand project objectives and create visual concepts using Adobe Creative Suite
- Designed logos, brochures, flyers, posters, website layouts, and vehicle wrap designs.
- Ensured design consistency and brand identity across platforms.
- Managed multiple design projects, meeting project timelines and deadlines.

Graphic Designer

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Curriculum Vitae

Siobhan Roddy *BSc. (Hons)*

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Profession
Environmental Scientist

Position with firm
Junior Environmental Scientist

Years of Experience
4

Educational Qualifications
- BSc in Environmental Science and Technology, Dublin City University, 2021

KEY HIGHLIGHTS

Siobhan is a self-motivated, enthusiastic Environmental Scientist who studied Environmental Science in Dublin City University where she received a Second-Class Honours Grade 1. Siobhan worked in Ringsend Wastewater Treatment Plant where she was employed as a Process Engineer/ Sampling Technician. She also has experience working in a microbiology lab where she was the senior person responsible for Endotoxin Testing of drug products and medical device. This job involved method development and validation and required adherence to strict GMP/GLP guidelines, SOP's, and safety procedures. In her current role Siobhan is involved in the preparation of EIARs.

Siobhan's key skills include:
- Laboratory skills
- Team management
- GIS competence
- Aseptic techniques
- Sampling skills
- Teamwork
- Technical report writing
- IT Skills
- Data review
- Data Analysis and Interpretation
- Communication
- Problem-solving

EXPERIENCE

March 2024 – Present **Jennings O'Donovan & Partners Limited**

Responsibilities:
- Conducting feasibility studies to evaluate the potential environmental impact of proposed projects which involves the use of ArcGIS.
- Writing of EIAR chapters which includes evaluating the effects on ecosystems, air and water quality, biodiversity, and social factors.
- Carrying out desk-based research and interpreting data.
- Staying up to date with environmental legislation and guidelines and interpreting regulatory requirements.
- Liaising with colleagues, clients, and stakeholders.

Junior Environmental Scientist

December 2021 – March 2024 **Charles River Laboratories (CRL), Ballina, Co. Mayo**

Responsibilities:
- Routine and validation Endotoxin Testing of medical devices and drug products. Writing validations for new testing methods.
- Updating company and client SOP's ensuring they comply with current European and US Pharmacopoeia.
- Siobhan was responsible for ordering reagents and consumables needed to carry out the endotoxin testing. This involves taking monthly stock counts.
- Reviewing data ensuring it complies with GMP and ensuring it is to the highest standard before the results are sent to our clients.
- Weekly calls with clients to discuss scheduling of testing.
- Training new and current staff.

Microbiology Laboratory Technician

March 2020 – August 2020 **Celtic Anglian Water (CAW), Ringsend Wastewater Treatment Plant, Dublin**

Responsibilities:
- Sampling: water and sludge sampling daily, analysed them and prepared the results which were used in the monthly reports for the company.

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Siobhan Roddy CV *(cont'd)*

- Regulation monitoring: Gas, odour, noise, and radiation monitoring around the site weekly which included calibration and maintenance of the equipment.
- Recorded and compiling data daily for the company reports and was responsible for maintaining records.
- Calibrating and troubleshooting instrumentation.
- Research project looking at the productivity of the Thermal Hydrolysis Plant which resulted in significant cost savings for the company.

Process Engineer/Sampling Technician

ACHIEVEMENTS

- Spoke at the 9th annual UNESCO youth forum in Paris 2015.

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Curriculum Vitae

Aileen Byrne *BA, H.Dip.*

RECEIVED: 08/08/2025

Profession
Environmental Scientist

Position with firm
Environmental Scientist

Years of Experience
1.5

Educational Qualifications

- Higher Diploma in Environmental Science, University of Limerick (First Class Honours), 2022
- BA Hons. Geography & Information Technology, National University of Ireland, Galway, 2021
- Work in Wind, Wind Energy Ireland & GTSkillnet, Sept. – Nov 2022
- Alive Certificate, 2018 – 2019, Awarded for volunteering work completed in University
- WindPRO Solar PV Course, EMD International, April 2024

KEY HIGHLIGHTS
Aileen is an honours graduate of the Environmental Science Higher Diploma course from the University of Limerick. She has a keen interest in sustainable energy in Ireland, both present and future applications. Aileen most recently completed the "Work in Wind" course with Wind Energy Ireland and GTSkillnet to improve her knowledge of sustainable renewables and she hopes to apply this knowledge in the sector. Aileens skills include Public Speaking, Interpersonal Skills and Communication, Attention to detail, Critical thinking, Active listening, Mentoring, Leadership, Teamwork, Problem-Solving and Decision Making.

EXPERIENCE

September 2022 – Present **Jennings O'Donovan & Partners Limited, Sligo**
Since joining JOD, Aileen has worked as Junior Environmental Scientist on the following projects:

- Inchamore Wind Farm, Co. Cork (33MW)
- Killala Hydrogen Plant and Energy Centre, Co. Mayo (200MW)
- Tirawley Wind Farm, Co. Mayo (72.45MW)
- Kellystown Wind Farm, Co. Louth (40MW)
- Tullaghmore Wind Farm, Co. Galway (36MW)
- Gorteen Wind Farm, Co. Sligo (3.5MW)
- Ballykett Wind Farm, Co. Clare (20MW)
- Firlough Wind Farm and Hydrogen Plant, Co. Mayo (78MW)

WORK EXPERIENCE

March 2018 February 2022 Crowe's Grocer and Baker Nenagh

Responsibilities:
Sales and Deli Assistant

2018 - 2019 **NUIG**

Volunteering in University
Achieved a CÉIM Leader Certificate through completing a CÉIM Leadership course.
A CÉIM Leader is a peer mentor for first year students, easing the transition from second to third level education, assisting them with any needs while also explaining course work during weekly sessions.
Role: CÉIM Leader, 2018 – 2019

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DR BRIAN MADDEN - CURRICULUM VITAE

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29 La Touche Park, Greystones, Co. Wicklow
Phone/Fax: (353) 1-2875249 Email: maddenbio20@gmail.com

Profile

Brian Madden is a terrestrial ecologist and ornithologist.

After studying Natural Sciences at Trinity College Dublin, Brian was awarded a Doctor of Philosophy (PhD) degree from the National University of Ireland for his research on ecosystem processes in raised bogs.

A period was then spent as a research fellow at Trinity College, investigating the causes of nuisance green algal growths in Dublin Bay (part of Dublin Bay Management Plan).

Brian then worked with the National Parks & Wildlife Service on the national re-survey of Areas of Scientific Interest. This work culminated in the selection of sites for designation as Natural Heritage Areas (NHAs), Special Areas of Conservation (SACs) and Special Protection Areas (SPAs).

In 1994 the consultancy BioSphere Environmental Services (BES) was formed to provide environmental expertise for planning applications and environmental impact assessments, and, latterly, Appropriate Assessments. Brian Madden is the general manager and senior ecologist. BES has contributed to over 700 projects, including road schemes, wind energy projects, landfill monitoring, pipeline projects (water, gas), industrial developments, airports, flood relief programmes, business parks etc. BES regularly carries out assignments for the National Parks & Wildlife Service, which have included the National Peregrine Survey and the Breeding Wader Survey of Machairs (Annex I priority habitat) in Western Ireland.

Brian is an experienced ornithologist and has worked on most bird species which occur in Ireland. The Hen Harrier is a species of particular conservation concern and Brian is currently carrying out research into the potential conflict between Hen Harriers and wind farms.

Brian is an experienced expert witness at Oral Hearings and has prepared submissions for High Court and Supreme Court hearings. He has published extensively in the scientific literature (including book co-authorship).

Qualifications

- B.A. (Mod.), Natural Sciences, 1984, University of Dublin, Trinity College.
- Ph.D. 1990, National University of Ireland, University College Dublin.

Ph.D. Research

Study of primary productivity and nutrient cycling at a raised bog in County Offaly. Supervised by Prof. G.J. Doyle, University College, Dublin. 1984-1989.

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Professional Membership

Full member Chartered Institute of Ecology and Environmental Management (CIEEM)

Distinction

In 1999 appointed independent scientific advisor to the Designated Areas Appeals Advisory Board. Board was set up on a non-statutory basis to make recommendations directly to the Minister of the Environment, Heritage & Local Government in cases where landowners object on scientific grounds to the inclusion of their land in Special Areas of Conservation, Special Protection Areas and Natural Heritage Areas.

Present Position

Environmental Consultant managing Biosphere Environmental Services.

Sample Relevant Projects

- **Oweninny Wind Farm, Co Mayo** – Since 2010, BES has been involved in the EIS preparation, pre-construction phase, and construction phase. Project granted permission by ABP in June 2016, with Oral Hearing in 2014. Phase 1: 29 turbines now operational. Phase 2 commenced in March 2021. The ecological and environmental studies have included habitat assessments, winter and summer bird surveys, bat survey, mammal survey, mitigation for breeding birds, badgers, water quality, SAC on-site, etc. Rehabilitation Plan (as a planning condition) put in place in late 2019. BES prepared an NIS for project. Ongoing project. Client: Powergen (ESB & Bord na Móna)

- **Grousemount Wind Farm and Grid Connection Route, Cos. Cork/Kerry** – Since 2010, BES has been involved in the EIS preparation, pre-construction phase, and construction phase. Granted permission by ABP in July 2016. The 38 turbine project is now operational. The ecological studies have included winter and summer bird surveys, Red Grouse surveys under licence, monitoring and mitigation for White-tailed Eagle, monitoring and mitigation for Kerry Slug (under licence), advise on removal of Rhododendron from work areas etc. BES prepared an AA Screening Report for project. Ongoing post-construction monitoring focused on White-tailed Eagle. BES has also surveyed the 110kV grid connection route (c.31 km) from Grousemount to the Ballyvouskil 220kv Substation. Part of the cable route was through the Mullaghamish to Musheramore SPA. Client: ESB International.

- **Letteragh Wind Farm, Co. Clare** - BES carried out the ecological assessments for EIS preparation, pre-construction phase and construction phase (complete in 2019) for 6 no. turbine development. Particular focus was on Hen Harrier. BES has been contracted by the wind farm operator to carry out post construction bird monitoring on site (2020 onwards) SeaHound Wind Development Ltd. (working with Jennings O'Donovan, Consulting Engineers)

- **Castlepook Wind Farm, Co. Cork** - BES has been involved in the EIS preparation, pre-construction phase, construction phase and post construction phase (ongoing). The 14 turbine project was complete in spring 2019. Studies have included focused surveys for Hen Harrier (breeding pair on site). BES also prepared a detailed Habitat Enhancement Plan (now in force) to improve conditions on site for Hen Harrier. . BES prepared an AA Screening Report for project. Post construction monitoring includes carcass search for birds and bats using trained dog. Ongoing project. Client: ESB International/Coillte.

- **Grouselodge Wind Farm, Co. Limerick** - BES has been involved in the EIS preparation, pre-construction phase, construction phase and post construction phase (ongoing). The 6 no. turbine

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project became operational in 2012. As part of site is within a Special Protection Area, detailed studies were carried out for Hen Harrier with annual monitoring continuing. BES also prepared a detailed Habitat Enhancement Plan (now in force) to improve conditions for Hen Harrier. Ongoing project. Client: ESB International.

- **Cappawhite B (Milestone) Wind Farm, Co. Tipperary** - BES carried out the habitat, bird and bat studies for EIS preparation, pre-construction phase, construction phase and post construction phase (ongoing), including Habitat Management Area for Hen Harrier, for this 5 no. turbine development. Post construction monitoring includes carcass search for birds and bats using trained dog. Ongoing project. Client: ABO Wind Ireland. .

- **Eglish Wind Farm, Co. Tyrone** - BES carried out ecological studies for EIS preparation, pre-construction bird surveys, construction phase and post construction phase (ongoing) for 6 no. turbine development. BES also prepared a detailed Habitat Management Plan for an area of bog on site. Client: ESB International.

- **Carrickatane Wind Farm, Co. Tyrone/Derry** - BES carried out ecological assessments for EIS preparation, pre-construction phase, construction phase and post construction phase (ongoing) for 9 no. turbine development. BES also prepared a detailed Habitat Management Plan for habitats on site. Client: ESB International.

- **Ballycumber Wind Farm, Co. Wicklow -** BES has been involved in the ecological studies for EIS preparation and post construction bird monitoring for this 6 no. turbine development. Ongoing project. Client: Ballycumber Wind Farm (in association with Jennings O'Donovan, Consulting Engineers).

- **Raheenleagh Wind Farm, Arklow, Co. Wicklow -** BES has been involved in the ecological studies for EIS preparation for this 11 no. turbine development which became operational in 2016. Also involved in grid connection route. Client: ESB/Coillte.

- **Yellow River Wind Farm, Rhode, Co. Offaly** - BES has been involved in the ecological studies for EIS preparation and pre-construction phase. Studies have included focused surveys for Whooper Swans. Ongoing project. Client: Greenwind Energy (in association with Jennings O'Donovan, Consulting Engineers).

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MARTIN MURPHY, TECHNICAL SUPPORT FORESTER - BSc (Hons) Forestry, M.S.I.F.

Education and Qualifications:

2021-2023 - MSc (Agr) by research (awarded)
2019-2020 - BSc (Hons) in Land Management in Forestry (1.1)
2016-2019 - BSc in Forestry (1.1)

Profile:

Martin currently works as a Technical Support Forester at Veon Ltd. In this capacity, he is responsible for preparing licence applications for all forestry activities undertaken by Veon. He also liaises with the Forest Service and the forestry and ecology teams around any licencing issues. Martin is also responsible for ensuring quality control for all licence applications (maps, harvest plans etc.), and is a technical member of the Society of Irish Foresters.

Experience:

Martin commenced his forestry education as a mature student at Waterford Institute of Technology, where he studied modules such as Applied GIS, Biodiversity Management, Advanced Silviculture, Forest Protection and Sustainable Water Management Systems. As part of his undergraduate studies, Martin also engaged in a six-month internship in Killarney National Park, working in a team of international interns on a habitat restoration programme, where he gained valuable knowledge on invasive species management and woodland and bogland ecology. He subsequently pursued a MSc by research at UCD, working under Professor Áine Ní Dhubháin. This programme provided him with experience in data collection and analysis, collaboration, and academic writing. Since joining Veon in February 2023, Martin has further developed his skills in QGIS, in addition to various DAFM technologies, and he has worked on licence applications for all forestry activities, delivering comprehensive maps and supporting various teams. He has also worked alongside Veon's former Business Development Director Joe Codd on wind farm projects, assisting with assessment and report writing for a number of developments in Ireland.

Skills:

Martin is adaptable to working both independently and in various team environments. He possesses strong writing skills, complemented by good interpersonal and oral communication abilities. With a detail-oriented approach to work, he recognizes the significance of delivering projects and reports with clarity and quality. At Veon, Martin plays a supportive role in assisting all teams, liaising with multiple staff members simultaneously and communicating effectively to help address their specific requirements.

Relevant work history:

2023-Present: Technical Support Forester, Veon Ltd., Leopardstown, Dublin 18
2018: Student Intern, National Parks & Wildlife Service - Killarney National Park, Co. Kerry

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GRÁINNE MURPHY, GIS TECHNICIAN - M.Sc. (GIS)

Education and Qualifications:

2021 - MSc in Geospatial Data Analysis (2.1)
2018 - BA in Geography and Music (2.1)

Profile:

Gráinne, a skilled GIS professional with over 4 years of experience in academia and industry, has assumed the position of GIS Technician at Veon Ltd. In this capacity, she is responsible for creating and analysing ArcGIS Field Maps projects, conducting survey training, and ensuring quality control for the maintenance and monitoring of GPS field technology and geospatial data processes. Gráinne serves as the primary custodian of data within the Veon system. As changes are made during field operations and inspections, Gráinne is responsible for updating the system and analysing the data to ensure that all teams are kept up to date with the most current information available. Gráinne's previous work as a GIS technician for Mallon Technology, where she was a member of the GIS team in the Department of Agriculture, Food and the Marine, has given her valuable expertise.

Experience:

Gráinne commenced her GIS education at UCD, where she utilized both ESRI and QGIS software as part of her undergraduate studies in Geography. She subsequently pursued Advanced GIS and Remote Sensing training during her Master of Science in Geospatial Data Analysis, also undertaken at UCD. This programme provided her with in-depth instruction on ESRI and QGIS software, as well as various remote sensing technologies. While undertaking her MSc, Gráinne participated in multiple research projects, where she coordinated activities, sourced data, and compiled research papers. In 2021, Gráinne joined Mallon Technology as a GIS technician, where she further honed her skills in ArcGIS and QGIS, in addition to various DAFM technologies. Since joining Veon Ltd in February 2023, she has contributed to numerous projects, working with intricate data and delivering comprehensive maps while supporting various teams.

Skills:

Gráinne is highly adaptable to working in various team environments, as well as independently. She possesses excellent writing skills, complemented by strong interpersonal and oral communication abilities. With her analytical and detail-oriented approach to work, she recognizes the significance of delivering urban development contracts with utmost clarity and quality. At Veon, Gráinne plays a supportive role in assisting all teams, involving liaising with multiple staff members simultaneously and communicating efficiently to meet their specific requirements.

Relevant work history:

2023-Present: GIS Technician, Veon Ltd., Leopardstown, Dublin 18
2021-2023: GIS Technician, Mallon Technology, Merrion Street Upper, Dublin 2

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Curriculum Vitae
Edward McCormack, BSc, PhD
Nationality: Irish
Profession: Marine Biologist/Ecologist
Specialisation: Environmental Monitoring/Marine Faunal Taxonomy
Position in Firm: Associate Director

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2003 National university of Ireland, Galway Ph.D. in Zoology
1997 National university of Ireland, Galway B.Sc. (Hons) in Marine science

Key Competence
Taxonomy of marine and freshwater Copepoda.
Taxonomy of macroinvertebrates including Crustacea, Polychaeta, Mollusca, Echinodermata as well as other minor taxa
Taxonomy of deep sea invertebrates
Taxonomy of zooplankton
Taxonomy of marine free-living nematodes
Intertidal fauna and macroalgae surveying
EIA Directive and Habitats Directive
SSRS training provider

Since 1997 Eddie has carried out subtidal and intertidal surveys on numerous waterbodies around the Irish coast with multiple locations including counties Donegal, Sligo, Mayo, Galway, Clare, Limerick, Kerry, Cork, Waterford, Wexford, Dublin, Meath and Louth as well as offshore sandbanks off Donegal and within the Irish Sea and deep sea regions of the Rockall Trough, Porcupine Bank and British Columbia. Eddie is experienced in the design, execution, processing and analysis of subtidal and intertidal surveys. This includes the use of Day and Van Veen grabs, Railler-du-Baty dredges, epibenthic sledges and cores. He is very familiar with all sampling methodologies and guidelines which must be adhered to whilst sampling. Eddie has carried out multiple Sediment Profile Imagery (SPI) surveys offshore including in the Irish Coast, North Sea and west coast of Canada. He has also vast experience in the processing of faunal and sediment samples on board ship and the in situ identification of fauna and macroalgae. In addition to being highly experienced in subtidal and intertidal sampling methodologies and protocols, Eddie is also a taxonomist with over 20 years experience. His taxonomic experience is wide ranging and includes Crustacea, polychaetes, Mollusca, echinoderms and other minor taxa of subtidal macrofauna. In addition, he has extensive experience in the taxonomy and identification of meiofauna (especially Crustacea and Nematoda), deep sea invertebrates (including Crustacea, echinoderms, Mollusca), zooplankton, freshwater macroinvertebrates and macroalgae. He has developed and delivered training workshops on the identification of marine invertebrates. Eddie delivers the EPA approved SSRS training course for AQUAFACT. This has involved the training and certification of members of multiple local authority and private sector companies in identification of freshwater macroinvertebrates and freshwater sampling methodologies to a level sufficient to perform SSRS assessments. Consultancy work has focused on the implementation of European legislation including the EIA Directive, the Habitats Directive. Eddie has a current certificate of proficiency in personal survival techniques on board ship.

Eddie has worked for the Aquaculture Licence Appeal Board (ALAB) as a technical advisor on four separate appeal cases, including an oral hearing. He has been involved in surveying, analysis and reporting for multiples EIARs for aquaculture licence renewal applications for twenty marine finfish sites located off the southwest, west and northwest coasts.

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Eddie has also worked for the Marine Institute on the intercalibration of Water Framework Directive monitoring tools for coastal water bodies. The METRIC (Marine Ecological Tools for Reference, Intercalibration and Classification) project involved the assessment of the Irish and UK benthic macroinvertebrate monitoring tool – the IQI (Infaunal Quality Index). Data collected throughout the project from 6 coastal waterbodies were used to test and validate the IQI. Eddie was responsible for the design, execution and analysis of each survey including the identification of macrofauna.
Eddie has completed a report on behalf of the Marine Institute on the environmental impacts of mariculture within the OSPAR region. This report was published by OSPAR in 2009 and was used to inform on OSPAR's 2010 QSR (Quality Status Report).

Eddie has completed the technical report for a European level project for the Marine Institute (MEFEPO). This project involved the collation of all marine data (physical, chemical and biological) collected for ICES Regions VIa, VIb, VIIa, VIIb, VIIc, VIId, VIIe, VIIf, VIIg, VIIh, VIIj, and VIIk (OSPAR Regions II, III and V). All species, habitats, conservation designation sites, shipping routes, current patterns etc were referenced for the purpose of mapping the data.

Education and Professional Status

Dissertation:

2003 *Research for PhD Thesis entitled "The Harpacticoid Copepoda from Maerl substrates in Galway Bay, Ireland"*

1997 *Research thesis entitled "Planktonic Copepoda from Kilkieran Bay, Ireland" within B.Sc. Honours course in Marine Science at NUI, Galway.*

Employment Record:

2022 – present. Associate Director at AQUAFACT.

2007 - 2022 Principal Ecologist with AQUAFACT International Ltd. with responsibility for faunal identification in subtidal and intertidal benthic surveys, zooplankton analysis, , SPI survey and reporting, Aquaculture Licence Appeal Board (ALAB), SSRS training and technical report writing.

2007 Laboratory technician – Deep water survey programme, MEFS & FSS, Marine Institute. Identification of deep sea invertebrate bi-catch from the Marine Institute FSS Deepwater survey programme, and production of a taxonomic pictorial guide for future deep sea surveys.

2007 Scientific & technical officer, Benthic Ecology at the Marine Institute, Galway, assigned to the benthic element of the **METRIC W**ater **F**ramework **D**irective project. Responsibilities included data discovery, planning and implementation of a field sampling programme, processing, identification and analysis of taxa and preparation of reports.

2006 Post doctoral researcher with the Zoology Department, NUI, Galway, Working on the Kinsale harbour study. Responsibilities included extensive fieldwork in collection of benthic infaunal and intertidal samples, training in use of SPI (Sediment Profile Imagery) technology, and the sorting and identification of benthic fauna in the lab.

2004 – 2005 Co-supervisor of research for two Zoology Ph.D. students, providing training in taxonomy, micro dissection and scientific illustration of deep sea crustaceans.

2005 Environmental consultant with Saorgus Energy Ltd., Tralee, Co. Kerry. Responsibilities involved the composition of an Environmental Impact Statement on a proposed offshore wind farm on the Bray and Kish banks in the Irish Sea and included a desk based study to assess the baseline conditions of marine mammals in the study area.

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2004 Internal examiner with the Zoology Department, NUI, Galway on the first year animal biology paper.

2004 Employed by NUI, Galway to tutor first year biology repeat students and second year Zoology students in preparation for exams.

2004 Employed by the Zoology department to design and teach a third year Zoology practical on the taxonomy and ecology of the marine meiofauna with reference to species content in various substrates

2003 Consultant with Marine Institute. Investigated possible jellyfish responsibilities in salmon mortalities at Inver bay and McSwyne's bay fish farms, Co. Donegal during 2003.

2000 Research assistant. Worked as a taxonomist for the EU funded SEAMAR project (Shelf Edge Advection, Mortality and Recruitment) Gained experience and skill in identification of zooplankton and phytoplankton. Trained several research assistants in identification of zooplankton.

2000 & 2001 Teaching assistant. Trained final year B.Sc. students in taxonomy, micro dissection and identification of zooplankton as part of their final year research projects.

Freshwater Project Experience

- 2022-2024. Project Manager for Aquatic Ecology EIAR chapters for Greensource Ballykett, Moanmore, and Garrane Wind Farm Projects
- 2022 M7/8 mid link Q-value assessment of the River Goul along the M8 motorway.
- 2022 N25 south link Q-value assessment of the River Millinabro along the N25.
- 2020 N5 Westport to Turlough Road project macroinvertebrate sampling of streams intersecting the project, Co. Mayo.
- 2020 M7/8 mid link Q-value assessment of the River Gully along the M8 motorway.
- 2019 N25 south link Q-value assessment of the River Millinabro along the N25.
- 2019 M7/8 mid link Q-value assessment of the River Mills along the M8 motorway.
- 2019 M1 north Link Q-value assessment of eight rivers along the motorway.
- 2019 Scríob Hatchery discharge Q-value assessment Co. Galway.
- 2019 Pollmounty Hatchery discharge Q-value assessment Co. Wexford and Co. Carlow.
- 2018 Annual Q-value assessment of rivers and streams flowing through Oweninny Wind Farm, Co. Mayo.
- 2018 SSRS and Q-value assessment of a Dairy factory's discharge to the River Blackwater, Co. Monaghan.
- 2017 Pre-construction Q-value assessment of rivers and streams flowing through Oweninny Wind Farm, Co. Mayo.
- 2015 Q-value assessment of the Anner River, Clonmel as part of an Appropriate Assessment.
- 2015 Q-value assessment of the Oweninny River, Mayo.

SSRS training course experience

- 2023 Delivery of SSRS Training Course to Atlantic Technical University 3rd year students
- 2022 Delivery of SSRS Training Course to APEM Ireland and Woodrow Sustainable Solutions Ltd
- 2017 Delivery of SSRS Training Course to field analysts with EPA, and environmental consultancy companies City Analysts Ltd. and Woodrow Sustainable Solutions Ltd
- 2016 Delivery of SSRS training course to NUI, Galway students
- 2016 Delivery of SSRS training course to Tipperary County council.
- 2016 Delivery of SSRS training course to Monaghan County Council

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- 2016 Delivery of SSRS training course to field analyst from Tobins Engineers.
- 2016 Delivery of SSRS training course to field analyst from Whitehall Environmental Ltd.
- 2016 Delivery of SSRS training course to Limerick County Council
- 2016 Delivery of SSRS training course to Louth County Council
- 2015 Delivery of SSRS training course to Cavan County Council.
- 2015 Delivery of SSRS training course to Leitrim County Council
- 2013 Delivery of SSRS training course to Shell staff.

Renewable Energy Project experience

Advisory Roles – Ecological, consent and strategic advisor for ongoing offshore wind energy developments.

Appointed technical advisor to offshore wind farm developers. Responsibilities include the provision of technical review of the statutory compliance of EIA Screenings, Non-statutory Environmental Reports, Screening of AA and NIS, and Annex IV Species Risk Assessment reports to support consent applications. Where necessary recommendations are made with regard revisions to the reports to achieve compliance with statutory requirements. Also responsible for expert technical review of the ecology content of reports, and the associated impact assessments presented within. Recommendations are made with regard to revisions to be made to the reports to address gaps in knowledge and to strengthen the impact assessments.

Ecological surveyor and advisor for the Codling Wind Park and Dublin Bay Array development in the eastern Irish Sea

Codling Wind Park - Overseen subtidal benthic survey in 2021 for the Codling Wind Park Development. Survey included grab sampling for macrofaunal and sediment analysis and drop down video transects. Input to impact assessments as part of the EIAR. Responsible for survey design and subsequent execution.

Dublin Bay Array - Managed intertidal survey for the Dublin Bay Array land fall routes. This body of work included Phase 1 intertidal walkover surveys and soft sediment core surveys. Oversight and input to impact assessments as part of the EIAR. Also responsible for survey design and final reporting.

Arklow Wind Park Project – Undertook Phase 1 intertidal walkover surveys in 2019 to provide a baseline characterisation of the intertidal ecology of the proposed landfall sites located north of Arklow town along the shore south of Ennereilly Beach while the South Landfall Site along part of an existing rock armour revetment from Arklow North Pier to Mill Road. Undertook benthic survey in 2020 at Arklow Marina to accompany an application by SSE for approval for the construction of operations and maintenance base at the marina for the wind park. Responsible for project Health and Safety, survey design, survey execution and reporting.

Ecological and strategic advisor for the development of hydroelectric turbines at Toormakeady, Co Mayo.

Ecological surveyor and advisor on NIS reporting for terrestrial wind farms at Oweninny Wind Farm and Sheshkin Wind Farm Co Mayo, and Galway Wind Park.

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Onshore and Offshore Aquaculture

Project management of EIAR and NIS reporting for aquaculture licence renewal applications for twenty marine finfish sites located off the southwest, west and northwest coasts, and two land-based hatcheries in Co. Donegal. Responsible for overall project management and reporting

This body of work was undertaken in 2021 and 2022 for five aquaculture companies, including MOWI Ireland, and required management and delivery of all aspects of EIAR and NIS reporting.

Subtidal Experience Record

- **2024** Wicklow Harbour Dredge Disposal Site – Site Selection process
- **2023-2024** Limerick WWTP expansion. Intertidal and subtidal baseline surveys, faunal analysis and reporting
- **2023** Dublin Bay DaS site. Ecological Surveys – faunal analysis and reporting
- **2023** Zooplankton analysis Marine Institute – COMPASS project
- **2023** Treanbeg Kenmare – subtidal and intertidal faunal analysis
- **2022** Zooplankton analysis Marine Institute – COMPASS project
- **2007-2023** Benthic audits including faunal analysis for MOWI aquaculture sites in Ireland
- **2021** Subtidal benthic faunal grab survey and drop down video survey of Codling Bank Wind Park
- **2020** Benthic survey and faunal taxonomy identification and analysis for WFD benthic samples from Kinsale Harbour, Lough Mahon, North Channel Great Island, Cork Harbour, Wexford harbour, Slaney Estuary, and Lower Suir Estuary in 2020 for the Marine Institute.
- **2019** Benthic survey and faunal taxonomy identification and analysis for WFD benthic samples from Waterford Harbour, Suir Estuary, Wexford Harbour, Slaney Estuary, Dungarvan Harbour, Colligan Estuary, Youghal Harbour, Blackwater Estuary, Kinsale Harbour and Cork Harbour as part of the WFD Monitoring Programme on behalf of the Marine Institute.
- **2019-2020.** Zooplankton surveys at Lady's Island Lake and Ballyteige Lagoon, Co. Wexford.
- **2019** Benthic faunal survey of Oriel Wind Farm site, Irish Sea.
- **2019** Benthic faunal and planktonic surveys of Killybegs Disposal at Sea site.
- **2018** Faunal Taxonomy for WFD benthic samples Tolka Estuary and Liffey Estuary as part of the WFD Monitoring Programme on behalf of the Marine Institute.
- **2018** Warrenpoint, Co. Down. Benthic sled video analysis of subtidal reef.
- **2018** Faunal taxonomy of Irish Sea marine benthos for Marine Institute razor clam survey.
- **2017** Faunal Taxonomy for WFD benthic samples from Killary Harbour, Inner Clew Bay, Galway Bay, Kinvara Bay, Tolka Estuary and Liffey Estuary as part of the WFD Monitoring Programme on behalf of the Marine Institute.
- **2017** Faunal Taxonomy for benthic grab samples from a marine benthic survey of Buncrana Harbour for Dredging and Disposal operations on behalf of Donegal County Council.
- **2017** Faunal Taxonomy for benthic grab samples from a marine benthic survey of Fenit Harbour for Dredging and Disposal operations on behalf of Kerry County Council.
- **2017** Faunal Taxonomy for benthic grab samples from a marine benthic survey in vicinity of Arthurstown, Ballyhack and Duncannon Wasterwater treatment plant discharge locations in Waterford Estuary, Co. Waterford.

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- **2016** Faunal Taxonomy for WFD benthic samples from the Killary Harbour, Outer Clew Bay, Newport Bay, Westport Bay, Broadhaven Bay, Sruwaddacon Bay, Killala Bay, Ballysadare Bay, Galway Bay, Kilkieran Bay, Camus Bay and the Shannon Estuary as part of the WFD Monitoring Programme on behalf of the Marine Institute.
- **2016** Faunal Taxonomy for benthic grab samples from razor clam habitat between Dundalk and Balbriggan on behalf of the Marine Institute.
- **2016** Identification, enumeration and biomass of benthic samples from the Outer Ards Peninsula on behalf of AFBI
- **2015-2016** Faunal Taxonomy for benthic grab samples from Killibegs Dredge and Disposal Sites on behalf of DAFM.
- **2015-2016** Faunal Taxonomy for benthic grab samples from Rossaveal Dredge and Disposal Sites on behalf of DAFM.
- **2008-2019** Identification and enumeration of MOWI Ireland (formerly Marine Harvest Ireland) fish farm audit samples
- **2015** Sampling, identification and enumeration of WFD Benthic Samples from Kinvara Bay, Galway Bay, Liffey Estuary and Tolka Estuary.
- **2015** Sampling & Faunal Taxonomy for WFD benthic samples from the Liffey, Tolka and Corrib Estuaries and Kinvara Bay as part of the WFD Monitoring Programme on behalf of the Marine Institute.
- **2015** Identification and enumeration of WFD Benthic Samples from Dublin Bay, Killiney Bay, South West Irish Sea, Waterford Harbour, Outer Cork Harbour, Kinsale Harbour, Roaringwater Bay and Kenmare Bay.
- **2015** Taxonomy of marine benthic samples from Dublin Bay, Killiney Bay, Kinsale, Cork Harbour, Southwest Irish Sea, Waterford Harbour, Roaringwater Bay and Kenmare Bay as part of the WFD Monitoring Programme on behalf of the Marine Institute
- **2015** Sediment Profile Imagery (SPI) survey of proposed dredge disposal grounds in Kittimat Arm, British Columbia, Canada including faunal identification and reporting.
- **2015** Sediment Profile Imagery (SPI) survey of the Brent Field, North Sea, United Kingdom as part of the 2016 Brent Decommissioning Project.
- **2015** Identification of macrofauna from all finfish aquaculture benthic monitoring programmes.
- **2014** Developed and delivered a marine invertebrate identification workshop in Portaferry, Co Down on behalf of IBIS and the Loughs Agency, Northern Ireland.
- **2014** Sediment Profile Imagery (SPI) survey of proposed dredge disposal grounds in Prince Rupert, British Columbia, Canada including faunal identification and reporting.
- **2014** Identification of marine macroinvertebrates from environmental surveys of Qatar and Bahrain.
- **2014** Identification of macrofauna from all finfish aquaculture benthic monitoring programmes.
- **2014** Subtidal benthic sampling of Galway Bay, Kilkerrin Bay, Camus Bay and Kinvara Bay on behalf of the Marine Institute and the EPA as part of the WFD. Taxonomic identifications also carried out.
- **2013** Surveys of Intertidal faunal communities associated with *Ascophyllum nodosum* along the Mayo and Galway coastlines.
- **2012-2013** Identification and enumeration of WFD Benthic Samples and Marine Harvest fish farm audit samples
- **2011-2012** Identification and enumeration of WFD Benthic Samples and Marine Harvest fish farm audit samples

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- **2010-2011** Eddie carried out the identification of all phyla from a suite of samples collected from the Shannon Estuary, Hook Head, Saltee Islands, Valentia/Portmagee, Kilkerrin Bay, Mannin Bay, Kingstown Bay, Rutland Island and Mulroy Bay on behalf of the Marine Institute/NPWS. Eddie was also responsible for QA/QC.
- **2009-2010**. Eddie carried out the identification of all phyla from a suite of samples collected from Galway Bay, Clew Bay, Broadhaven Bay, Blacksod Bay, Donegal Bay, Lough Swilly, Wexford Harbour, Bannow Bay and the Blackwater Estuary on behalf of the Marine Institute/NPWS. Eddie was also responsible for QA/QC.
- **2009.** In collaboration with INFOMAR and GSI, Eddie carried out subtidal sampling at Dunmanus Bay, Co. Cork to investigate a potential pockmark field within the bay. This involved the selection of 10 stations, within the area (including suitable control sites) and the replicate grab sampling of each of these stations. 5 faunal replicates were taken per station, along with a sixth for sediment organic carbon and granulometry. Each Day Grab sample was sub-sampled using a corer to investigate meiofauna. Eddie processed all samples onboard ship in accordance with standard methodologies and was responsible for sorting and identification of all fauna. (Macrofauna and meiofaunal Copepoda and Nematoda) within the lab.
- **2009.** In collaboration with INFOMAR and GSI, Eddie carried out subtidal sampling at Bantry Bay, Co. Cork. This involved Day Grab sampling of a GSI-chosen grid within the bay. 25 stations were sampled with 3 faunal replicate samples and a further sample for sediment organic carbon and granulometry. Eddie processed all samples onboard ship in accordance with standard methodologies.
- **2009.** Benthic subtidal faunal survey of Fenit Harbour, Co. Kerry for Fenit Harbour and Marina EIS. Eddie was responsible for the identification of all fauna from 10 stations with 3 replicates per station.
- **2008.** Benthic subtidal survey for NPWS of Hempton's Turbot sand bank off the coast of Donegal. Eddie was responsible for the identification of all fauna from 14 stations taken as part of the MESH sampling schedule. Eddie also determined the biomass of each of the major faunal groups.
- **2008.** Rogerstown Biological Survey. Eddie was responsible for the identification of all fauna from a subtidal survey of Rogerstown Estuary, Co. Dublin to establish baseline conditions. 10 stations with 3 replicates per station were sampled.
- **2008.** Intertidal and Subtidal benthic studies in Broadmeadow Estuary, Co Dublin. Eddie was responsible for the identification of all fauna from 11 subtidal stations (3 replicate faunal samples).
- **2008.** Rosslare Harbour Subtidal survey, Co. Wexford. Eddie was responsible for the identification of all fauna from 10 stations at Rosslare harbour to establish baseline conditions prior to dredging at Rosslare Europort.
- **2008.** Survey of Galway Temporary Moorings site. Eddie was responsible for the identification of all fauna from 5 stations (2 faunal replicates) to establish baseline conditions prior to construction of temporary moorings in inner Galway bay.
- **2008.** B.I.M. Carrying Capacity Investigation. Eddie was responsible for the identification of all fauna from 12 subtidal stations (3 replicates) at Dungarvan Bay, Co. Waterford and 12 subtidal stations (3 replicates) from Wexford Harbour to determine the carrying capacity of each area for cultured bivalves by assessing the populations of non-cultured filter feeding taxa.
- **2007.** Benthic Subtidal Survey for NPWS of marine sandbanks at Long Bank and Holdens Bank in the Irish Sea and Turbot bank in the Shannon Estuary. Eddie was responsible for the identification of all fauna from each of the sites - 11 stations from Long bank and 4 stations each from Holdens Bank and Turbot Bank.

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- **2007.** Subtidal Survey at Waterford harbour. Eddie was responsible for the identification of all fauna from 5 stations (3 replicates) to establish baseline conditions along a proposed pipeline route.
- **2007.** Marine Ecological Survey for proposed pipeline routes in Shannon Estuary and Cork Harbour. Eddie was responsible for the identification of all fauna from 9 stations (3 faunal replicates) at both the Cork and Shannon sites.
- **2007.** Benthic survey for NPWS of Galway Bay cSAC. Eddie was responsible for the identification of all fauna (excluding Polychaetes) from grab (2mm. 1mm and 0,5mm fractions) and dredge samples (2mm) from the NPWS survey of the Galway Bay cSAC.
- **2007.** Eddie served as a laboratory technician onboard the R.V. Celtic Explorer during the Marine Institute FSS Deepwater Survey programme. He was responsible for the identification of all invertebrate by-catch from deepwater trawls along the continental shelf edge of the Porcupine Bank and west of the Hebrides between 500m and 1800m. Additional tasks included the production of a taxonomic invertebrate pictorial guide for future deep sea surveys.
- **2007.** Eddie, as part of the Marine Institute **W**ater **F**ramework **D**irective project METRIC (Marine Ecological Tools for Reference, Intercalibration and Classification) was involved in the Intercalibration of the Infaunal Quality Index (IQI) tool for assessing coastal water quality under the **WFD**. Responsibilities included the sampling regime planning, execution, analysis and reporting of subtidal surveys in Irish coastal waters. Waterbodies surveyed including Mulroy Bay, Dundalk Bay, Dublin Bay, Clew Bay, Killary Harbour and Bantry Bay.
- **2006.** Eddie served as a laboratory technician onboard the R.V. Celtic Explorer during the Marine Institute FSS Deepwater Survey programme. He was responsible for the identification of all invertebrate by-catch from deepwater trawls along the continental shelf edge of the Porcupine Bank and west of the Hebrides between 500m and 1500m.
- **2006.** Eddie worked within the Benthos Research Group at NUI, Galway which involved sampling, sorting and identification of annual surveys of Kinsale Harbour.
- **1997-2001.** Investigation of the subtidal harpacticoid copepod fauna of Galway Bay including maerl beds at Carraroe and Muckinish, shell/sand substrates at Finavara, sandy shores at Mweenish, sand/mud substrate at Margaretta bouy, Galway bay. Samples taken with meiofaunal corer and sieved on a 63µm mesh sieve.

SPI Experience:

- 2007-2023. Sediment Profile Imaging analysis for MOWI Ireland (formerly Marine Harvest Ireland) fish farm benthic audits.
- 2018 Sediment Profile Imaging at and in the vicinity of the Sand Heads Disposal Site, Strait of Georgia, B.C. Data analysis and reporting
- 2018 Sediment Profile Imaging at and in the vicinity of the Point Grey Disposal Site, Strait of Georgia, B.C. Data analysis and reporting
- 2018 Sediment Profile Imaging at and in the vicinity of the Cape Mudge Disposal Site, Strait of Georgia, B.C. Data analysis and reporting
- 2018 Sediment Profile Imaging at and in the vicinity of the Newcombe Channel Disposal Site, Strait of Georgia, B.C. Data analysis and reporting
- 2017 Sediment Profile Imaging at and in the vicinity of the Comox (Cape Lazo) DaS site, Strait of Georgia, British Columbia
- 2017 Sediment Profile Imaging at and in the vicinity of the Cape Mudge DaS site, Strait of Georgia, British Columbia

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- 2017 Sediment Profile Imaging at and in the vicinity of the Point Grey DaS site, Strait of Georgia, British Columbia
- 2016 Sediment Profile Imaging at and in the vicinity of the Five Finger Island DaS site, Strait of Georgia, British Columbia
- 2016 Sediment Profile Imaging at and in the vicinity of the Sand Heads DaS site, Strait of Georgia, British Columbia
- 2016 Sediment Profile Imaging at and in the vicinity of the Watts Point DaS site, Strait of Georgia, British Columbia
- 2016 Sediment Profile Imaging at and in the vicinity of the Porlier Pass DaS site, Strait of Georgia, British Columbia
- 2016 Sediment Profile Imaging at and in the vicinity of the Thornbrough Channel DaS site, Strait of Georgia, British Columbia
- 2016 Sediment Profile Imaging of Inver Bay, Co. Donegal to characterise the baseline environment for a proposed aquaculture development
- 2015 Sediment Profile Imaging at and near the vicinity of the Kitimat Arm Disposal Site, BC, Canada
- 2015 Sediment Profile Imaging (SPI) Survey Brent Field, North Sea, United Kingdom Part of the 2016 Brent Decommissioning Project
- 2014 Tier 1 Monitoring of Brown Passage Disposal at Sea Site using Sediment Profile Imagery, Prince Rupert, B.C., Canada
- 2014 Environmental Baseline Study using Sediment Profile Imagery of Proposed Dredge Disposal Site at Coast Island, Prince Rupert, B.C., Canada

Intertidal Survey Experience

- **2022-2024** Hook Head Intertidal surveys
- **2021** Intertidal survey of proposed cable route land falls at Poolbeg and Shanganagh for Dublin Array
- **2021** Intertidal faunal analysis of samples from proposed cable route land fall locations for Codling Bank Wind Park.
- **2020** Intertidal biomass survey at Dungarvan Bay, Co. Waterford.
- **2019** Intertidal and subtidal surveys at a pontoon dredge site at Courtmacsherry, Co. Cork
- **2017** Intertidal surveys at 58 locations at Mweeloon, Tawin, Co. Galway
- **2017** Intertidal surveys at Roman Island, Westport Harbour, Co. Mayo
- **2017** Intertidal surveys at potential landfall sites, Bray Co. Wicklow.
- **2016** Intertidal surveys for Silver strand to Sailin coastal protection and walkway scheme, Galway.
- **2015** Intertidal habitat survey at Renmore Point, Galway.
- **2014** Intertidal surveys at 5 potential landfall sites for a proposed wave farm in the Doonbeg/Killard area, Co. Clare.
- **2013** Intertidal surveys of seaweed harvest sites at 32 locations along the Mayo and Galway coastlines.
- **2013/2014** Intertidal surveys at the landfall site of a proposed brine discharge pipeline and at the landfall site of a proposed seawater intake pipe off Larne, Co. Antrim.
- 2010/2011. Intertidal surveys along the full length of the Shannon Estuary, north and south coasts.
- 2010. Intertidal surveys close to Dunany Point, Co. Louth for a proposed wind farm landfall site.
- 2008. Intertidal sampling at 3 locations in Bull's Mouth, Achill Island.

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- 2007. Intertidal sampling at 2 locations in the Shannon Estuary for a suitable landfall site for an offshore cable.

Workshops

NMBAQC 2016, Benthic Invertebrate Taxonomic Workshop for Experts – Paraonidae and Spionidae, Millport Field Centre, Isle of Cumbrae.

NMBAQC 2010, Experts Taxonomic workshop at Dove Marine Laboratory, Cullercoats, November 2010. Problem Taxa: Cumacea, Scale Worms and Lumbrineridae

Awards

Awarded funding under the British Natural History Museum Bioresource scheme, which allows researchers from EU member states to access the museum's collections, libraries and laboratories. Received specialist training from the staff of the Crustacean Research Group in taxonomy, phylogenetics and SEM technology.

Membership

The Crustacean Society

Conchological Society of Great Britain and Ireland

Publications & Selected Reports

AQUAFACT. 2024. Hook Head Intertidal Ecology Survey

AQUAFACT 2024 Limerick WWTP Intertidal and Subtidal Ecology

AQUAFACT 2023. Dublin Bay DaS Ecological Surveys

AQUAFACT 2023 MOWI Ahabeg fish farm benthic audit

AQUAFACT 2022. Marine Benthic Faunal Ecology Survey, Marine Dredging Monitoring for the Killybegs Smooth Point Pier Extension

AQUAFACT 2022. Carnlough and Belfast DaS site pre- and post-disposal benthic ecology surveys

AQUAFACT. 2021. Codling Wind Park Benthic Faunal Survey

AQUAFACT. 2021. Codling Wind Park Drop Down Video Survey

AQUAFACT. 2021. Dublin Array Intertidal Surveys

AQUAFACT. 2020. Water Framework Directive Benthic Sampling and Analysis. Kinsale Harbour, Lough Mahon, North Channel Great Island, Cork Harbour, Wexford harbour, Slaney Estuary, and Lower Suir Estuary. October 2020.

AQUAFACT. 2019 Subtidal & Intertidal Assessment Courtmacsherry Pontoon Dredging Project. July 2019.

AQUAFACT. 2019. Water Framework Directive Benthic Sampling and Analysis. Transitional Water Body: Lower Bandon Estuary, Kinsale, Co. Cork. Report prepared for Marine Institute. January 2020.

AQUAFACT. 2019. Water Framework Directive Benthic Sampling and Analysis. Transitional Water Body: Lough Mahon, Co. Cork. Report prepared for Marine Institute. January 2020.

AQUAFACT. 2019. Water Framework Directive Benthic Sampling and Analysis. Transitional Water Body: North Channel Great Island, Co. Cork. Report prepared for Marine Institute. January 2020.

AQUAFCT. 2019. Water Framework Directive Benthic Sampling and Analysis. Transitional Water Body: Lower Blackwater Estuary, Co. Cork. Report prepared for Marine Institute. January 2020.

AQUAFACT. 2019. Water Framework Directive Benthic Sampling and Analysis. Coastal Water Body: Youghal Bay, Co. Cork. Report prepared for Marine Institute. January 2020.

AQUAFACT. 2019. Water Framework Directive Benthic Sampling and Analysis: Transitional Water Body: Colligan Estuary, Co. Waterford. Report prepared for Marine Institute. December 2019.

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AQUAFACT. 2019. Water Framework Directive Benthic Sampling and Analysis: Transitional Water Body: Barrow, Nore, Suir Estuary, Co. Waterford. Report prepared for Marine Institute. December 2019.
AQUAFACT. 2019. Water Framework Directive Benthic Sampling and Analysis: Transitional Water Body: Lower Suir Estuary, Co. Waterford. Report prepared for Marine Institute. December 2019.
AQUAFACT. 2019. Water Framework Directive Benthic Sampling and Analysis: Transitional Water Body: Slaney Estuary, Co. Wexford. Report prepared for Marine Institute. December 2019.
AQUAFACT. 2019. Water Framework Directive Benthic Sampling and Analysis: Coastal Water Body: Wexford Harbour. Report prepared for Marine Institute. December 2019.
AQUAFACT. 2019. Water Framework Directive Benthic Sampling and Analysis: Coastal Water Body: Waterford Harbour. Report prepared for Marine Institute. December 2019.
AQUAFACT. 2019. Water Framework Directive Benthic Sampling and Analysis: Coastal Water Body: Dungarvan Harbour. Report prepared for Marine Institute. December 2019.
AQUAFACT. 2018. Water Framework Directive Benthic Sampling and Analysis Inner Clew Bay Coastal Waters Co. Galway. Report prepared for Marine Institute. January 2018
AQUAFACT. 2018. Water Framework Directive Benthic Sampling and Analysis Corrib Estuary Transitional Waters Co. Galway. Report prepared for Marine Institute. January 2018
AQUAFACT. 2018. Water Framework Directive Benthic Sampling and Analysis Kinvara Bay Transitional Waters Co. Galway. Report prepared for Marine Institute. January 2018
ALAB, 2018. Lough Swilly Aquaculture Licence Appeal. Technical Advisors Report, AP2-4 & AP-5/2018. 73pp
AQUAFACT. 2017. Water Framework Directive Benthic Sampling and Analysis Tolka Estuary Transitional Waters Co. Galway. Report prepared for Marine Institute. December 2017
AQUAFACT. 2017. Water Framework Directive Benthic Sampling and Analysis Liffey Estuary Transitional Waters Co. Galway. Report prepared for Marine Institute. December 2017
AQUAFACT, 2017. Sediment Profile Imaging at Point Grey Disposal at Sea Site.
AQUAFACT, 2017. Sediment Profile Imaging at Cape Mudge Disposal at Sea Site.
AQUAFACT, 2017. Sediment Profile Imaging at Comox (Cape Lazo) Disposal at Sea Site.
ALAB, 2017. Drumcliff Bay Oyster Cultivation Appeal. Technical Advisors Report, AP1/2016, 46pp.
AQUAFACT. 2016. Water Framework Directive Benthic Sampling and Analysis Westport Bay Transitional Waters Co. Galway. Report prepared for Marine Institute.
AQUAFACT. 2016. Water Framework Directive Benthic Sampling and Analysis Killary Harbour Coastal Waters Co. Galway. Report prepared for Marine Institute.
AQUAFACT. 2016. Water Framework Directive Benthic Sampling and Analysis Outer Clew Bay Coastal Waters Co. Galway. Report prepared for Marine Institute.
AQUAFACT. 2016. Water Framework Directive Benthic Sampling and Analysis Ballysadare Bay Coastal Waters Co. Galway. Report prepared for Marine Institute.
AQUAFACT. 2016. Water Framework Directive Benthic Sampling and Analysis Broadhaven Bay Coastal Waters Co. Galway. Report prepared for Marine Institute.
AQUAFACT. 2016. Water Framework Directive Benthic Sampling and Analysis Killala Bay Coastal Waters Co. Galway. Report prepared for Marine Institute.
McCormack, E. & Ashelby, C. 2016. A review of the Leptostraca of the British Isles with discussion of the genus *Sarsinebalia* Dahl. *Nauplius* **24:** 1-19, DOI 10.1590/2358-2936e2016006.
McCormack, E. & O'Connor, B. 2016. Notes on two echinoderms (*Leptometra celtica* (McAndrew and Barrett) and *Thyone inermis* Heller) in Irish waters *Irish Naturalists' Journal* **35**: 60-61.
AQUAFACT, 2016. Environmental Baseline Study of Proposed Dredge Disposal Site using Sediment Profile Imagery (SPI) in Kittimat Arm, British Columbia, Canada.
AQUAFACT, 2015. Tier 1 Monitoring of Brown Passage Disposal at Sea Site using Sediment Profile Imagery, Prince Rupert, B.C., Canada

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AQUAFACT, 2015. Environmental Baseline Study of Proposed Dredge Disposal Site using Sediment Profile Imagery at Coast Island, Prince Rupert, B.C., Canada
AQUAFACT. 2015. Water Framework Directive Benthic Sampling and Analysis Galway Bay & Kinvarra Bay Transitional Waters Co. Galway. Report prepared for Marine Institute.
AQUAFACT. 2015. Water Framework Directive Benthic Sampling and Analysis Liffey Estuary & Tolka Estuary Transitional Waters Co. Galway. Report prepared for Marine Institute.
AQUAFACT. 2015. Analysis of Marine Institute Marine Benthic Faunal Samples relating to the Water Framework Directive. Prepared for Marine Institute. Report prepared for Marine Institute.
ALAB, 2015. Killary Harbour Aquaculture Licence Appeal. Feasibility of Licence Condition Recommendations, AP2/2013. 8pp.
ALAB, 2014. Roaringwater Bay Aquaculture Licence Appeal. Technical Advisors Report, AP1/2014. 33pp.
ALAB, 2014. Roaringwater Bay Aquaculture Licence Appeal. Technical Advisors Report, AP2/2014. 29pp.
AQUAFACT. 2014. Water Framework Directive Benthic Sampling and Analysis Camus Bay Transitional Waters Co. Galway. Report prepared for Marine Institute.
AQUAFACT. 2014. Water Framework Directive Benthic Sampling and Analysis Inner Galway Bay North Coastal Waters Co. Galway. Report prepared for Marine Institute.
AQUAFACT. 2014. Water Framework Directive Benthic Sampling and Analysis Kilkieran Bay Coastal Waters Co. Galway. Report prepared for Marine Institute.
AQUAFACT. 2014. Water Framework Directive Benthic Sampling and Analysis Kinvara Bay Transitional Waters Co. Galway Report prepared for Marine Institute.
ALAB, 2013. Oysterhaven Aquaculture Licence Renewal Appeal. Technical Advisors Report, AP3/2013. 29pp
ALAB, 2013. Killary Mussel Licence Renewal Appeal. Technical Advisors Report, AP2/2013. 48pp.
AQUAFACT. 2012. Subtidal benthic assessment of the Greater Codling Bank. Prepared on behalf of National Parks and Wildlife Service.
OSPAR. 2009. Assessment of the Environmental Impacts of Mariculture. 55 pages.
AQUAFACT. 2009. MEFEPO Characterisation of the ecological and social features of the North Western Waters. Commissioned by the Marine Institute.
AQUAFACT 2009. Appropriate Assessment of coastal defence works at Bertra Beach, Co. Mayo.
Cusack, C., O'Beirn, F., King, J., Silke, J., Keirse, G., Whyte, B., Leahy, Y., Noklegaard, T. McCormack, E. & McDermott, G. 2008. Water Framework Directive – Marine Ecological Tools for Reference, Intercalibration and Classification (METRIC), Final Report for the ERTDI-funded project: 2005-W-MS-36. STRIVE report for EPA.
McCormack, E., O' Connor, B., Gallagher, T. & Tyndall, P., 2008. Invertebrate by-catch taxa collected during deepwater prawn trial fishing off the Irish west coast. Aquaculture Ireland 2008 Yearbook.
AQUAFACT 2007. Environmental Survey of the Éisc Uí Fhlatharta Teó. Aquaculture site at Ardmore Bay Co. Galway.
AQUAFACT 2007. Environmental Survey of the Muir Gheal Teoranta Aquaculture site at Knock Bay, Co. Galway.
AQUAFACT 2007. Environmental Survey of the Muirachmhainní Teoranta Aquaculture site at Dinish, Co. Galway.
AQUAFACT 2007.Environmental Survey of the Muir Gheal Teoranta Aquaculture site at Lettercallow Bay, Kilkieran Bay, Co. Galway.
AQUAFACT 2007. Environmental Survey of the Muirachmhainní Teoranta Aquaculture site at Coonawilleen Harbour, Co. Galway.
AQUAFACT 2007. Environmental Survey of the Muirachmhainní Teoranta Aquaculture site at Red Flag, Co. Galway.

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AQUAFACT 2007. Environmental Survey of the Muirachmhainní Teoranta Aquaculture site at Golam Harbour, Co. na Gaillimhe.
AQUAFACT 2007. Environmental Survey of the Muir Gheal Teoranta Aquaculture site at Oileán Iarthach, Cuan Chill Chiaráin, Co. na Gaillimhe.
AQUAFACT 2007. Environmental Survey of the Meitheal Éisc Teoranta Aquaculture site at Greatman's Bay, Co. Galway.
AQUAFACT 2007. Environmental Survey of the Muirachmhainní Teoranta Aquaculture site at Cuan Chuigéil, Co. Galway.
McCormack, E. 2006. *Carraroenia ruthae* gen. et sp. nov. (Copepoda, Harpacticoida, Laophontidae) from maerl substrates of the Irish West Coast. Zootaxa **1202**: 39–52.

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Curriculum Vitae

Aisling Hearty, M.Sc.
Nationality: Irish
Position in Firm: Senior Ecologist

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Key Competences
Marine Benthic Macrofaunal Sample Sorting
Quality control checks
Marine macroinvertebrate taxonomy
Environmental report writing

Aisling is a graduate from UCC's Marine Biology M.Sc program with a first class honours (1.1) where she completed her dissertation on bioacoustics in odontocetes. During her time in AQUAFACT, Aisling has become experienced in marine benthic macrofaunal sample processing and taxonomic sorting and she has worked on the sorting of samples for Mowi Ireland benthic audits, on WFD samples from numerous locations and on marine benthic investigations of lagoons, dredge spoil locations and proposed cable routes. She has been trained on polychaete, mollusc and echinoderm species identification and has field work experience in collecting sediment, faunal and water samples from different sites. She also has experience in the preparation of environmental reports such as AA (Appropriate Assessment), NIS (Natura Impact Statement), EIAR (Environmental Impact Assessment Report) and EcIA (Ecological Impact Assessment).

Work Experience
AQUAFACT (APEM Group), Galway, Ireland
August 2019- present: Senior Ecologist

- Preparation and preservation of marine benthic macrofaunal samples
- Sample tracking and QA/QC
- Taxonomic sorting of macrofaunal samples
- Polychaete, mollusc and echinoderm identification
- Preparation of data from samples for further analysis
- Preparation of environmental reports (AA/NIS/EIAR/EcIA)

Orana Wildlife Park, Christchurch, New Zealand
October 2018 – May 2019: Assistant Animal Keeper

- Food preparation and hygiene (Managing weekly meals and knowledge of nutritional needs of various species)
- Managing habitats (Feeding animals, cleaning and cutting browse)
- Creating different forms of enrichment for cognitive stimulation
- Animal observation to determine behavioural and health status in small primates, ungulates and apes

Vancouver Aquarium, Vancouver, Canada
March – June 2017: Stingray Husbandry Volunteer

- Preparation of feeds for the day
- Shovelling and scrubbing of stingray habitat for daily cleaning
- Providing feeds, including scatter feeds, hand feeds and enrichment techniques
- Observation to ensure no injuries or sickness among stingrays

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Vancouver Aquarium, Vancouver, Canada
September 2015 – July 2017: Volunteer Marine Mammal Assistant

- Food preparation and assisting in feeding rescued marine mammals
- Unloading and storing food deliveries
- Cleaning of animal's rehabilitation areas and materials
- Assisting in the release of the marine mammals when rehabilitated

Aisling's Relevant AQUAFACT Experience Record:

- 2023 Preparation of NIS and EcIA for Sports Facilities at TUS Thurles
- 2022 Preparation of Appropriate Assessment Screening for Ballykrissane solar farm & grid connection
- 2022 Faunal, sediment and water sampling in Wexford Harbour
- 2022 Sediment and faunal collection using a Day grab and underwater video recording off the coast of Belfast
- 2022 Sediment collection from Limerick Harbour using a Van Veen grab
- 2019-2022 Sample sorting, quality checks and polychaete, mollusc and echinoderm ID for Mowi Ireland fish farm audits
- 2021 Sample sorting and quality checks for Codling Bank subtidal & intertidal survey
- 2021 Sample sorting and quality checks for Dublin Bay Array intertidal survey
- 2021 Sample sorting and quality checks for Port of Waterford subtidal survey
- 2021 Sample sorting and quality checks for Dungarvan biomass intertidal survey
- 2020 Sample sorting of benthic samples from Celtic Sea Interconnector route
- 2020 Sample sorting of benthic samples along a cable route across the Shannon
- 2019&2020 Sample sorting of benthic samples from Waterford Harbour, Suir Estuary, Wexford Harbour, Slaney Estuary, Dungarvan Harbour, Colligan Estuary, Youghal Harbour, Blackwater Estuary, Kinsale Harbour and Cork Harbour as part of the WFD Monitoring Programme on behalf of the Marine Institute.
- 2019 Sample sorting of benthic samples from an outfall location in Kilkieran Bay
- 2019 Sample sorting for Killybegs Disposal site
- 2019 Sample sorting of benthos from Lady's Island Lake and Ballyteigue Lagoon as part of the EPA Research programme Project Clear.

Licences and Certificates

- Certificate in sea safety survival (**Personal Survival Techniques**)
- Certificate for **Infection Prevention and Control Training**
- Certificate in **Manual Handling**
- Licence for **Short-Range Range Radio Operations**
- **Powerboat Handling Licence (Level 2)** awarded by the ISA
- **First Aid Responder certificate** awarded by the HSA
- **PADI Open Water Diver** license
- **ENG 11** certification
- **Fire Warden** certification
- **SSRS (Small Streams Risk Score)** training

Publications

Breen, P., *et al*. 2020. Insights into the habitat of deep diving odontocetes around a canyon system in the northeast atlantic ocean from a short multidisciplinary survey. Deep sea research part i: oceanographic research papers, p.103236. DOI: https://doi.org/10.1016/j.dsr.2020.103236

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Sven Klinkenbergh
Principal Environmental Consultant

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Details

Core Skills

Environmental Impact Assessment (EIA)

- Hydrology & Hydrogeology,
- Land, Soils & Geology

Peat Stability Risk Assessments (PSRA)

Flood Risk Assessment (FRA)

Team & Project Management

Environmental Monitoring –

- Groundwater
- Bog Water
- Surface Water
- Peat Soils Subsoils
- Telemetry

Software;

- QGIS / QField
- HazWasteOnline
- MapInfo.

Qualifications

H.C. Preliminary Engineering
B.Sc. Environmental Science
P.G.Dip. Environmental Protection

Memberships

M.CIWEM

Other

ReWild Wicklow volunteer - Peatland restoration, rewilding.

PROFILE

Sven is an Environmental Scientist and Principal Environmental Consultant at RSK Ireland with over 11 years' experience in hydrology, hydrogeology and geology.

Sven is currently Team Lead for the RSK Ireland EIA team (hydrology/hydrogeology/geology).

Sven joined RSK Ireland after Minerex Environmental were acquired by RSK Group in June 2021 having worked on a wide range of projects. At Minerex Environmental (8 years), Sven gained experience across a broad range of work relating to soil and water, including; construction dewatering and on site water treatment, site investigation and soil/rock waste classification, groundwater monitoring, and environmental impact assessment.

Core Skills & Responsibilities:

- Team Lead
  EIA Hydrology & Hydrogeology, and Land, Soils & Geology.
- Business development, quality control and technical review.
- Peatlands
  Peatland Hydrology,
  Geomorphology and
  Peat Stability Risk Assessment.
- Phase 1 Ground Investigation
  Scoping / Supervising Trialpitting, Drilling, and Geophysics.
- Flood Risk Assessment (Stages 1 and 2).
- Environmental Monitoring
  Surface Water, Groundwater, Soils.
- GIS Mapping.

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EXPERIENCE INCLUDES:

- Environmental Assessment and EIA: Hydrology & Hydrogeology, and Land, Soils & Geology.
- Peatlands:
    - Peat & Slope Stability Risk Assessment Peat depth probing, peat gouge coring, qualification and logging. Geomorphology.
    - Peatland hydrology and drainage mapping.
    - Groundwater and bog water monitoring.
    - Forensic assessment and risk assessment of recent landslide.
- Flood Risk Assessment (Stage 1, 2).
- Preliminary Discharge & Assimilative Capacity Assessment
- Contaminated Land. Site Investigation & Waste Classification (C&D, Soils, Rock). Cost benefit analysis, and dig plan design. Groundwater monitoring, soil monitoring and remediation (natural attenuation, dig and dump).
- Ground Investigation Phase 1 & Preliminary Geotechnical Assessment. Scoping and supervising Phase 1 intrusive surveys.
    - Trialpitting, soil sampling and logging.
    - Drilling and well installation.
    - Geophysical surveys – 2D Resistivity, Ground Penetrating Radar.
- Factual. Technical and Interpretive Reporting. Specialised work includes;
    - Environmental Impact Assessment chapters
    - Peat and Slope Stability Risk Assessment
    - Landslide Forensic and Residual Risk Assessment
    - Flood Risk Assessment – Stage 1 and 2
    - Preliminary Discharge and Assimilative Capacity Assessment
    - Feasibility Assessment. Peat, Hydrology, Karst
    - Appropriate Assessment
    - Waste Classification Reports & Optimum Dig Plans
    - Preliminary Stack Dispersion Assessment
- Telemetry. Scoping and installation of continuous monitoring systems. Continuous monitoring for hydrochemistry, flow, and water level data.
- Environmental Monitoring and Routine Monitoring at licenced sites – groundwater, surface water, leachate, soils etc.
- Dewatering and water treatment. Installation of dewatering infrastructure, monitoring and management of in line treatments systems including settlement tanks and chemical dosing (flocculant, pH adjustment).
- Well surveys and rehabilitation. Down hole camera surveys, air lifting and pump lifts.
- Attendance at / observing arbitration (c 2014). Attendance at oral hearing (2024) as EIA hydrology, hydrogeology and geology consultant for a wind farm and green hydrogen project.

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Key project experience

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2024 Tullacondra WF, Co. Cork
EIAR Hydrology, Hydrology, Hydrogeology, Soils and Geology

Wind farm on an agricultural setting. Area underlain by karst limestone and numerous karst features observed on site. Geophysical surveys (2D Res.) were conducted to screen locations for subterranean karst anomalies. Decision pending.

2024 Oatfield WF, Co. Clare
EIAR Hydrology, Hydrology, Hydrogeology, Soils and Geology

Wind farm on a mountainous, peatland and forested site. Topography at the site was variable with steep slopes in places. Peat stability risk assessment was conducted and informed the design process. Decision pending.

2024 Ballykett WF, Co. Clare
EIAR Hydrology, Hydrology, Hydrogeology, Soils and Geology

Wind farm on a peatland, forested site. The design included a watercourse crossing across a river running through the site, which included an area mapped as a probable flood zone. Peat stability risk assessment, and flood risk assessment were conducted and informed the design process. Decision pending.

2024 Bradan WF, Co. Donegal
Peat Stability Risk Assessment

2024 Meenawley WF, Co. Donegal
Peat Stability Risk Assessment

2024 Two Potential WF Sites (Commercially Sensitive)
Karst Assessment – Desk assessment & Site Walkover to inform feasibility.

2024 Richfield Solar, Co. Wexford
Flood Risk Assessment (FRA) Stage 2, SWMP, FRMERP

Richfield Solar is an extension of the existing Richfield Wind Farm. The site possesses areas mapped as probable flood zones. The development utilises an existing substation compound, however the compound is within a probable flood and defended area and therefore the extension of the existing substation passed the justification test based on development plan guidance i.e. utilising existing grid infrastructure where possible. Mitigation measures, including mitigation by design were applied to minimise residual flood risk. The planning authorities issued an RFI and requested a detailed Surface Water Management Plan (SWMP), and Flood Risk Management and Emergency Response Plan (FRMERP). The development has been granted permission.

2024 Firlough WF & Green Hydrogen
EIAR Hydrology, Hydrology, Hydrogeology, Soils and Geology

The development consisted of a wind farm and green hydrogen plant, on two separate sites. Power generated by the wind farm would be used to run the hydrogen production facility. As part of the EIA team, much work was carried out to inform the deign and management of the hydrogen production facility, including; groundwater resource assessment, and how to manage, treat and discharge trade effluent to the local river. As part of that work a preliminary discharge and assimilative capacity assessment was carried out to support the EIAR and planning application. Due to the complex and

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novel nature of the development, in particular the hydrogen facility, ABP held an Oral Hearing which the full EIA team attended and participated in. Decision pending.

2024 Charafena WF, Co. Leitrim
EIAR Hydrology, Hydrology, Hydrogeology, Soils and Geology

2023 Letter WF, Co. Sligo
EIAR Hydrology, Hydrology, Hydrogeology, Soils and Geology

2023 Farranrory WF & GCR, Co. Tipperary
Water Quality Management Plan & Baseline Surface Water Monitoring

The project involved developing a Water Quality Management Plan for the Grid Connection Route for Farranrory WF, and carrying out a full baseline monitoring event at >40 no. locations. .

2023 Aught WF, Co. Donegal
Continuous Monitoring

Scoping, installation and management of continuous monitoring systems at 3 no. surface water monitoring locations during the construction phase of Aught WF.

2023 Gortyrahilly WF
EIAR Hydrology, Hydrology, Hydrogeology, Soils and Geology

The project included Ground Investigation by trial pit and drilling. Sven was PSCS for the GI works. The site was challenging due steep slopes and variable topography. The assessment also included Peat and Slope Stability Risk Assessment, Flood Risk Assessment.

2023 City Quays 4, Belfast
Flood Risk Assessment – Stage 2

2023 Pilot Street, Belfast
Flood Risk Assessment – Stage 2

2023 Gortnahey, - Residential
Flood Risk Assessment – Stage 2

2023 West Gate, Drogheda, Co. Louth – Amenity Improvement
EIAR Hydrology, Hydrology, Hydrogeology, Soils and Geology

2022 Altgolan WF
EIAR Hydrology, Hydrology, Hydrogeology, Soils and Geology

2022 Maas WF
EIAR Hydrology, Hydrology, Hydrogeology, Soils and Geology

2022 Irish Rail, Co. Dublin
Peer Review Stability Assessment & Proposed Mitigation

2022 Killinarden, Co. Dublin – Residential

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Input to EIAR Hydrology, Hydrology, Hydrogeology, Soils and Geology

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2022 Roseville, Co. Wicklow – Residential
Flood Risk Assessment Stage 2

2020 – Carrowglen WF, Co. Donegal
EIAR Hydrology, Hydrology, Hydrogeology, Soils and Geology

ABP RFI Response – Sven was not part of the original EIA team, but was commissioned to review and respond. Review of Hydrology, Hydrogeology, Soil, Geology and Ecology EIAR chapters, collating of data and maps, responding to ABP RFI items regarding peat, hydrogeology and protected habitats i.e. active blanket bog. Application Status = Granted.

2019 Barnesmore WF Repower, Co. Donegal
EIAR Hydrology, Hydrology, Hydrogeology, Soils and Geology

The project involved repowering of an existing operational wind farm, which included replacing existing turbines with a smaller number of larger turbines. Barnesmore WF was one of the first wind farms developments in the country. Within a few years of being constructed the general area of the site was designated as a NHA. This resulted in the site being qualified as highly sensitive. The new turbine hardstands were an average four times larger than the existing hardstands. With the necessity to utilise existing infrastructure as much as possible, extending existing hardstands was challenging due to many constraints, namely; peatland ecology, topography and peat stability. Application Status = Granted. NPWS were involved through the project and praised the level of detail included in the EIAR.

2019 Farranrory WF, Co. Tipperary
EIAR Hydrology, Hydrology, Hydrogeology, Soils and Geology

2018 Tullynamoyle WF, Co. Leitrim
EIAR Hydrology, Hydrology, Hydrogeology, Soils and Geology

2018 Bonniconnellan WF, Co. Mayo
Site Investigation with respect C&D and Domestic Waste contamination.

2018 Drakestown, Navan, Co. Meath
Site Investigation with respect land reclamation via disposal of Inert waste soil.

2018 Mullingar, Co. Westmeath – Residential Flood Risk Assessment Stage 2

2017 Bunmahon WF, Co. Waterford
EIAR Hydrology, Hydrology, Hydrogeology, Soils and Geology

2015 Derrinoghran WF, Co. Sligo, Ireland
EIAR Hydrology, Hydrology, Hydrogeology, Soils and Geology

2013-2014 Aghnaguig Bog SAC, Co. Cavan
Environmental Monitoring of SAC Bog with respect N3 bridge development

2013-2014 Rwanda, Africa
Peat Resource Assessment for power generation feasibility.

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Details

Version: Feb 2024

Core Skills

Environmental Impact Assessment (EIA) – Hydrology, Hydrogeology, Land, Soils & Geology

Monitoring – Bathing water and Surface Water.

Drainage, Flood Risk & WFD Assessment

Project design

Team & Project Management

Environmental Compliance

Technical and compliance reporting

Software

QGIS

Office 365 (Word, Excel, Outlook, PowerPoint, and Teams)

Qualifications

B.Sc. Environmental Science
Ph.D. Infection and Environmental Microbiology

Memberships

Leave No Trace, Ireland

Other

Safe Pass
Manual Handling
EIA Reporting course 2024
Underground services Training
Soil sampling and logging
8 Published papers including research on landuse, antibiotic resistance and SARS Cov2
A2b French
Genetic marker identification
QPCR
Analytical analysis

Jayne Stephens
Environmental Consultant

RECEIVED: 08/05/2025

PROFILE

Jayne is an environmental consultant with c. 6 years' experience working in microbiology, water, and environmental disciplines. Jayne recently joined RSK Ireland one year ago, after completing her PhD in environmental microbiology.

Jayne's current workflow consists primarily of EIA Hydrology, Hydrogeology, and Flood Risk Assessments (Stage 1&2) for many projects, a large proportion of renewable energy works i.e. wind farms on peatlands. Surface water management Plans and Water Quality Management Plans.

Jayne has also worked on a large number of bathing water and surface water monitoring investigations, on project Acclimatize. An EU funded project which aimed to bridge the knowledge gap in relation to at-risk urban and rural bathing waters in Ireland and Wales. Jayne, was team lead for site investigations and has a number of years' experience on feacal contamination and public involvement projects for better water quality.

Key Skills

EIA and similar field based works relating to hydrogeological & hydrological aspects of developments including;

- Desk based study on receiving environment with reference to EPA, GSI, Catchments, WFD, Met Eireann etc. open sources, collating data, generating working maps / field maps, report mapping, etc.
- Desk-based works associated with projects which includes drafting EIAR Chapters, Flood Risk Assessments, Preliminary Water Balance Assessments, Slope Stability Risk Assessments, Conceptual and Information Graphics and Risk Assessment/Method Statements prior to field work.
- Identifying and quantifying pollution streams and determining their impact on these waters.
- Surface water monitoring (flow rate, field hydrochemistry and sampling, preliminary water balance calculations etc.),
- Preliminary Flood Risk assessment and mapping.

- Site works inc. project design, supervision of intensive water and beach sand sampling regimes.
- Technical report writing, Routine Monitoring Reports.
- Project management – initial technical and financial review, costed grant proposals, specifying and planning for site, managing site activities, sample processing, data processing, mapping, etc.
- Water sampling – surface water grab samples, recording field hydrochemistry, surface water flow.

Education

Jaynes Thesis in her BS.c involved mammal ecology studies, specifically how best to monitor the Irish stoat species taking into consideration the methods and costings of citizen science. Following this Jayne branched into water ecology and microbiology leading to her PhD studies in pollution and the biological and geographical origins of faecal contamination in bathing waters and rivers in these catchments.

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Key project experience

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- **2023**; Pilot Street, Belfast; Flood Risk Assessment for housing and commercial units.
- **2023**: Ballykett Wind Farm, Co. Clare; Hydrological and Geological Environmental Impact Assessments for a proposed windfarm.
- **2023**; Firlough Wind Farm and Hydrogen Plant, Co. Mayo / Co. Sligo: Hydrological and Geological Environmental Impact Assessments for a proposed windfarm.
- **2023**; Inchamore Wind Farm, Co. Cork: Hydrological and Geological Environmental Impact Assessments for a proposed windfarm.
- **2023**; Ardee, Co. Louth: Hydrological and Geological Environmental Impact Assessments with respect to a regeneration scheme for the County Council.
- **2023**; Westgate / Drogheda, Co. Louth: Hydrological and Geological Environmental Impact Assessments with respect to a regeneration scheme for the County Council.
- **2023**; Farranrory Grid Connection Route, Co. Tipperary: Hydrological Environmental Impact Assessment and Flood Risk Assessment for a Grid Connection Route.
- **2023**; Richfield Solar Farm, Co. Wexford; Flood Risk Assessment. Surface water management plan, Flood Risk and Emergency response plan for a Solar Farm.
- **2023**; Letter Wind Farm, Co. Leitrim: Hydrological and Geological Environmental Impact Assessments for a proposed windfarm.
- **2023:** Scottish Power Renewables; A legislative summary for Wind Farm projects in Ireland.
- **2023:** Kells Co. Meath: Hydrological and Geological Environmental Impact Assessments with respect to a regeneration scheme for the County Council.
- **2023**: Cabragh Wind Farm, Co.Sligo. Hydrological Environmental Impact Assessments for a proposed windfarm.
- **2023:** Oatfield Wind Farm, Co. Cork Hydrological and Geological Environmental Impact Assessments for a proposed windfarm.
- **2024:** Tullacondra Wind Farm, Co. Cork: Hydrological and Geological Environmental Impact Assessments for a proposed windfarm.
- **2024 (on-going)**; Charafena Wind Farm, Co. Leitrim. Hydrological and Geological Environmental Impact Assessments for a proposed windfarm.
- **2024 (on-going)**; Clydagh Wind Farm, Co. Donegal; Hydrological and Geological Environmental Impact Assessments and Peat Stability Risk Assessment for a proposed windfarm.

Publications

- Reynolds, L. J., L. Sala-Comorera, N. A. Martin, T. M. Nolan, **J. H. Stephens**, A. Gitto, G. M. P. O'Hare, J. J. O'Sullivan and W. G. Meijer. (2020), 'Correlation between antimicrobial resistance and faecal contamination in small urban streams and bathing waters.' Science of the Total Environment
- Sala-Comorera, L., L. J. Reynolds, N. A. Martin, M. Pascual-Benito, **J. H. Stephens**, T. M. Nolan, A. Gitto, G. M. P. O'Hare, J. J. O'Sullivan, C. García-Aljaro and W. G. Meijer. (2021), '*CrAssphage as a human molecular marker to evaluate temporal and spatial variability in faecal contamination of urban marine bathing waters.*' Science of the Total Environment
- Brandão, J., J. P. Gangneux, S. Arikan-Akdagli, A. Barac, A. C. Bostanaru, S. Brito, M. Bull, N. Çerikçioğlu, B. Chapman, M. A. Efstratiou, Ç. Ergin, M. Frenkel, A. Gitto, C. I. Gonçalves, H. Guégan, N. Gunde-Cimerman, M. Güran, L. Irinyi, E. Jonikaitė, M. Kataržytė, L. Klingspor, M. Mares, W. G. Meijer, W. J. G. Melchers, J. Meletiadis, W. Meyer, V. Nastasa, M. N. Babič, D. Ogunc, B. Ozhak, A. Prigitano, S. Ranque, R. O. Rusu, R. Sabino, A. Sampaio, S. Silva, **J. H. Stephens**, M. Tehupeiory-Kooreman, A. M. Tortorano, A. Velegraki, C. Veríssimo, G. C. Wunderlich and E. Segal (2021). 'Mycosands: *Fungal diversity and abundance in beach sand and recreational waters — Relevance to human health.*' Science of the Total Environment

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- Sala-Comorera, L., T. M. Nolan, L. J. Reynolds, A. Venkatesh, L. Cheung, N. A. Martin, **J. H. Stephens,** A. Gitto, G. M. P. O'Hare, J. J. O'Sullivan and W. G. Meijer. (2021), 'Bacterial and Bacteriophage Antibiotic Resistance in Marine Bathing Waters in Relation to Rivers and Urban Streams.' Frontier Microbiology
- *The Impact of Dog Fouling on Bathing Water Quality in Dublin Bay – a report.* N. A. Martin, **J. H. Stephens**, and W. G. Meijer. (2022)
- Liam J. Reynolds, Laura Sala-Comorera, Mohd Faheem Khan, Niamh A. Martin, Megan Whitty, **Jayne H. Stephens**, Tristan M. Nolan, Eadaoin Joyce, Nicola F. Fletcher, Cormac D. Murphy and Wim G. Meijer. *(2022),' Coprostanol as a Population Biomarker for SARS-CoV-2 Wastewater Surveillance Studies.'* Water
- Reynolds, L. J., G. Gonzalez, L. Sala-Comorera, N. A. Martin, A. Byrne, S. Fennema, N. Holohan, S. R. Kuntamukkula, N. Sarwar, T. M. Nolan, **J. H. Stephens**, M. Whitty, C. Bennett, Q. Luu, U. Morley, Z. Yandle, J. Dean, E. Joyce, J. J. O'Sullivan, J. M. Cuddihy, A. M. McIntyre, E. P. Robinson, D. Dahly, N. F. Fletcher, M. Carr, C. De Gascun and W. G. Meijer. (2022), '*SARS-CoV-2 variant trends in Ireland: Wastewater-based epidemiology and clinical surveillance.'* Science of the Total Environment.
- Niamh A. Martin, Liam J. Reynolds, Laura Sala-Comorera, Tristan M. Nolan, **Jayne H. Stephens**, Aurora Gitto, Guanghai Gao, Aisling Corkery, John J. O'Sullivan, Gregory M.P. O'Hare, Wim G. Meijer. (2024) '*Quantitative source apportionment of faecal indicator bacteria from anthropogenic and zoogenic sources of faecal contamination'*. Marine Bulletin.

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RECEIVED: 08/05/2025

Conor Campbell, Environmental Consultant

Core skills

Technical report writing

Data collection

Field based sampling

Hydrometric surveys

Preliminary and detailed site investigation

QGIS analysis and mapping

Details

Qualifications

BSc Environmental Science and Technology

Safepass

Manual Handling

Confined Space training

Detection of underground services training

PROFILE

Conor is an environmental consultant at RSK Ireland Ltd working as part of the EIA Team responsible for the Hydrology & Hydrogeology, and Soils & Geology chapters.

Conor is an experienced environmental scientist, engineer and consultant with 3 years' experience. He began his environmental career working as an ecotoxicologist with EU/ EPA funded projects in Dublin City University. Conor has also worked as an environmental engineer, specialising in waste water treatment optimisation and designing data collection studies for assimilative capacity and discharge licence applications. Conor currently works with the EIA team, contributing to a variety of technical documents to support the development of various industrial and renewable energy projects.

Through his previous roles Conor has developed great communication skills working with stakeholders at every level. Conor has also developed many project management skills, including analytical, technical report writing skills and field-based skills to deliver projects on time and effectively communicate the outputs of these projects to relevant stakeholders.

Since joining RSK in 2023 Conor has worked on a number of projects drafting Environmental Impact Assessments, Flood Risk Assessments, Peat Stability Risk Assessments, among others.

Conor has specialist skills in the following areas:

- Report and scientific technical writing including Geology, Hydrogeology and Hydrology EIAR chapters, Peat and Slope Stability Risk Assessments, Flood Risk Assessments, WFD assessments, Surface & Ground Water Monitoring Plans, and Water Quality Management Plans.
- Field based work including site walk over, peat probing surveys, shear vane testing, gauge core surveys, drainage identification and mapping and surface water sampling.
- Generation of constraints and baseline maps in QGIS.
- Generation of conceptual site models and graphics.

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Key project experience

RSK Ireland Limited (2023 – present)

Since starting with RSK Conor has been involved in a number of wind farm projects in Kilkenny, Tipperary, Donegal, Leitrim, Mayo, Cork and Clare. This work including site walk overs, peat surveys, surface water sampling, peat stability risk assessments and Geology and Hydrology Environmental Impact Assessments.

Conor has been involved in a variety of alternative renewable energy projects including solar farms and hydrogen plants, contributing Flood Risk Assessment documentation, conceptual graphics for infrastructure layout, and high-level waste management plans.

Conor has also been responsible for planning and conducting large scale water monitoring programmes for the management of Wind Farm and Grid Connection Route construction plans, in association with designing water quality management protocols to ensure surface and ground water quality is maintained during large scale construction projects. This has involved significant field work, collecting grab samples at sensitive receptors and loci, and also deploying telemetric surface water monitoring equipment in remote locations to provide live, continuous monitoring of several hydrochemical parameters simultaneously.

ENVA Ireland Ltd. (2022-2023)

In previous employment Conor has worked as an Environmental Engineer, designing and employing surface and ground water monitoring programmes for large construction sites, as well as leachate monitoring in Cork County council land fill sites. Conor has worked with some of the largest pharmaceutical companies in the world to help optimise wastewater treatment in line with local and national regulations. During this time Conor performed bacteriological, micro, and macro toxicity assays in the testing of industrial waste waters, as well as assisting on some contaminated land projects, predominantly the removal of hydrocarbon and PFAS contamination.

Some of the many hydrometric studies Conor has conducted includes the mapping of sewers, underground surface water collection ponds, and mapping water volume and flow rates for use in cooling data centre infrastructure.

The Water Institute DCU (2021-2022)

Conor first began in the Environmental Industry working as an ecotoxicologist, assisting in the EPA funded EMPIRE project for an investigation on chronic toxicity in freshwater invertebrates. This work involved sampling Irish rivers to ascertain the most abundant pharmaceuticals, and designing chronic toxicity studies using single and mixed concentrations of these household drugs.

Conor also worked on the multinational, EU Horizon funded TechOceanS project for the development of autonomous sensors for contaminants in the marine environment. His role in this project was to liaise with international collaborators in the development of eDNA sensors to a TRL of 5.

Conor was the first researcher to introduce the Ocean Best Practices system to DCU. This is a specific framework of documenting research and uploading it to open access, Ocean Best Practice forums in the spirit of collaboration and improved access of information to facilitate widespread rapid development of technologies and best practices for the protection of water resources.

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Dr Deirdre Walsh, Environmental Consultant

Core skills

Technical report writing

Environmental Impact Assessments

Field based sampling and data collection

Project management

Data analytics

QGIS

Details

Qualifications

BSc Geology

MSc Petroleum Geoscience

PhD Geomodelling

HDip Data Analytics

PROFILE

Deirdre is an environmental consultant at RSK Ireland Ltd working as part of the EIA Team responsible for the Hydrology & Hydrogeology, and Soils & Geology chapters.

Deirdre is an experienced geoscientist and research scientist with over 10 year's experience. Her experience has been gained through a number of roles including as a field-based exploration geologist in the iron ore industry and through a PhD and subsequent post-doctoral research roles focused on 3D geostatistical modelling.

Through her previous roles Deirdre has developed analytical, management, technical report writing skills and field-based skills to deliver projects on time and effectively communicate the outputs of these projects to relevant stakeholders.

Since joining RSK in July 2023 Deirdre has worked on a number of projects drafting Environmental Impact Assessments, Peat Stability Risk Assessments, Flood Risk Assessments, Preliminary Environmental Site Assessments, and karst assessments.

Deirdre has specialist skills in the following areas:

- Report and scientific technical writing including Land, Soil and Geology, Hydrogeology and Hydrology EIAR chapters.
- Field based work including site walk over, peat probing surveys, shear vain testing, gauge coring, geological mapping, sedimentary logging, drainage identification and mapping and surface water sampling.
- Project management.
- Generation of conceptual site models
- Preliminary Environmental Risk Assessments
- Peat and Slope Stability Risk Assessments.
- Experience with design inputs from a land and soils perspective.

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Key project experience

Environmental consultancy

Deirdre has helped to deliver EIA chapters for a number of wind farm projects in Cork, Clare, Donegal, Leitrim, Roscommon and Mayo. This work including site walk overs, peat surveys, surface water sampling, peat stability risk assessments and Geology and Hydrology Environmental Impact Assessments.

Deirdre also has experience in Preliminary Site Risk Assessments, karst assessments, EIA for other industries and Flood Risk Assessments.

Geoscience research

Deirdre worked with the Reservoir Modelling Team with iCRAG (the SFI Research Centre in Applied Geoscience) at University College Dublin to complete a number of research projects including a PhD. These projects had a strong analytical component and focused on the development of a modelling algorithm and validating and testing the algorithm and modelling workflow.

Deirdre was involved in collaborative research, training research assistants and teaching undergraduate and postgraduate students. She contributed to a number of peer reviewed publications and presented her research at national and international conferences.

Mineral exploration and resource development

Deirdre worked alongside the Resource Development and Exploration Teams on a number of green and brown field projects to identify and analyse new targets to support business decision making.

As an exploration geologist Deirdre was responsible for the technical component of the everyday running of exploration programmes including managing contractors, collecting and analysing data from drill and surface samples and submitting PoWs (permission of work applications to the Department of Mining and Petroleum).

Publications

Manzocchi, T., Walsh, D. A., Carneiro, M. and. Lopez-Cabrera, J. (2023), 'Compression-based Facies Modelling', *Mathematical Geosciences*, 1-20.

Manzocchi, T. and Walsh, D. A. (2023), 'Vertical Stacking Statistics of Multi-faces Object-Based Models', *Mathematical Geosciences*, 55/4: 461-496.

Walsh, D. A. and Manzocchi, T. (2021), 'A method for generating geomodels conditioned to well data with high net: gross ratios but low connectivity', *Marine and Petroleum Geology*, 129: 105104.

Walsh, D. A. and Manzocchi, T. (2021), 'Connectivity in pixel-based facies models', *Mathematical Geosciences*, 53/3: 415-435.

RECEIVED: 08/05/2025

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Éilis Linehan
Associate Director

RECEIVED: 08/05/2025

Details

Core Skills

Environmental Impact Assessment (EIA)

Construction Environmental Management Plans (CEMP)

Environmental Site Assessment

Quantitative Risk Assessment (QRA)

Environmental Due Diligence

Construction Environmental Management Plans (CEMP)

Environmental Risk Management

IE Licence Application

Project Management

Data Management & Analysis

Qualifications

MSc Environmental Technology, Imperial College London

HDip Sustainability in Enterprise, University College Cork

BSc Biotechnology, Dublin City University

Memberships

Society of Brownfield Risk Assessment (SoBRA)

Other

Project Management Certification, URS Ireland

Safe Pass

PROFILE

Éilis is an Environmental Consultant and Associate Director of RSK Ireland with over 12 years' professional experience in geoenvironmental investigation, contaminated land risk management, hydrogeology, hydrology, environmental impact assessment and environmental compliance for industrial facilities.

Experience and key competencies includes:

- Geology, hydrogeology and hydrology chapters of Environmental Impact Assessment Reports (EIARs);
- Preparation of Construction Environmental Management Plans (CEMP) and Resource and Waste Management Plans (RWMP) to support client planning applications;
- Preliminary site assessment (PSA);
- Detailed site assessment (DSA), quantitative risk assessment (QRA) and development of conceptual site models (CSMs) to assess potential risks to human health and the water environment;
- Implementation and verification of remediation strategies for contaminated sites;
- Design and management of intrusive geo-environmental site investigations;
- Coordination of groundwater & surface water monitoring programmes;
- Preparation of environmental due diligence reports;
- Industrial Emissions (IE) Licence Applications for submission to the Environmental Protection Agency (EPA); and
- Collaboration with other engineering and environmental disciplines to produce environmental deliverables to meet client objectives.

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Key project experience

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Wind Farm Development, Co. Clare: Environmental Impact Assessment

The proposed development comprised the construction of 3 No. 5MW wind turbines, an electrical substation and all ancillary works at a site characterised by a combination of agricultural grassland and cutover peatland bog. Éilis was responsible for technical review of the Soils and Geology and the Hydrology and Hydrogeology chapters of the EIAR.

Redevelopment of a Brownfield Industrial Site, Drogheda, Co. Louth: Environmental Impact Assessment

The project involved the redevelopment of a 36 ha site with a long industrial history. The proposed development comprised demolition of existing structures, site clearance and remediation followed by construction of a sustainably powered enterprise campus. Éilis was responsible for the preparation of the geology, hydrogeology and hydrology chapters of the EIAR, identifying baseline environmental conditions and assessing potential effects of the proposed development.

Biopharmaceutical Manufacturing Plant, Co. Cork, Proposed WWTP Capacity Expansion: Environmental Impact Assessment

The proposed capacity expansion of the on-site waste water treatment plant (WWTP) to >15,000 population equivalent (p.e.) was required to treat increased process waste water flows due to recent increases in production capacity at the manufacturing plant. Éilis was responsible for EIA screening and EIA scoping of the project. Éilis also managed subconsultants on behalf of the client to produce specialist environmental reports and EIAR chapters including Appropriate Assessment Screening and Natura Impact Statement, Ecological Impact Assessment, Landscape and Visual Impact Assessment, Noise Impact Assessment, Traffic Impact Assessment and Archaeological Assessment.

Electrical Substation Development, Co. Carlow: Planning Application Environmental Reporting

Éilis prepared the Environmental & EIA Screening Report for the proposed development of a 38kV Medium Voltage (MV) electrical substation by ESBN on lands located within the site boundary of the client's existing pharmaceutical plant. Éilis also managed subconsultants on behalf of the client and ESBN to produce specialist environmental reports to support the planning application including Appropriate Assessment Screening and Natura Impact Statement, Landscape and Visual Impact Assessment, Noise Impact Assessment, Flood Risk Assessment and Archaeological Assessment.

Biopharmaceutical Manufacturing Plant, Co. Cork: IE Licence Review Application

Éilis coordinated the preparation of an IE Licence Review Application for submission to the Environmental Protection Agency (EPA) including completion of the necessary technical environmental reports. Éilis led consultation with the EPA and responded to requests for further information on behalf of the client.

Pharmaceutical Manufacturing Plant, Co. Cork: Environmental Compliance

Éilis completed a 9 month fixed term contract with a bulk API manufacturing facility located in Cork acting as Environmental Compliance Officer. Éilis was responsible for environmental risk management

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and delivery of continuous improvement in environmental compliance, coordination of environmental monitoring in accordance with IE Licence requirements, investigation of environmental incidents and identification of follow-up corrective and preventative actions.

Various Petroleum Depot and Retail Sites: Geo-environmental Investigation & Due Diligence

The client required environmental due diligence assessments of a number of petroleum depot and retails sites located across Ireland as part of the divestiture process. Éilis completed environmental site investigations at multiple sites including initial site inspection and preparation of desk-based study, organisation and supervision of intrusive site investigation and verification of remedial works.

As part of this process, Éilis also completed generic and detailed quantitative risk assessment (GQRA and DQRA) reports for these sites in accordance with relevant guidance, as required, to assess potential risks to nearby human health, groundwater and surface water receptors.

Pharmaceutical Manufacturing Plant, Co. Dublin: Geo-environmental Investigation & DQRA

Éilis completed a geo-environmental investigation and DQRA for a Pharmaceutical facility in Dublin to assess potential risks to site users (human health receptors) and water environment receptors. This involved development of a conceptual site model (CSM) identifying source-pathway-receptor pollutant linkages and providing recommendations based on DQRA findings.

Various Sites: Environmental Monitoring

Éilis managed and co-ordinated a range of environmental monitoring projects including:

1. Quarterly groundwater monitoring at a timber treatment facility, including monitoring of potential groundwater and surface water receptors, in fulfilment of the site's licence obligations.
2. Quarterly groundwater monitoring at a waste licence facility in fulfilment of the site's MNA remedial strategy obligations.
3. Groundwater and LNAPL monitoring, including preparation of technical reports for submission to the regulator as part of a groundwater quality investigation.
4. Routine groundwater monitoring at a number of pharmaceutical facilities in fulfilment of licence obligations.
5. Groundwater and soil vapour quality investigation at a large pharmaceutical plant where trichloroethene (TCE) was the contaminant of concern including organisation and supervision field works, data assessment and reporting.

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SHANE CARR

Shane has been selected for the proposed project because of his experience with regard to noise, air quality and project management

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Shane has over 21 years' experience working in both the Public and Private sectors, with particular expertise in the areas of environmental noise, modelling as well as staff and project management. He has worked in the Environmental Health departments of various local authorities in Northern Ireland and the UK in an enforcement capacity.

Shane has been working as a consultant since 2007, joining Marshall Day in 2010 and subsequently becoming a Director in Irwin Carr in 2016. In this time, he has carried out noise modelling projects throughout Ireland and the UK.

Shane has a broad range of experience in all aspects of noise including environmental noise assessment and control. He has presented expert evidence on a number of occasions for a range of planning issues and environmental noise assessments.

Qualifications

- BSc(Hons) Degree in Environmental Health
- Post-Graduate Diploma in Acoustics
- Member of the Institute of Acoustics
- Chartered Member of the Chartered Institute of Environmental Health

Employment History / Experience

Public Sector

Since I qualified as an Environmental Health Officer (EHO) in 1999 until August 2007 I worked within a number of different Councils both within N.Ireland and London. During this time I primarily worked within the Environmental Protection aspects of the Councils services and I assessed numerous Air Quality Assessments, PPC/IPPC applications and planning applications within each Council area.

For the majority of my time working in the public sector, I was employed by Westminster City Council. I was initially employed as an EHO within the technical section of the Noise Team.

After my first two years with the Council I was given management responsibility for a team of 4 EHO's within the EH Consultation Team. In anticipation of the Licensing Act 2003 coming into effect, this responsibility increased. I was responsible for assessing the risks to Council, particularly Environmental Health of the requirements of the new legislation and ensuring that suitable procedures and personnel were in place to deal with the anticipated alterations in demand, resulting in a team of 16 being in place for which I had direct line management.

I was responsible for the recruitment and selection of all personnel within my team as well as the overall management of the wider section of up to forty people for the duration of the transition period for the Licensing Act.

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The EH Consultation team, which I managed were designated as the Responsible Authority for the Health and Safety Authority (where appropriate) and the Authority for minimising the risk of pollution, thus they are primarily concerned with the prevention of Public Nuisance and Public Safety licensing objectives.

I was responsible for presenting the evidence in relation to the various applications to the Council hearings or in the Magistrates Court. This role brought me into direct contact with Councillors and senior Council staff as well as developing a working relationship with numerous solicitors and barristers. It significantly improved my expert witness skills; ensuring I presented appropriate information in a suitable manner.

A brief outline of my wider duties included:

- management of a multi-disciplinary team
- carrying out technical noise reports
- acting as an expert witness on behalf of the council in court and in planning inquiries regarding noise and licensing matters
- leading on the development of the Councils Unitary Development Plan (UDP) in relation to noise and air quality
- carrying out noise mapping within the Council area using the LIMA software
- noise aspects of the special events within the Council area including concerts in Hyde Park and Notting Hill Carnival
- Drawing up service level agreements between EH and other Council Departments

Until I left London in 2006 I represented the Chartered Institute of Environmental Health (CIEH) on the Health and Safety Executives (HSE) working group to provide approved guidance to the entertainment industry on compliance with the Noise at Work Regulation.

Private Sector

From August 2007 to 2010, I managed the Air Quality and Noise sections of WYG in Belfast. I was responsible for the direct line management of the staff within my section in Belfast, as well as being responsible for staff at various offices throughout Ireland on a project by project basis. I was responsible for ensuring that monthly financial targets are met and reporting on an ongoing basis to my Director.

I prepared all initial quotes, deal directly with potential clients, agree contracts, ensure resources are available to deliver an appropriate assessment and am responsible for signing off all reports issued from the Belfast office in relation to Air Quality and Noise. All of the sections I was responsible for in WYG continually overachieved in relation to their financial targets. This showed me the importance of the financial management of specific projects and I am fully aware of the importance of maximising efficiencies while still providing a quality service, as many of the clients using my sections are repeat clients. This has allowed me to build up a strong working relationship to the benefit of both parties.

In 2010 I became a Director in Marshall Day Acoustics Ireland, which subsequently became Irwin Carr Consulting (in 2016). I am currently the Managing Director of the company with primary responsibility for the Environmental Noise and Air Quality aspects of the business.

Air Quality Experience

I have extensive experience of carrying out assessments in line with the Local Air Quality Management legislation and for this purpose I have prepared numerous assessments using the DMRB screening methods as well as ADMS Air Quality modelling software for schemes which have a significant transport impact.

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As well as significant experience of practical onsite dust and odour monitoring, I am highly skilled in the use of the AERMOD software and have submitted numerous assessments in relation to odour from waste water treatment works and PPC regulated activities as well as assessing the impact of numerous industrial sources and renewable energy sources such CHP and biogas units on the appropriate air quality standards.

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Noise Experience

I have significant experience of both environmental noise assessments and the acoustic assessment of buildings. I have carried Noise assessment for various windfarm developments schemes throughout Ireland in line with the ETSU standard, been responsible for designing the assessment schemes to assess the noise impact for major road redevelopments within Ireland as well as assessing the suitability of proposed sites for residential or commercial/industrial development.

I am currently responsible for the distribution of the *SoundPLAN* noise modelling software for predicting environmental noise throughout the island of Ireland.

I have contributed to numerous EIA in relation to significant developments in both Northern Ireland and the Republic of Ireland and where the Air Quality or Noise element of assessment is deemed key. I have been responsible for co-ordinating and preparation of the assessment for submission to the appropriate authority. This has included significant renewable energy schemes.

Summary

- I have presented evidence at numerous planning, licensing and court hearing on the issues of nuisance, residential amenity and compliance with guidance.
- I was the primary consultant in preparing the Significance of Noise in Relation to Onshore Wind Farms on behalf of the Sustainable Energy Authority of Ireland (SEAI) which was carried out to provide the technical update of the guidance on noise in the Irish Wind Energy Development Guidelines 2006.
- I have recently provided technical guidance to the Department of Housing, Planning and Local Government in relation to the noise review of the Wind Energy Development Guidelines
- Shane has carried out a number of presentations to the renewable energy sector, the CIEH as well as providing presentations to the University of Ulster in relation to noise as part of the Environmental Health course.

I have always tried to deliver a quality product to meet the needs of the client, be they members of the public accessing Council services or clients of the private sector consultancy. I feel my time in both public and private sector has given me a clear understanding of the needs of customers to each sector.

I have significant experience successfully managing and leading teams through challenging times with ambitious targets to meet I have worked on numerous environmental assessments throughout the UK and all of Ireland. I feel I have the appropriate technical skills coupled with management experience and commercial skills to meet the requirements of this job.

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CURRICULUM VITAE
RICHARD BARKER
DIVISIONAL DIRECTOR - LANDSCAPE ARCHITECT
MLA, BA ENV, PG DIP FOR, MILI

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PERSONAL PROFILE

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 20 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 is the Divisional Director in Macro Works (part of APEM Group), a specialist LVIA consultancy that undertakes assessments for 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 150 wind farms and a similar number of solar farms as well as numerous other commercial and infrastructural projects including more than a dozen SID projects. Consequently, he has considerable oral hearing training and expert witness experience. Richard has presented several 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 also delivered guest lectures / Webinars to the University College Dublin professional course in EIA Management and the Irish Landscape Institute in relation to LVIA.

EDUCATIONAL AND PROFESSIONAL STATUS

- MLA, Lincoln University (2003).
- PG Diploma, Forestry, Canterbury University (1996).
- BA, Environmental Science, Massey University (1995).

EMPLOYMENT HISTORY

- 1998 – 1999 Marlborough District Council (NZ) – Resource Planner
- 1999 – 2000 The Environment Agency (UK) – Planning Liaison Officer
- 2000 – 2001 Harrow Borough Council – Town Planner
- 2001 – 2002 CAAS Environmental (Dublin) - Planner
- 2004 – 2008 Tiros Environmental (Dublin) – Landscape Architect
- 2008 – 2014 MosArt (Wicklow) - Senior Landscape Architect / Associate Director
- 2014 – 2024 Macro Works (Dublin) – Managing Director / Divisional Director

FURTHER EXPERIENCE

- Corporate Member of the Irish Landscape Institute

SELECTED RECENT PROJECT EXAMPLES

150+ Wind Energy Projects (10 SID), various private and semi-state developers. Feasibility, LVIA and oral hearings.

150+ Solar Energy Projects, various developers. Feasibility, LVIA, Glint and Glare Assessments.

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Celtic Interconnector, Mott McDonald. LVIA for strategic undersea and terrestrial electrical cable between France and Ireland.

St Kevin's Hospital SHD, Land Development Agency. LVIA with associated Photomontages / CGIs for a Strategic Housing Development incorporating the restoration of a landmark heritage building in Cork City.

Greater Dublin Drainage Scheme, Irish Water. MCA analysis of site options then LVIA for a 20ha sewage treatment facility, pipeline routes, pumping stations, plus oral hearing.

Water Supply Project Midlands and Eastern Region, Irish Water. MCA analysis of abstraction options and pipeline routes and LVIA of selected option.

College Green Plaza, ARUP / Dublin City Co. Full LVIA for proposed pedestrian plaza in Dublin's City Centre at College Green.

South Kerry Geenway, Fehily Timoney / Kerry CoCo. LVIA and oral hearing for a Cycleway along former railway line, plus oral hearing.

Rossaveel Deep Water Pier, Rossaveel Port Co. SLVIA for new port-based coastal infrastructure in a high sensitivity landscape / seascape environment.

Bryn Cefni Biomass Plant, Ecopellets. LVIA for a large biomass facility in Llangefni, Wales plus planning enquiry.

N59 Moycullen Bypass Road Project, NRDO. Route options appraisal and LVIA for selected route plus oral hearing.

N59 Clifden to Maam Cross Road Project, NRDO. Route options appraisal and LVIA for selected route plus oral hearing.

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CURRICULUM VITAE
BRIDGET MACFARLANE
LVIA CONSULTANT
BLA (HONS)

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PERSONAL PROFILE

Bridget is a Landscape Architect with 5 years' experience, having moved to Ireland at the start of 2024. She is principally involved in the preparation of LVIA reports, as well as the supporting Landscape Mitigation Plans, viewpoint selection and capture. This role involves characterising the existing landscape and the subsequent impacts of the proposal through calibrated site photomontages and professional judgement.

EDUCATIONAL AND PROFESSIONAL STATUS

- Bachelor's (Hons), Landscape Architecture Lincoln University, New Zealand (2018).

EMPLOYMENT HISTORY

- 2023 to Present – Landscape Architect, Macro Works (APEM Group)
- 2022 to 2023 – Landscape Architect at Kamo Marsh Ltd, Queenstown, New Zealand.
- 2019-2022- Landscape Architect at Christchurch City Council, Christchurch, New Zealand

FURTHER EXPERIENCE

- Member of the Irish Landscape Institute

SELECTED RECENT PROJECT EXAMPLES

Bridget has experience in each of the stages associated with Solar Farms, Large-scale Residential Developments (LRD) and Onshore Wind Farms, from early stage scoping through to Planning Stage, including Seascape, Landscape and Visual Impact Assessments, Site Photography, Visibility Analysis, Viewpoint Selection, and mitigation plans for onshore infrastructure.

Claremorris Solar, ProEx Engineering (2024). Project Lead, LVIA, and Landscape Mitigation Plan
Derreenacrinnig Wind Farm (2024). Project Lead, Site Work, LVIA, and Dreenacreenig WF Public Consultation Attendance
Tullamore Dew Solar, Sustech Environmental Services (2024). Project Lead, LVIA, and Landscape Mitigation Plan
Johnstown Castle Solar, Tipperary Energy Agency (2024). Project Lead, LVIA, and Landscape Mitigation Plan
Boscabell Solar, Power Capital, (2024). LVIA, and Landscape Mitigation Plan
Kilmorna Solar, Fehily Timoney (2024). Project Lead, LVIA and Landscape Mitigation Plan
Sceirde Rocks Onshore Cable Route and Converter Station (2024) – Onshore Cable Route and Substation LVIA and Landscape Mitigation Plan
Trim Pedestrian Bridge, (2023) LVIA on a heritage site
Wellman Solar, Boylan Engineering (2023). Project Lead, LVIA, and Landscape Mitigation Plan
Naas Logistics Warehouse (Maudlins). Project Lead and LVIA
Kiljames Wind Farm Feasibility. Project Lead and Feasibility Report

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CURRICULUM VITAE

AMY DORAN

PRINCIPAL - GRAPHICS SPECIALIST

BA

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PERSONAL PROFILE

A dedicated and highly skilled Graphics Artist with over 9 years of experience, Amy serves as the Principal Graphics Specialist at Macro Works. She specializes in creating verified photomontages for landscape and visual impact assessments, working with 3D terrain models to seamlessly integrate photorealistic 3D renders into calibrated site photography. In her role, Amy coordinates projects internally, collaborating closely with Landscape Architects and the GIS Team to ensure smooth and efficient workflows. As the leader of Macro Works' Graphics Team, she fosters a collaborative environment, driving high-quality results on complex design projects while mentoring team members and nurturing their professional growth.

EDUCATIONAL AND PROFESSIONAL STATUS

- Graphics for 650+ projects (national and international) via Macro Works
- General Data Protection Regulation, Kallidus (2023)
- Cyber Security and Phishing, Kallidus (2023)
- Photoshop Actions and Plugins: Automation, Udemy (2023)
- InDesign 2022 MasterClass, Udemy (2022)
- BA (First Class Hons), 3D Design, Model Making and Digital Art, I.A.D.T (2016)

EMPLOYMENT HISTORY

- 2016 to Present – Graphics Specialist, Macro Works (APEM Group)

FURTHER EXPERIENCE

- 2015 – 3D Modeller, IADT/UCD
- 2015 – Model Maker, The Workhouse
- 2014 – Trainee Stone Mason (Restoration), Irish National Heritage Park, Castleboro House

SELECTED RECENT PROJECT EXAMPLES

- **150+ Wind Farms, various private and semi-state developers.** (inc Offshore, Onshore, Single Turbines, Feasibilities, Extensions and Repowering)
- **150+ Solar Farms, various private and semi-state developers** (inc. Extensions)
- **110+ Grid Infrastructure Projects, various private and semi-state developers** (inc. BESS, Substations, Electrical Infrastructure, Biomass, OCGT, etc.)
- **180+ Projects, various private and semi-state developers** (Housing, Factory, Road, Greenway, Quarry)
- **Water Supply Project Midlands and Eastern Region, Irish Water.**
- **Oweninny Wind Farm Phase 3**. Wind Farm Development in the Bellacorrick Basin, Co. Mayo, Ireland
- **Mayo Green Hydrogen Production Plant.** Development in the Bellacorrick Basin, Co. Mayo, Ireland
- **Torremendo Solar Farm.** Solar Farm Development near the village of Torremendo, Spain
- **Poolbeg OCGT, GIS Substation, FlexGen and BESS.** Open Cycle Gas Turbine, Gas Insulated Substation, FlexGen Power System and BESS Developments on the Poolbeg Peninsula, Co. Dublin, Ireland

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CURRICULUM VITAE

RICHARD BARKER

DIVISIONAL DIRECTOR - LANDSCAPE ARCHITECT
MLA, BA ENV, PG DIP FOR, MILI

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PERSONAL PROFILE

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 20 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 is the Divisional Director in Macro Works (part of APEM Group), a specialist LVIA consultancy that undertakes assessments for 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 150 wind farms and a similar number of solar farms as well as numerous other commercial and infrastructural projects including more than a dozen SID projects. Consequently, he has considerable oral hearing training and expert witness experience. Richard has presented several 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 also delivered guest lectures / Webinars to the University College Dublin professional course in EIA Management and the Irish Landscape Institute in relation to LVIA.

EDUCATIONAL AND PROFESSIONAL STATUS

- MLA, Lincoln University (2003).
- PG Diploma, Forestry, Canterbury University (1996).
- BA, Environmental Science, Massey University (1995).

EMPLOYMENT HISTORY

- 1998 – 1999 Marlborough District Council (NZ) – Resource Planner
- 1999 – 2000 The Environment Agency (UK) – Planning Liaison Officer
- 2000 – 2001 Harrow Borough Council – Town Planner
- 2001 – 2002 CAAS Environmental (Dublin) - Planner
- 2004 – 2008 Tiros Environmental (Dublin) – Landscape Architect
- 2008 – 2014 MosArt (Wicklow) - Senior Landscape Architect / Associate Director
- 2014 – 2024 Macro Works (Dublin) – Managing Director / Divisional Director

FURTHER EXPERIENCE

- Corporate Member of the Irish Landscape Institute

SELECTED RECENT PROJECT EXAMPLES

150+ Wind Energy Projects (10 SID), various private and semi-state developers. Feasibility, LVIA and oral hearings.

150+ Solar Energy Projects, various developers. Feasibility, LVIA, Glint and Glare Assessments.

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Celtic Interconnector, Mott McDonald. LVIA for strategic undersea and terrestrial electrical cable between France and Ireland.

St Kevin's Hospital SHD, Land Development Agency. LVIA with associated Photomontages / CGIs for a Strategic Housing Development incorporating the restoration of a landmark heritage building in Cork City.

Greater Dublin Drainage Scheme, Irish Water. MCA analysis of site options then LVIA for a 20ha sewage treatment facility, pipeline routes, pumping stations, plus oral hearing.

Water Supply Project Midlands and Eastern Region, Irish Water. MCA analysis of abstraction options and pipeline routes and LVIA of selected option.

College Green Plaza, ARUP / Dublin City Co. Full LVIA for proposed pedestrian plaza in Dublin's City Centre at College Green.

South Kerry Geenway, Fehily Timoney / Kerry CoCo. LVIA and oral hearing for a Cycleway along former railway line, plus oral hearing.

Rossaveel Deep Water Pier, Rossaveel Port Co. SLVIA for new port-based coastal infrastructure in a high sensitivity landscape / seascape environment.

Bryn Cefni Biomass Plant, Ecopellets. LVIA for a large biomass facility in Llangefni, Wales plus planning enquiry.

N59 Moycullen Bypass Road Project, NRDO. Route options appraisal and LVIA for selected route plus oral hearing.

N59 Clifden to Maam Cross Road Project, NRDO. Route options appraisal and LVIA for selected route plus oral hearing.

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CURRICULUM VITAE
CIAN DOUGHAN
ASSOCIATE DIRECTOR - LANDSCAPE ARCHITECT
BSC LANDSCAPE ARCHITECTURE
MILI

RECEIVED: 08/05/2025

PERSONAL PROFILE

Cian is an honours graduate of Landscape Architecture from UCD and is from Dublin, Ireland. He has exceptional graphic ability and his main field of interest in landscape Architecture is that of landscape planning and in particular, Landscape and Visual Impact Assessment. Cian has worked on important water supply projects as well as a range of SID wind farm developments and over 80 solar farm applications. Recent work that he has been involved with includes Scart Mountain, Cloghercor and Ballinagree SID Wind Farms, numerous large scale solar developments, linear infrastructure such as Greenways and Road developments, feasibility assessments for various on-shore wind farm developments in addition to the Draft Landscape Design Guidelines for Irish Water.

EDUCATIONAL AND PROFESSIONAL STATUS

- BSc, Landscape Architecture, University College Dublin (UCD).
- MILI – Member of the Irish Landscape Institute

EMPLOYMENT HISTORY

- 2023 to present – Associate Director, Landscape Architect, Macro Works Ltd
- 2016 to 2023 – Landscape Architect, Macro Works Ltd
- 2017 – 2018 – Landscape Architect, Hollander Design New York

SELECTED RECENT PROJECT EXAMPLES

Scart Mountain SID Wind Farm, Empower (2024). An SID Wind Farm development comprising 15 no. turbines rising to a maximum height of up to 185m located along the eastern foothills of the Knockmealdown Mountains in County Waterford.
Dyrick Hill SID Wind Farm, Empower (2023). An SID Wind Farm development comprising 12 no. turbines rising to a maximum height of 185m located along the Knockmealdown Mountains foothills in County Waterford.
Cloghercor SID Wind Farm, Orsted/FEI (2023). An SID Wind Farm development comprising 19 no. turbines rising to a maximum height of 200m in County Donegal.
Ballinagree SID Wind Farm, Orsted/FEI (2022). An SID Wind Farm development comprising 20 no. turbines rising to a maximum height of 185m located in the Boggeragh Mountains in County Cork.
Rathcoursey Solar Farm, Terra Solar (2023). A 126has solar farm development comprising 5 parcels and served by a new 110kV substation, located along rolling agricultural lands in northeast Cork, north of Cork Harbour.
St. Kevins Hospital SHD, Land Development Agency (2021). A residential development on a 5.7 ha site on lands located 2.5km west of Cork City Centre on a prominent south-facing hillside site, the former St. Kevin's Hospital and grounds, Shanakiel, Cork.
100+ Solar Energy Projects, various developers. Feasibility, LVIA, Landscape Strategies, Glint and Glare Assessments, Further Information Requests and Appeal responses.
30+ Wind Energy Projects, various private and semi-state developers. Feasibility, Design Optimisation, LVIA, Further Information Requests and Appeal Responses.

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CURRICULUM VITAE

AMY DORAN

GRAPHIC SPECIALIST, HEALTH AND SAFETY OFFICER

BA

RECEIVED: 08/05/2025

PERSONAL PROFILE

With over 8 years of experience, Amy is Macro Works' Lead Graphic Specialist and is principally involved in the preparation of photomontages for landscape and visual impact assessments. This role involves working with 3D terrain models and the subsequent integration of photorealistic 3D renders into the calibrated site photography. Amy also has a host of health and safety qualifications and is Macro Works Health and Safety Officer.

EDUCATIONAL AND PROFESSIONAL STATUS

- Graphics for 600+ projects (national and international) via Macro Works
- General Data Protection Regulation, Kallidus (2023)
- Cyber Security and Phishing, Kallidus (2023)
- Photoshop Actions and Plugins: Automation, Udemy (2023)
- InDesign 2022 MasterClass, Udemy (2022)
- Safety Ireland First Response F.E.T.A.C. Lv 5. Occupational First Aid (2022).
- Fire Safety Training (2018).
- BA (First Class Hons), 3D Design, Model Making and Digital Art, I.A.D.T (2016)
- Solas Safe Pass Course (2014)

EMPLOYMENT HISTORY

- 2016 to 2024– Graphics Specialist, Macro Works Ltd.

FURTHER EXPERIENCE

- 2015 – 3D Modeller, IADT/UCD
- 2015 – Model Maker, The Workhouse
- 2014 – Trainee Stone Mason (Restoration), Irish National Heritage Park, Castleboro House

SELECTED RECENT PROJECT EXAMPLES

- **150+ Wind Farms, various private and semi-state developers. (**inc Offshore, Onshore, Single Turbines, Feasibilities, Extensions and Repowering)
- **150+ Solar Farms, various private and semi-state developers** (inc. Extensions)
- **110+ Grid Infrastructure Projects, various private and semi-state developers** (inc. BESS, Substations, Electrical Infrastructure, Biomass, OCGT, etc.)
- **180+ Projects, various private and semi-state developers** (Housing, Factory, Road, Greenway, Quarry
- **Water Supply Project Midlands and Eastern Region, Irish Water.**
- **Oweninny Wind Farm Phase 3**. Wind Farm Development in the Bellacorrick Basin, Co. Mayo, Ireland
- **Mayo Green Hydrogen Production Plant.** Development in the Bellacorrick Basin, Co. Mayo, Irelan
- **Torremendo Solar Farm.** Solar Farm Development near the village of Torremendo, Spain

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CURRICULUM VITAE
LUIS DOMINGUEZ
GIS ANALYST
MSC, BSC

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PERSONAL PROFILE

As GIS Analyst at Macro Works, Luis' job is to manage all spatial data in order to study the effects of new developments in the landscape. This involves drone and other field data collection and processing, viewshed map creation and photomontage editing. Luis came to Macro Works from a range of positions in which he was responsible for managing complex GIS datasets within the health sector, the education sector and also in relation to archaeological research projects. His current role see him dealing with infrastructure and energy projects, particularly solar farms, and wind farms.

EDUCATIONAL AND PROFESSIONAL STATUS

- MSc, Territorial and Local Development Planning and Management. Universidad de Sevilla. 2011
- MSc, GIS & Remote Sensing. Universidad de Extremadura. 2010
- BSc, Geography. Universidad de Granada. 2009

EMPLOYMENT HISTORY

- 2016 to 2023 - GIS Specialist, MacroWorks
- 2013 to 2015 – Mapper and GIS Analyst in Local Asset Mapping Project, St. James's Hospital
- 2010 to 2011 – GIS Technician, Estudios Técnicos y Jurídicos LLamas S.L.

FURTHER EXPERIENCE

- 2015 - GIS Specialist – The Discovery Program
- 2013 - Research Assistant, NUI Maynooth
- 2011 - Scholar Cooperating in Environmental Project - Oficina de Cooperación de la Universidad de Sevilla

SELECTED RECENT PROJECT EXAMPLES

NISA Offshore Wind Farm, ARUP (2021-2023). Visibility analysis and preparation of visuals and mapping on the feasibility and LVIA stages of the different turbine iterations and the proposed array.

Clova Wind Farm (Scotland), The James Truscott Consultancy (2023). Visibility analysis, data compilation and preparation of maps and wireline montages from selected locations for a feasibility study.

A&M Fife, St. Andrews, Scotland (2024). Visibility analysis, data compilation and preparation of maps and wireline montages from selected locations for a Landsacpe & Visual Impact Assessment for a golf course development.

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CURRICULUM VITAE

COLIN MCCAFFREY

SPECIALIST IN 3D MODELLING AND PRESENTATION
BARCH SC

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PERSONAL PROFILE

Colin has worked with Macro Works since 2005 and has been personally involved with all of our projects across our diverse portfolio since then. He specialises in the output of finished renders of complex architectural, industrial and civic infrastructural models to precisely match site-captured imagery. He has worked closely with the graphics team in the development of complex depth of view rendering and serves the unique panoramic formats frequently used by Macro Works. Prior to working for Macro Works, Colin completed a number of high-profile projects for the National Building Agency and was also a CAD lecturer at both Griffith College and Dun Laoghaire College of Further Education.

EDUCATIONAL AND PROFESSIONAL STATUS

- Architectural Diploma. D.I.T. Bolton Street, Dublin 1
- Degree BArch Sc (hons), Dublin Institute of Technology, Bolton Street, Dublin 1.

EMPLOYMENT HISTORY

- 1998-1998- ACAD Draughtsman, Physical Model Making, Surveying. Stafford & Glynn Architects, El Segundo, Los Angeles.
- 1999 to 2001-Asistant Architect (Design, Working Drawings, surveying, 3D Modelling), National Building Agency Richmond Ave. South, Milltown Dublin 6.
- 2000 to 2001-ACAD lecturer in Interior Design and Interior Architecture Courses, Grifith College, Dublin.
- 2003 to 2008 – Part-time lecturer in ACAD and Autodesk Viz/3Ds Max Design, ECDL CAD qualified Teacher/Examiner. Dun Laoghaire College of Further Education.
- 2002 to 2023 Self Employed 3D modelling contractor. Clients include the National Building Agency, Macro Works, The Building Consultancy, Crean Salley Architects.
- 2023 September-Macro Works/APEM Senior 3D Modeller.

SELECTED RECENT PROJECT EXAMPLES

Profile Park 110Kv Substation- Tobin (2021). Model array of power generation structures, tanks and stacks.
Poolbeg Flexgen & BESS- Mott MacDonald (2022). Model Open Cycle Gas Turbine structures & BESS compound.
Celtic Interconnector- Mott MacDonald (2021). 220kV Substation, 400kV AIS Bay
Project Central Sandyford- Reddy Architecture (2020). Multiple phase mixed use development including school, institutional building and office buildings surrounding landscaped spaces.
UCD Newman Building- Reddy Architecture (2021). Extension of Newman block for UCD Campus.
College Green Pedestrianisation- Dublin City Council (2017). Hard landscaping of pedestrianised layout proposal
NISA Off-Shore wind farm- ARUP (2020). Multiple layout options and various turbine specifications modelled.
Oweninny III Wind Farm- Board Na Mona (2020). On-Shore wind farm development and comparative study
Castlebanny Wind Farm- Coillte. (2020). On-Shore wind farm development & Comparative Study
Rosspile Solar and Substation- Highfield Energy (2018). Large Solar farm and 110Kv GIS Substation.
Tarragona Solar Farm (Valencia, SP)- ABO Wind. (2023). Solar Farm, Pylon array and Substation.
Lysaghtstown Solar Farm- Terra Solar (2018). Multi-phase Solara Farm and Substation.
O'Hanrahan Bridge, New Ross- Roghan & O'Donovan (2022). Bridge widening project with traffic realignment.
Irish Rail Signalling Project- Irish Rail (2013). Bridge widening at two sites and signal system upgrade.

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Tony Cummins BA MA

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Senior Archaeologist & EIA Consultant (John Cronin and Associates)

TONY CUMMINS has been a Senior Archaeologist with John Cronin & Associates since 2009 and has accumulated 30 years' continuous industry experience since graduating with a Master's degree in Archaeology in 1994. He has extensive experience in the preparation of EIA scoping reports, option assessments and EIAR chapters for a wide range of large-scale developments, including a wide range of wind farm projects.

Professional Qualifications

Batchelor Degree (Archaeology) University College Cork, 1992
Master's Degree (Archaeology), University College Cork, 1994

Relevant Experience

Mr. Cummins worked on a wide range of excavation projects following his graduation with a Master's degree in Archaeology in 1994 and was approved as a licence-eligible archaeologist by the National Monuments Service in 1998. Since that time, he has directed numerous excavations in Ireland and also participated in archaeological projects in Britain and Lebanon. He also gained management experience as the senior project archaeologist during the construction phase of large-scale infrastructure road schemes, including the Limerick Southern Ring Road and the Waterford City Bypass. Mr. Cummins has prepared assessments for a wide range of energy supply projects over recent decades, and these have included ESBI transmission lines as well as a wide range of wind farm developments (including associated grid connection and haul routes). His inputs to these projects have included liaising with developers, project designers, statutory authorities and other EIA consultants as well as the preparation of EIAR chapters based on programmes of detailed desktop research and field surveys.

The following are examples of some of the current and completed wind farm EIAR chapters that he has prepared in recent years:

- Garryhinch Wind Farm, Co. Laois
- Castlepook Wind Farm, Co. Cork
- Fahy Beg Wind Farm, Co. Clare
- Annagh Wind Farm, Co. Cork
- Coom Wind Farm, Co. Cork
- Gort Uí Rathaile Wind Farm, Co. Cork
- Inse Mhór Wind Farm, Co. Cork
- Ballykett Wind Farm, Co. Clare
- Moanmore Wind Farm, Co. Clare
- Tullaghmore Wind Farm, Co. Galway
- Croaghaun Wind Farm, Co. Carlow
- Castlegarden Wind Farm, Co. Kilkenny
- Coomnagappul Wind Farm, Co, Waterford
- Dyrick Hill Wind Farm, Co. Waterford

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Ai Bridges Limited

Name	Kevin Hayes
Position	Engineering Manager
Role	Project & Client Management
Qualifications	B.Eng Hons. - Electronic Eng, M.Eng Hons. Communications Engineering Aviation OLS Assessment Training 2020

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Relevant Experience :

- Software Design Engineer
- Founding Director Ai Bridges (2000 – present)
- Telecommunications Network & Software Design
- Telecommunications Radio Planning & Engineering Services
- Client Project Management for Renewable Sector Telecommunications, Aviation, Broadcast, Emergency Service infrastructure Impact Assessment Study Projects.
- R&D responsibilities at AiBridges for all Telecommunications and Aviation for 3D Software Interference Prediction Modelling services.
- Responsibility for Design of Mitigation Measure & Remediation Solutions for Telecommunications, Aviation, Broadcast, Emergency Service Projects

Reference Project Experience :

- Coillte – Violet Hill – Telecommunications & Aviation Impact Assessment Studies
- Coillte\ESB – Castlepook – TVI Assessment & Remediation Solutions Project.
- Coillte\ESB – Raheenlagh – TV Interference & EMI Broadband Impact Assessments
- Coillte – Corbally Wood - Telecommunications & Aviation Assessment Studies.
- Future Energy Ireland – Knockshanvo – Telecoms & Aviation Impact Assessment
- Future Energy Ireland – Lissinagroagh – Telecoms & Aviation Impact Assessment
- ESB – 12-site Projects – 5-year Framework for provision of TV Interference Modelling & Remediation Project
- SSE – ROI & NI Sites - Framework for Provision of Managed Telecommunications Network & Software Modelling
- Bord Na Mona - Bruckana & Mount Lucas – Pre-Construction & Post-Construction Telecoms & TVI Broadcast Impact Assessments Project.
- Project Management "self-help" transmitter contract for Dromada Wind Farm Wireless Signal Interference Project.

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Ai Bridges Limited

Name	Patrick Tinney
Position	Junior Telecoms Engineer
Role	Telecoms Field Network Engineering
Qualifications	B.Sc Computer & IT Systems Radio Planning Pathloss & ATDI 2019

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Relevant Experience :

- Field Services Management – 3 years(including Safety Committee Representative Role)
- AI Bridges (present - 2014)
- Field Surveys and RF planning using CE4 software prediction tools for UMTS mobile and fixed wireless networks
- Telecoms Management - roll-out of fixed wireless access in Ireland across 200+ wind farms & solar parks.
- Ai Bridges - Senior Radio Engineer & Field Supervisor (2017 – Present)
- AI Bridges – Telecoms & Aviation & EMI Field Survey Assessments
- Ai Bridges - planning/software modelling using software prediction & data calibration tools

Reference Project Experience :

- Coillte – Violet Hill – Telecommunications & Aviation Field Survey Assessments
- Coillte\ESB – Raheenlagh – TV Interference & EMI Broadband Assessment Reports
- Coillte – Corbally Wood - Telecommunications Filed Assessment Reports & Analysis
- Future Energy Ireland – Knockshanvo – Telecoms Radio Analysis Assessment Report
- Future Energy Ireland – Lissinagroagh – Telecoms Filed Survey, Assessment Report
- ESB WD – Grouselodge, Carrickateane , Eglish, Crockdun , Hunters Hill , Crockagarraon – Residential Broadband Desk-top software prediction modelling services and completion of TV, GSM and Broadband Interference Reports.
- Airtricity\SSE – Slieve Kirk, Glenconway, Tievnameenta - Co-ordinated Field Engineering Surveys & Drive-through Assessments for TV , EMI Broadband
- Bord Na Mona - Bruckana & Mount Lucas –Telecoms, EMI Broadband, TV Interference Prediction Modelling & Analysis
- Statkraft – Taghart, Raragh – Management of TV & EMI Interference Assessments Remediation & Mitigation Measure implementations

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MICHAEL GILL PGeo
B.A., B.A.I., M.Sc., Dip. Geol, MIEI, MCIWEM
Civil Engineer/Hydrogeologist

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Dungarvan,
Co. Waterford.
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michael@hydroenvironmental.ie

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Michael is a Civil Engineer and Hydrologist/Hydrogeologist with 23 years' of environmental and hydrology consultancy experience. Hydro-Engineering expertise includes:

- Environmental impact assessment reports for numerous projects including roads, landfills, quarries, gas pipelines, and national transport/water infrastructure;
- Specialising in geology and hydrogeology EIAR assessments and discharge licence applications, and associated surface water and groundwater quality assessments;
- Hydrology, karst hydrogeology and Flood Risk Assessments (100+ FRAs);
- Wetland characterisation and impact assessments for Natura 2000 sites, including restoration options;
- Design and supervision of site investigation works, including trial pits, drilling works, geophysics, surface water and groundwater sampling, and scheduling laboratory analyses (soils and water);
- River water quality sampling and assimilative capacity assessments;
- Wind Farms – EIAR / peatland drainage and hydrology (75+ Ireland, 15+ N. Ireland), including construction phase drainage audits;
- Environmental assessments of numerous policies and plans including LAPs (Local Area Plans and SEAs;
- Design and assessment of drainage management systems, incorporating SuDS drainage features, water quality mitigation measures and flood attenuations and flood management systems for construction sites, including specific mitigation for protection of water quality in sensitive receiving waters;
- Undertaking of construction phase (monthly, quarterly, depending on project type and scale and sensitivity of receiving waters) drainage audits to assess mitigation success and overall water quality protection, and also if required recommending specific improvements needed;
- Local Authority licensing of treated wastewater discharges to groundwater and surface water;
- Water well drilling and site investigation procurement and supervision;
- Water resource assessment and development for public and private schemes;
- Source Protection Zone mapping for groundwater supplies (40+);
- Down hole well camera surveying and reporting;
- Water well evaluation and trouble-shooting/rehabilitation;
- Management, supervision and analysis of pumping tests (50+);
- Hydrological and hydrogeological monitoring and modelling;
- Site characterisation reports and wastewater and environmental engineering;
- Subsoil hydrology, assessment of groundwater vulnerability and nutrient impact accounting;
- Providing expert hydro-engineering evidence at oral hearings, legal cases, and arbitrations; and,
- Health and Safety roles including PSDP and PSCS.

Michael holds an honours degree in Civil and Environmental Engineering from Trinity College Dublin, as well as a research M.Sc. in Wetland Hydrology also from TCD. Michael also holds a diploma in Geology from University College Cork and a second M.Sc. in Applied Hydrogeology, from Newcastle University. Michael is a member of the International Association of Hydrogeologists (IAH) and was a member of the conference sub-committee from 2003 until 2009. He is also a Member of Engineers Ireland (MIEI), a Member of the Chartered Institute of Water and Environmental Management (CIWEM) and a professional member of the Institute of Geologists of Ireland (IGI).

Previous project collaborators have included local authorities, private developers, environmental consultants, architects, civil engineering consultants, and contractors requiring specialist hydrological and hydrogeological expertise. More frequently now we (as the hydro-consultants) form an integral part of the preparation of EIAR and AA/NIS

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documents with direct liaison with ecologists and planning consultants and this role also continues through the construction and post construction phases.

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CONOR MCGETTIGAN
B.Sc., M.Sc.

DOB: 05/03/1994

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Dungarvan,
Co. Waterford.
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conor@hydroenvironmental.ie

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Conor is an Environmental Scientist and has over 4 year's of experience in the environmental sector in Ireland. His experience to date includes;

- Compilation of hydrological and hydrogeological desk study reports;
- Site walkover surveys and water feature surveys, drainage mapping;
- Geological field mapping and field investigations, peat probing and trial pit logging;
- Surface water and groundwater sampling, and surface water flow monitoring;
- Installation of water level monitoring piezometers in peatlands, river callows and sand dune systems using a variety of methods including hand augering and window sampling;
- Water level monitoring and datalogger programming, and water level data management;
- Completion of peat probing investigations to determine peat depths and subsoil geological composition;
- Supervision and logging of ground investigations (i.e. trial pits) for a range of developments ranging from proposed underpasses to large wind farm developments;
- Supervision and logging of investigation drilling boreholes;
- Environmental impact assessment reports (EIARs) and Environmental Reports for numerous projects including wind farms, associated grid connections, housing developments, sand and gravel pits and bedrock quarry developments;
- Preparation of Flood Risk Assessments for a variety of proposed developments;
- Compilation of hydrological, hydrogeological reports, groundwater risk assessments, and WFD Compliance Assessment Reports; and,
- Producing method statements, risk assessments, and EHS plans/documents and acting as H&S officer on various sites.

Conor holds an M.Sc. in Applied Environmental Science (2020) from University College Dublin, graduating with a First-Class Honours degree in 2020. Conor has also completed a B.Sc. in Geology from University College Dublin (First Class Honours, 2016).

Conor has worked on several wind farm EIAR projects, including Ballivor WF and is currently involved in the preparation of the EIARs for 20+ wind farms and associated grid connection routes. Conor was part of the HES team which were appointed as hydrological and hydrogeological consultants by the National Parks and Wildlife Service (NPWS). A particular highlight was the involvement in the NPWS's Liffey Head Bog Restoration project in 2022 and 2023. Conor also works on several bedrock quarry and sand and gravel pit EIAR projects across the country.

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Tom O'Donnell BSc (Hons) MSc CEnv MCIEEM
Director & Principal Ecologist
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Biography

Tom is a Chartered Environment Scientist (CEnv) and a full member of the Institute of Ecology and Environmental Management (MCIEEM). He has 16 years' experience in the environmental industry, in Ireland the UK and New Zealand.

Tom has experience of numerous ecological and environmental projects including EIAR, EcIA and AA/NIS reporting. Tom has significant experience in the ecological assessment of major projects such as wind farms and linear projects (incl. greenways, overhead lines, roads etc.). He has considerable experience of environmental management of construction projects, including over 3 years based on-site full-time. Tom is recognised for his skill and experience in stakeholder engagement and the design and delivery of meaningful and buildable ecological mitigation and enhancement measures. Tom lectures in Technological University Dublin (TUD) for the 'Environmental Accountability in Development' module

Qualifications

- BSc Environmental & Earth System Science, University College Cork (2003-2007).
- MSc Ecological Assessment, University College Cork (2008-2009).
- MSc Organic Farming, University of Glasgow (ongoing).

Professional Association

- Chartered Environmentalist (SocEnv)
- Full Member of Chartered Institute of Ecology and Environmental Management (CIEEM)
- Irish Environmental Law Association

Species Licenses

- Licensed by NPWS for bats (roost disturbance and capture) and White Clawed Crayfish.

Employment History

May 2019 - Director, O'Donnell Environmental Ltd.

2014 - 2019 - Planning and Environment Specialist, Brookfield.

2013 - 2014 - Environmental Scientist, GHD Ltd (NZ).

2010 - 2013 - Lead Ecologist, Electricity Alliance West (UK).

2009 - 2010 - Ecologist. Capita Symonds (UK).

2008 - 2009 & 2014 Ecologist. Atkins Ireland.

2007 - 2008. Junior Ecologist, Ecofact Environmental Consultants.

Selected Project Experience

Ecological survey and monitoring for major road scheme

Safely conducted pre-construction ecological surveys for the 35km Foynes-to-Limerick Motorway (incl. Adare Bypass) road scheme. Secured derogation licenses for bats (incl. Lesser Horseshoe Bat) and Otter. Carried out stakeholder engagement. Retained as 'Owners Ecologist' for main construction contract [Client: Limerick City & County ***Council***].

EIAR Chapter and NIS for an onshore wind farm

Carried out and coordinated survey and reporting for proposed Keerglen Wind Farm. Contributed to constraints-based design process in collaboration with other discipline leads. O'Donnell Environmental produced EIAR Biodiversity Chapter and NIS. [Client: ABO Energy]

Owners Ecologist - ongoing

Ecological surveys and ongoing ecological management for the construction of a c. 5.3km gas transmission pipeline at Lumcloon, Co. Westmeath. Works included management of trees with suitability for bats, closure of Badger setts etc. O'Donnell Environmental are in regular communication with Murphy Ireland to ensure continued environmental compliance (Client: Gas Networks Ireland].

Ecological assessment for municipal development

Carried out bat survey and reporting, EIA Screening and AA Screening for the development of a tourism related scheme at Skerries Mills, Fingal, Co. Dublin [Client: Fingal Co. Co.].

Ecological assessment and mitigation design

Carrying out an assessment of Lesser Horseshoe Bat distribution and landscape connectivity in Cork City. The project ultimately aims to identify populations of the protected bat species and measures to enhance their conservation [Client: Cork City Council & NPWS].

Ecological assessment and mitigation design

Carried out ecological assessment including multi-season bat surveys (NatureScot, 2021) for several wind farm proposals in Ireland. Role includes interpretation of results, mitigation design and impact assessment [Clients: Ecology Ireland, ABO Wind].

Ecological assessment for electricity grid services

Produced EcIA report for a proposed rotational stabiliser project. Role involved assessment of potential impacts on habitats and species

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and design of avoidance and mitigation measures. Project was successfully permitted (Ref: 22/352 (Sligo)) (Client: Statkraft].

Ecological assessment for multi-use sports development

Carried out ecological surveys and reporting for the proposed development a multi-use sports facility in Co. Cork. Produced EcIA and NIS reports and permission was successfully granted [Client: Carrigaline RFC].

Bat assessment for a gypsum extraction project

Carried out an assessment of the potential impacts of the proposed extraction of gypsum by open-cast mining at Drumgoosat and Knocknacran Co. Monaghan. Bat roosts were identified during surveys, a mitigation plan was designed, and a derogation license obtained from NPWS to facilitate the proposed works. Reengaged to provide a wider ecological role [Client: Saint-Gobain Mining].

Farm biodiversity planning (2020, 2021, 2022)

Provided consultancy, design and monitoring services for NPWS Farm Plan Scheme in a role that required technical knowledge and excellent stakeholder engagement skills. Included extensive conservation measures for the rare Lesser Horse-shoe Bat [Client: NPWS].

Bat survey and reporting for a flood relief scheme

Carried out bat surveys and reporting including impact assessment for the River Bride Flood Relief Scheme, Cork City. Carried out engagement with NPWS on behalf of the scheme. Project was permitted [Client: Ryan Hanley on behalf of OPW].

Ecological monitoring of wind farm

Carrying out post-construction ornithological monitoring of a wind-farm (hinterland, VPs and breeding bird transects) [Client: Orsted].

Ecological assessment of solar project

Provided ecological support and advice to Client and provide AA Screening report to support planning application. Project granted permission [Client: Recordati].

Ecological assessment and mitigation design

Carried out ecological surveys for the expansion of the Ormonde Organics bio-energy facility in Co. Waterford. Contributed towards EIAR and NIS reports [Client: Ecology Ireland].

Bat assessment for a residential development

Carried out an assessment of the potential impacts of a residential scheme in Cork on bats. A nationally significant Leisler's bat roost was assessed and considered, as was the potential for roosting in adjoining woodland [Client: O'Flynn Construction].

Ecological assessment for major residential development

Carried out ecological surveys for the redevelopment of the Royal Liver Retail Park in Inchicore, Dublin. Contributed towards EIAR and NIS reports. [Client: Ecology Ireland].

Bat assessment for municipal development

Carried out bat survey and reporting for the renovation and extension of Carnegie Free Library, Swords, Co. Dublin [Client: Fingal Co. Co.].

Biodiversity Action Plans

Carried out ecological survey and advisory services, resulting in ambitious and meaningful Biodiversity Action Plan for 7 Irish sites and 6 UK sites [Client: Dawn Meats Group].

Ecological effects survey and remediation design (2014)

Tom carried out ecological survey and designed the proposed remediation response for Oruarangi Estuary in Mangere, New Zealand following a spillage of 1000 litres of toxic industrial dye.

Ecological services for an over-head line refurbishment (2010)

Lead Ecologist for a scheme in South Wales which involved replacing / refurbishing 300 electricity towers on an 80km, 400kV double-line. Successfully designed and supervised ecological mitigation and enhancement works [Client: National Grid].

BREEAM Land Use and Ecology Assessment (2009)

Managed the Landuse and Ecology section of the BREEAM assessment for the Tamarind Centre, a medium-security mental health unit in Birmingham. A number of biodiversity enhancement measures were devised which met strict security requirements. For example, aggregate and rubble which was already present on-site was utilised in the 'sterile area' between security fences to create habitat for Black Redstart. [Client: NHS].

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TOM GITTINGS

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Profession	Ecological Consultant	**Key experience**
Nationality	British	Wind energy ornithology and collision risk modelling
Qualifications	BSc (1988)	Waterbird surveys, assessments and research
	PhD (1994)	EIS / EIAR and NIS reports
Memberships	MCIEEM	Peer reviews and expert witness services

PROFILE

Tom Gittings is an ecologist with 29 years' experience in professional consultancy work and research. Tom specialises in ecological surveying, monitoring and evaluation, ecological impact assessment, habitat management, and avian, invertebrate, wetland and woodland ecology. He is currently working as an independent ecological consultant. His previous experience includes working for the RPS Group (a multi-disciplinary environmental consultancy) and carrying out research into forest and wetland biodiversity in the Department of Zoology Ecology and Plant Science at University College Cork. He has a BSc (Hons) and a PhD in Ecology and is a member of the Chartered Institute of Ecology and Environmental Management. His recent ornithological work has focused on wind farm ornithology and waterbird ecology.

EDUCATION AND EMPLOYMENT HISTORY

Education, memberships and awards

- BSc degree in Ecology (grade 2.1), University of East Anglia, Norwich, England (1985-1988).
- PhD on the community ecology of *Aphodius* dung beetles, Department of Zoology, University College Cork (1989-1994).
- Full member of the Chartered Institute of Ecology and Environmental Management.
- Distinguished Recorder Award 2014 from the National Biodiversity Data Centre.

Employment

- Freelance ecological consultant (2010-present).
- Freelance ecological consultant / part-time postdoctoral researcher (BIOCHANGE project, UCC, 2006-2009).
- Postdoctoral researcher and manager of UCC research team (BIOFOREST project, UCC, 2001-2005).
- Technical Director, RPS Group, Cork (2000-2001)
- Associate Ecologist and Office Manager, RPS Group, Cork (1998-2000)
- Ecological Consultant (1995-1998), RPS Group, Cork.
- Common Scoter fieldworker (Irish Wildbird Conservancy 1995).

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- Ornithological Research Assistant (London Ecology Unit 1989).

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ORNITHOLOGICAL EXPERTISE

Tom has been a keen birdwatcher since childhood and has a high level of expertise in bird identification. He has been involved in a wide variety of academic and professional ornithological work. His recent professional work has focussed on wind farm ornithology and waterbird ecology.

Wind energy ornithology

Tom has extensive experience in ornithological assessments for wind farm projects and has been involved in numerous wind farm projects. His input to these projects has variously included field surveys, collision risk modelling, population viability analyses, writing the ornithological sections of EIS/EIAR and NIS reports, expert witness services at oral hearings, and provision of scoping advice and peer review services.

Tom has specific expertise in collision risk modelling and assessment. In addition to carrying out the modelling, he has carried out research into factors that may bias the models. This research has been presented at scientific conferences, and part of the research has recently been published in the journal of the Chartered Institute of Ecology and Environmental Management (*In Practice* 126:40-44; https://shorturl.at/ybP3w).

Waterbirds

Tom has been involved in waterbird surveys and assessments in Ireland for over 30 years. From 2010-2022, Tom worked on a variety of projects for the Marine Institute relating to the Appropriate Assessment of aquaculture and shellfisheries in coastal SPAs. During this time, he designed, coordinated and analysed a number of specialist studies on waterbird ecology, which were carried out to provide the information base required for the assessments, as well as writing eight Appropriate Assessment reports and contributing to another two. Tom has also carried out studies of waterbird disturbance responses to human activities and has published results in peer-reviewed journals.

Other ornithological experience

Tom has a wide range of other ornithological experience. This includes bird surveys in diverse habitats, preparation of impact assessments for a wide range of projects, literature reviews and research, and providing peer review and expert witness services in relation to ornithological assessments.

OTHER RELEVANT EXPERTISE

Ecology

Tom has a wide range of experience in diverse ecological fields. He has particular entomological expertise and his contribution to invertebrate surveying in Ireland was recognised by a Distinguished Recorder Award from the National Biodiversity Data Centre. He has also extensive experience in habitat surveying and assessment, including carrying out large-scale habitat surveys for Cork County Council. Tom has been instrumental in the development of the award-winning Harper's Island Wetlands nature reserve in Cork Harbour (www.harpersislandwetlands.ie). Tom taught several modules for the MSc in Ecological Assessment course in UCC between 2009 and 2016 and has a wide range of other teaching experience.

Planning

Tom has been involved in ecological assessments for development work for nearly 30 years. He has worked on a wide range of projects, contributed to numerous EISs, EIARs and NISs, and has appeared as an expert witness at a number of oral hearings.

Report writing and data analysis

Tom has excellent scientific and report writing skills. He has authored many technical reports and over 40 papers published in peer-reviewed journals (see https://shorturl.at/gSxpY). He is currently editor of *Irish Birds*, which is the only all-Ireland, peer-reviewed journal devoted to ornithology on the island of

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Ireland. Tom has extensive experience in the use of GIS software for constraint mapping and analysis. He is proficient in the use of a wide variety of statistical methods for the analysis of ecological data.

WIND ENERGY PROJECT EXPERIENCE

Collision risk modelling and population viability analyses

- Moanmore Wind Farm, Clare: collision risk modelling (Greensource 2024).
- Hovione Wind Turbine, Cork: collision risk modelling (Aqualicense 2024).
- Sceirde Rocks Offshore Wind Farm: collision risk modelling and population viability analyses (MKO 2024).
- Scart Mountain Wind Farm, Waterford: collision risk modelling and population viability analyses (TOBIN 2024).
- Cushbawn Wind Farm, Wicklow: population viability analyses (MKO 2023).
- Cloghercor Wind Farm, Donegal: collision risk modelling and population viability analyses (TOBIN 2022).
- Ballykett Wind Farm, Clare: collision risk modelling (Greensource 2022-2024).
- Castlebanny Wind Farm: collision risk modelling (Blackthorn Ecology 2020).
- Ummeras Wind Farm, Kildare: collision risk modelling (TOBIN 2020).
- Barranafaddock Wind Farm, Waterford: collision risk modelling (Fehily Timoney 2019-2020).
- Moanvane Wind Farm, Offaly: collision risk modelling (Fehily Timoney 2017-2020).
- Derryadd Wind Farm, Longford: collision risk modelling (TOBIN 2017-2018).
- DePuy Wind Turbine, Cork: collision risk modelling (Arup 2016-2018).
- Knocklead Wind Turbine, Laois: collision risk modelling (Blackthorn Ecology 2016).
- Cleanrath Wind Farm, Cork: collision risk modelling (MKO 2015).

EIAR, NIS and other assessments

- Hovione Wind Turbine, Cork: EIAR Ornithology chapter and NIS (Aqualicense 2024).
- Scart Mountain Wind Farm, Waterford: EIAR Ornithology chapter (TOBIN 2023-2024).
- Cloghercor Wind Farm, Donegal: EIAR Ornithology chapter and NIS (TOBIN 2022-2023).
- Castlebanny Wind Farm, Kilkenny: EIAR Ornithology chapter (Blackthorn Ecology 2020-2021).
- Derryadd Wind Farm, Longford: review of ornithological assessment and expert witness services at oral hearing (TOBIN 2019).
- Knocklead Wind Turbine, Laois: ornithological assessment (Blackthorn Ecology 2016).
- Cleanrath Wind Farm, Cork: EIS Biodiversity chapter and Natura Impact Statement (MKO 2015-2016).
- Straboy Wind Farm, Donegal: review of ornithological assessment and expert witness services at oral hearing (Atkins 2012).

Survey work

- Hovione Wind Turbine, Cork: vantage point surveys and waterbird roost counts (Aqualicense 2023-2024).
- Cloghercor Wind Farm, Donegal: management of bird survey work (TOBIN 2019-2024).
- DePuy Wind Turbine, Cork: post-construction monitoring of waterbird populations (Arup, 2019-2023).
- Castlebanny Wind Farm, Kilkenny: vantage point surveys, breeding raptor and wader surveys, and Hen Harrier roost surveys (Blackthorn Ecology 2016-2019).
- DePuy Wind Turbine, Cork: monitoring of Whimbrel, Black-tailed Godwit and Sandwich Tern migration (Arup 2016-2018).
- Knocklead Wind Turbine, Laois: vantage point surveys and breeding wader surveys (Blackthorn Ecology 2016).
- Greenwire Wind Farms, Kildare / Laois: breeding wader surveys and Merlin and Barn Owl surveys (Fehily Timoney 2013).
- Faughary Wind Farm, Leitrim: vantage point surveys (Atkins 2010-2011).
- Drinagh Wind Farm, Cork: vantage point surveys (Atkins 2009-2010).
- Leabeg Wind Farm, Offaly: vantage point surveys and wintering waterbird surveys (Atkins 2008-2009).

Peer review

- Glenora and Sheskin South Wind Farms, Mayo: peer review of bird survey work (MKO, 2022).
- Carrownagowan Wind Farm, Clare: peer review of collision risk model and EIAR Ornithology chapter (Coillte / Malachy Walsh and Partners 2019-2021).
- Derrinlough Wind Farm, Offaly: peer review of bird survey work (MKO 2019).
- Knocknamork Wind Farm, Cork: peer review of EIAR Ornithology chapter (Enerco Energy 2018-2019).
- Ardderroo Wind Farm, Galway: peer review of ornithological work (Rockgrid / Ardderroo Windfarm 2016-2018).

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- Carrickaduff / Meenbog Wind Farm, Donegal: peer review of ornithological work (Planree 2016-2018).
- Ballykinane, Magheramore and Cloontoa Wind Farms, Mayo: peer review of ornithological work (PWWP Developments 2016).
- Ardglass Wind Farm, Cork: peer review of ornithological assessment (Enerco Energy 2015).

Other

- Cloghan Wind Farm, Offaly: review and analysis of carcass monitoring data (Wildeye, 2024).
- Ballivor Wind Farm, Meath / Westmeath: analysis of Golden Plover avoidance rates (MKO 2022).
- WINDHARRIER project: review of wind farm impact assessments and mitigation for Hen Harriers (UCC 2014).

WATERBIRD PROJECT EXPERIENCE

EIAR, NIS and other assessments

- Monkstown Marina, Cork: waterbird disturbance assessment (Monkstown Marina 2023-2024).
- Whitegate Pier, Cork: waterbird impact assessment and NIS (O'Brien Architects 2021).
- Courtmacsherry Marina, Cork: waterbird impact assessment for NIS (Merc Consultants 2021).
- Passage Railway Greenway, Cork: waterbird impact assessment (RPS 2021).
- Ballymacoda Bay, Cork: bird expert assistance for the review of aquaculture licence appeals (Aquaculture Licence Appeals Board 2019).
- Ballyteige Burrow SPA: Appropriate Assessment of aquaculture (Atkins for the Marine Institute 2019).
- Kilmisten forestry project, Wexford: waterbird impact assessment and NIS (Ingrid Selzer 2019).
- Cork Harbour SPA: Appropriate Assessment of aquaculture (Atkins for the Marine Institute 2018-2020).
- Whitegate Refinery additional tankage project, Cork: waterbird impact assessment (Arup 2018).
- Fota Wildlife Park bird hide project, Cork: waterbird impact assessment (Fota Wildlife Park 2018).
- Bantry Bay, Cork: bird expert assistance for the review of aquaculture licence appeals (Aquaculture Licence Appeals Board 2018).
- Gweedore Bay, Donegal: bird expert assistance for the review of aquaculture licence appeals (Aquaculture Licence Appeals Board 2018).
- Fota Island Adventure Centre, Cork: waterbird impact assessment (Fota Island Resort 2017).
- Barrowsiders Solar Farm, Cork: waterbird impact assessment (Temporis 2017).
- River Shannon and Fergus Estuaries SPA: Appropriate Assessment of aquaculture (Atkins for the Marine Institute 2017).
- Bannow Bay SPA: Appropriate Assessment of aquaculture (Atkins for the Marine Institute 2016-2018).
- Cork Harbour Blueways project: Appropriate Assessment Screening Report (SECAD 2016).
- Carcur Park housing development, Wexford: waterbird impact assessments for EIS and NIS (William Neville & Sons 2015-16).
- Wexford Harbour SPA: Appropriate Assessment of aquaculture and shellfisheries (Atkins for the Marine Institute 2014-2015).
- Galway Harbour Extension project: waterbird impact assessment and expert witness services (Galway Harbour Company 2014-2015).
- Inner Galway Bay SPA: Appropriate Assessment of aquaculture (Atkins for the Marine Institute 2014).
- Dungarvan Harbour SPA: Appropriate Assessment of aquaculture (Atkins for the Marine Institute 2013-2014).
- Donegal Bay SPA: Appropriate Assessment of aquaculture (Atkins for the Marine Institute 2013).
- Lough Swilly SPA: Appropriate Assessment of aquaculture (Atkins for the Marine Institute 2012-2013).
- Dundalk Bay SPA: waterbird impact assessment for Appropriate Assessment of aquaculture and shellfisheries (Atkins for the Marine Institute 2011).
- Castlemaine Harbour SPA: waterbird impact assessment for Appropriate Assessment of aquaculture and shellfisheries (Atkins for the Marine Institute 2011).
- N25 Youghal Bypass, Cork: waterbird impact assessment and EIS (Cork County Council 1999).
- N40 Bloomfield Interchange, Cork: waterbird impact assessment and EIS (Cork City Council 1997).

Survey work

- Passage West, Cork: tidal cycle waterbird counts (Atkins 2023-2024).
- Shannon Flood Relief Scheme, Clare: tidal cycle waterbird counts and breeding waterbird surveys (RPS 2022-2024).
- Carrigtwohill, Cork: field-feeding waterbird survey (Atkins 2022-2023).

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- Galway Harbour, Galway: design and management of vantage point waterbird surveys (Galway Harbour Company 2022-2023).
- Little Island, Cork: tidal cycle waterbird counts (Atkins 2022-2023).
- Bantry Harbour, Cork: tidal cycle waterbird counts (JBA 2022-2023).
- Castlemaine Harbour, Kerry: breeding wader surveys (Triturus Environmental 2022-2023).
- Carrigrennan, Cork: tidal cycle waterbird counts (Atkins 2021-2022).
- Whitegate Pier, Cork: waterbird disturbance studies (O'Brien Architects 2021).
- Monkstown Creek and East Passage Channel, Cork: tidal cycle waterbird counts (Cork County Council 2021).
- Tivoli Docks, Cork: tidal cycle waterbird counts (RPS 2021-2023).
- Dungarvan Harbour, Waterford: waterbird disturbance studies (Atkins for the Marine Institute 2020-2022).
- Passage Railway Greenway, Cork Harbour: tidal cycle waterbird counts (RPS 2020-2021).
- Ballyteige Burrow, Wexford: Lesser Black-backed Gull survey (Atkins for the Marine Institute 2020).
- Inisfree LNG project, Corkbeg, Cork: vantage point waterbird surveys (Arup 2019-2020).
- Aghada Generating Station, Cork: vantage point waterbird surveys (Eleanor Mayes for ESBI 2018-2019).
- Whitegate Refinery additional tankage project, Cork: tidal cycle waterbird counts (Arup 2018).
- Slatty Water, Cork: tidal cycle waterbird counts (Cunnane Stratton Reynolds 2018).
- Whitegate Bay, Cork: tidal cycle waterbird counts (Arup 2018).
- Dungarvan Harbour, Waterford: tidal cycle monitoring of waterbird distribution in relation to aquaculture (Atkins for the Marine Institute 2014-2022).
- M28 upgrade scheme, Lough Beg, Cork: surveys of field feeding waders (RPS 2015-2016).
- Carcur Park housing development, Wexford: low tide waterbird counts (William Neville & Sons 2015-16).
- Big Meadow, Westmeath: breeding wader survey (Waterways Ireland 2015).
- Harper's Island Wetlands, Cork: tidal cycle waterbird counts (BirdWatch Ireland 2014).
- Saleen Creek, Rostellan Lake, Aghada and Whitegate Bay I-WeBS counts (2011-2024).
- Co-ordinator of Cork Harbour I-WeBS counts (2002-2024).
- Glounthaune Estuary / Slatty Water I-WeBS counts (1996-2024).
- Douglas Estuary, Cork: tidal cycle waterbird counts (Cork City Council 1996-1997).
- Surveys of breeding Common Scoters and terns (BirdWatch Ireland 1995-1997).
- Youghal Harbour, Cork / Waterford: tidal cycle waterbird counts (Cork County Council 1995).

Other

- Shannon Estuary waterbird survey: data analysis and reporting (MKO 2018-2019).
- Literature review of pedestrian disturbance to waterbirds (Atkins 2014).
- Youghal Wastewater Treatment Plant, Cork: review of the potential impacts of nutrient reductions on waterbird populations (Atkins 2013).
- Design, co-ordination and analysis of research into the effects of intertidal oyster cultivation on waterbird distribution at Donegal Bay (Atkins for the Marine Institute 2012-2013).
- Monitoring the impact of cockle dredging on the spatial dynamics and feeding behaviour of the Dundalk Bay Oystercatcher population (Atkins for the Marine Institute 2011-2015).
- Design, co-ordination and analysis of research into the effects of intertidal oyster cultivation on waterbird distribution, including an extensive study across six sites and an intensive study in one site (Atkins for the Marine Institute 2011-2012)
- Monitoring of waterbird distribution in relation to aquaculture at Castlemaine Harbour (Atkins for the Marine Institute 2010-2013).

OTHER ORNITHOLOGICAL PROJECT EXPERIENCE

- Enniskillen Bypass, Fermanagh: general breeding bird, Barn Owl and Kingfisher surveys (Atkins 2016-2017).
- Teaching bird survey methods to the MSc in Ecological Assessment courses at UCC (2014-2016).
- Bird surveys of sections of the Grand and Royal Canals (Waterways Ireland 2014).
- Summer and winter bird surveys of seven Offaly settlements (Offaly Community Forum 2013).
- Ornithological review of the Article 6 Assessment of Fisheries in the Irish Sea (Atkins for the Marine Institute 2013).
- Galway Bay Salmon Farm project: risk assessment of potential impacts to seabird populations (Atkins for the Marine Institute 2012).
- Point count surveys of forest breeding birds (BIOPLAN project, UCC 2010-2011).

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- VP surveys for the Ballyvouskill powerline project (TOBIN 2010).
- Annual breeding bird surveys of an industrial site in Ringaskiddy, Co. Cork (Novartis / Sterling Pharma 2006-2024).
- Bird survey of N28 Cork-Ringaskiddy road scheme (Halcrow Barry 2006).
- Point count surveys of forest breeding birds (BIOFOREST project, UCC 2002-2005).
- Breeding bird surveys of river corridors for ecological assessments of flood relief schemes (RPS Group 1996-1997).
- Point count surveys of suburban bird populations (London Ecology Unit 1989).
- Surveys of montane forest birds in St. Vincent, West Indies (1988).

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