Tidal Ventures Ltd

Torr Head Tidal Energy Array
EIA Scoping Report

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TIDAL VENTURES LTD
TORR HEAD TIDAL ENERGY ARRAY
ENVIRONMENTAL IMPACT ASSESSMENT
SCOPING REPORT

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Abbreviations

AA – Appropriate Assessment

AFBI – Agri-Food & Biosciences Institute

ANIFPO – Anglo Northern Ireland Fish Producers Organisation

BTO – British Trust for Ornithology

CEDaR – Centre for Environmental Data and Recording

CEFAS – Centre for Environment, Fisheries & Aquaculture Science

CNCC – Council for Nature Conservation & Countryside

DARD – Department of Agriculture & Rural Development

DCAL – Department of Culture Arts and Leisure

DECC – Department of Energy and Climate Change

DETINI – Department of Enterprise, Trade and Investment Northern Ireland

EEA – European Environment Agency

EIA – Environmental Impact Assessment

GHG – Greenhouse Gas

HRA – Habitats Regulation Assessment

JNCC – Joint Nature Conservation Committee

MLA – Member of Legislative Assembly

MP – Member of Parliament

NCLFA – North Coast Lobster Fishermen's Association

NI – Northern Ireland

NIE – Northern Ireland Electricity

NIEA – Northern Ireland Environment Agency

NIFPO – Northern Ireland Fish Producers Organisation

NIRSG – Northern Ireland Raptor Study Group

NISFA – Northern Ireland Scallop Fisherman's Association

NISRA – Northern Ireland Statistics and Research Agency

RNLI – Royal National Lifeboat Institution

RSPB – Royal Society for the Protection of Birds

SONI – System Operator Northern Ireland

TCE – The Crown Estate

TVL – Tidal Ventures Ltd

NWRWMG – North West Region Waste Management Group

1.0 INTRODUCTION

Tidal Ventures Ltd (hereafter referred to as TVL), is a joint venture between Bord Gáis Energy and OpenHydro Technology Ltd. TVL has appointed RPS to carry out an Environmental Impact Assessment (EIA) Scoping exercise for their proposal to develop a commercial scale 100MW tidal energy array in the waters offshore of Torr Head, located on the north coast of County Antrim in Northern Ireland.

In October 2012, TVL was awarded an Agreement for Lease (AfL) from The Crown Estate (TCE) to investigate the development of the tidal energy project in Northern Irish waters. The award was made as part of Northern Ireland's Offshore Renewable Energy Strategic Action Plan (ORESAP) and was the result of a competitive tender process.

This EIA Scoping study introduces the proposed development, defines the location and extent of works, identifies the key environmental issues and receptors in the vicinity, the potential impacts of the proposal, and identifies the likely environmental studies that are required to inform the full EIA.

This environmental Scoping study is based on information gathered through the following:

- Existing databases (e.g. Northern Ireland Environment Agency (NIEA) Natural Heritage and Built Heritage Databases);
- Consultation with stakeholders;
- Relevant mapping (LPSNI mapping and Admiralty Charts); and
- Available reports, books and other published literature.

1.1 Renewable Energy Requirements in the EU and UK

In 2009 the European Union (EU) set dual objectives under the Renewable Energy Directive (2009/28/EC) to promote the use of renewable energy to increase the security of energy supply and also reduce the level of greenhouse gas (GHG) emissions. Under this Directive the EU set targets of 20% of final energy consumption (including heating, transport and electricity) to come from renewable energy sources. All across the UK action is being taken to increase the contribution of renewable energy sources from 1.5% in 2005 to 15% by 2020 in response to commitments to the renewable energy directive (DECC, 2010). To achieve this goal the UK Government has estimated that at least 30-40% of electricity will need to come from renewable sources if the overall target of 15% for all sources is to be met (DECC,

2011). This is being implemented within the UK through the Climate Change Act 2008, the UK Energy Acts (and upcoming Energy Bill) and the UK Renewable Energy Strategy.

1.2 Renewable Energy in Northern Ireland

In response to the EU Renewable Energy Directive (2009/28/EC) the Strategic Energy Framework for Northern Ireland (SEF) was published in 2010 and set a target of 40% of electrical consumption from renewable energy by 2020. DETI's (Department of Enterprise, Trade and Investment Northern Ireland) interim target was for renewable energy to generate 12% of Northern Ireland's energy requirement by 2012, with 15% of that 12% being produced from non-wind sources (DETI, 2011). At present the main renewable electricity target for Northern Ireland is through onshore wind but it is hoped that the development of offshore renewables (wind and marine) will allow for further contribution to the 2020 targets and beyond (DECC, 2011). In order to develop the potential for offshore renewables, DETI has prepared an offshore wind and marine renewable energy Strategic Action Plan (SAP). The overall objective of this plan is to optimise the amount of renewable electricity generated from offshore wind and marine renewable resources in Northern Ireland's waters in order to enhance diversity, security of supply and reduce carbon emissions whilst taking into account the protection of the environment and the needs and interests of other users (DETI, 2009).

Northern Ireland's energy supply remains dependant on fossil fuels with an estimated 94% being sourced from imported coal and gas (DETI, 2008). This over reliance on gas and coal combined with volatile fuel costs and projected growth in energy demands may impact the security of supply and the environment in terms of carbon emissions (EEA, 2008). The UK and the Island of Ireland have a wealth of renewable energy resources in the form of wind, wave and tidal, which if successfully developed could make a major contribution towards economic growth and meeting renewable energy targets both locally and globally (DECC, 2011).

1.3 Crown Estate Leasing

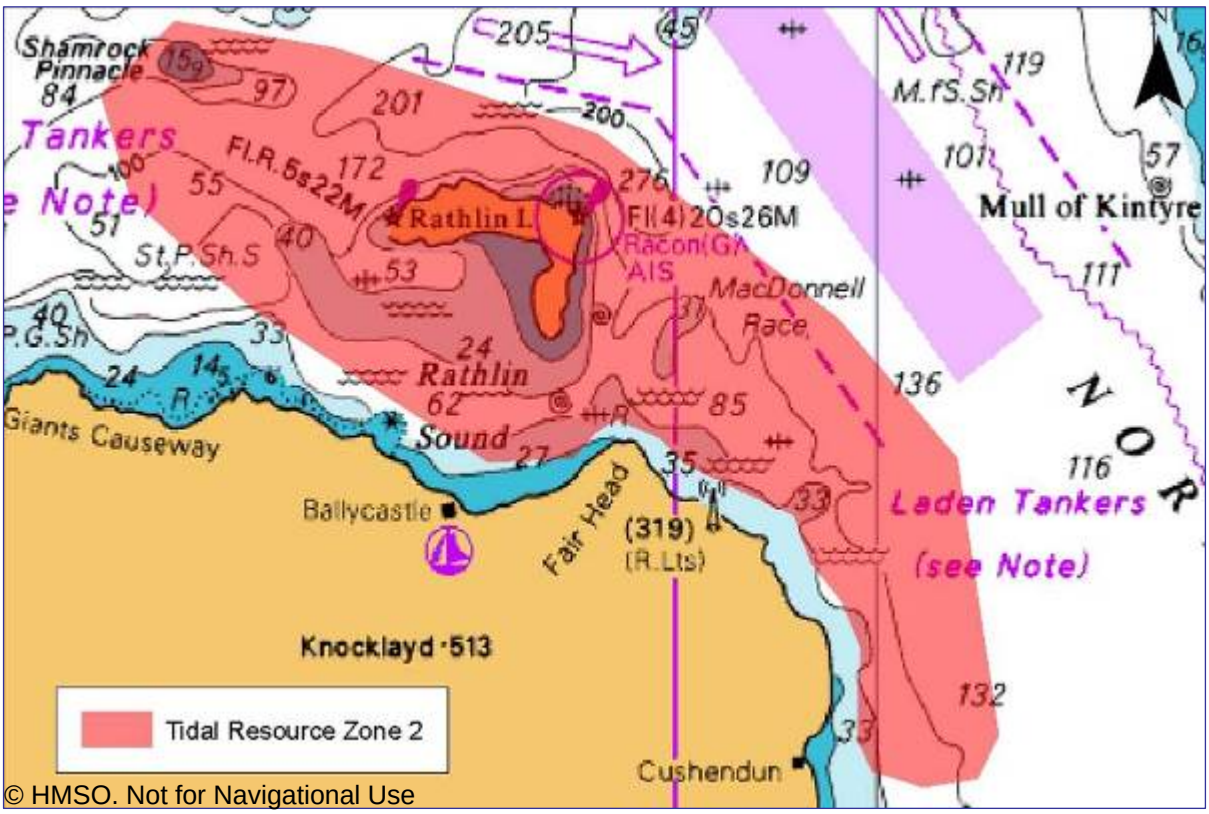
TCE's property portfolio includes the whole of the UK seabed extending to the 12 nautical mile territorial limit and the rights to explore and exploit the natural resources of the continental shelf with the exception of oil, coal and gas. Under the Energy Act 2004, TCE has the right to license the generation of renewable energy on the continental shelf within the Renewable Energy Zone out to 200 nautical miles (House of Commons Treasury Committee, 2010). In December 2011 TCE launched the offshore wind and tidal stream leasing rounds to select developers to take forward up to 800 MW of projects in Northern Ireland waters. The

Rathlin Island and Torr Head Strategic Area, which is a single tidal stream area of up to 200 MW capacity, was offered to developers for delivery of multiple projects and applications were invited for projects for a range of sizes up to 100 MW.

TCE lease area, Tidal Resource Zone 2 – Rathlin Island and Torr Head, has been established as the area from approximately 11km North West of Rathlin Island, offshore of the Shamrock Pinnacle, to 7km offshore of Cushendun Bay, as shown in **Figure 1.1**. This area was initially identified in early strategic studies as having a viable tidal energy resource and was further delineated in the Strategic Environmental Assessment (SEA) of Offshore Wind and Marine Renewable Energy in Northern Ireland (DETI, 2009) and the Regional Locational Guidance (RLG) for Offshore Renewable Energy Developments in NI Waters (DETI, 2011a).

In summary, there is a requirement set by the EU that member states are to reduce GHG emissions by using energy from renewable sources. DETI implemented this requirement into Northern Ireland law and provided guidance on the most likely locations for the renewable energy to be generated within Northern Ireland. For the offshore areas identified TCE provided the opportunity for developers to lease sites for potential renewable energy generation.

Figure 1.1 Tidal Resource Zone 2



1.4 Site Definition

Through initial investigations TVL identified the tidal energy levels within Resource Zone 2 as potentially being suitable for their proposals. This initial site selection involved computational modelling of Resource Zone 2 to define areas of viable tidal energy levels, which, combined with detailed bathymetry data, provided a suitable operational envelope for a tidal energy array. In summary, the requirements were a minimum tidal energy of 2.28kWhr/m^2 and a water depth of -35m to -75m (LAT). From this output, TVL selected an area offshore of Torr Head on the County Antrim coast between Fair Head and Torr Head as their preferred area of search**.**

TVL appointed RPS to undertake preliminary coastal process modelling and environmental constraint modelling to assist the site selection process. This highlighted the area offshore of Torr Head as being the most suitable for further investigation by TVL. An application was subsequently made by TVL to TCE for this area. In October 2012, TVL was awarded an Agreement for Lease (AfL) from TCE to investigate the development of the tidal energy project in Northern Irish waters.

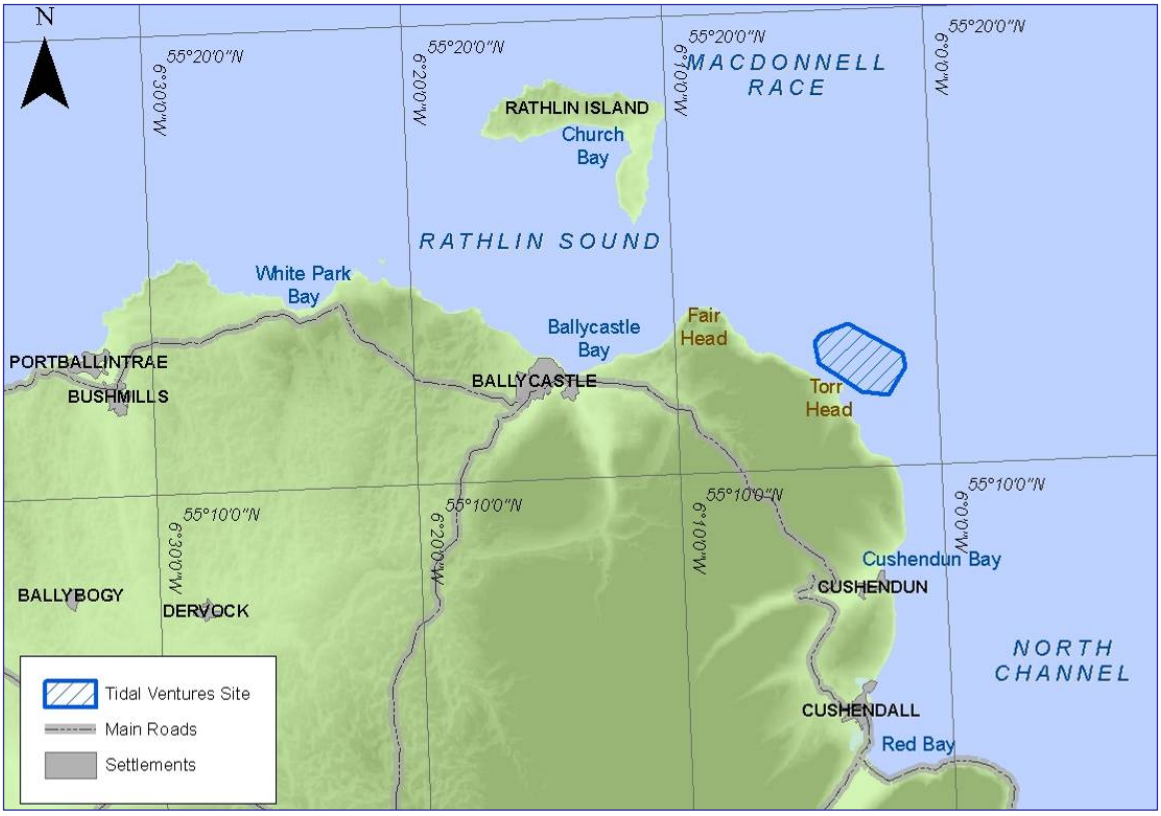
1.5 Project Location

The TVL lease area is shown in **Figure 1.2**. (Refer to Appendix A for A3 drawings of the site location.) Water depths within the lease area range from approximately -30m to -100m (LAT), however for turbine deployment TVL are likely to utilise areas in water depths of -35m to -75m (LAT).

The proposed development will consist of the following:

- Onshore assembly of the tidal turbines (potentially 50 – 100 devices) at a suitable dockside facility;
- Transportation of the turbines offshore via marine plant to the proposed development site area;
- Deployment of the turbines to the seabed using marine plant;
- Interconnection of the turbines via electrical cabling to an onshore electrical substation; and
- Construction of the onshore substation and electrical connection from substation to grid via overhead or underground lines.

Figure 1.2 TVL Agreement for Lease (AfL) Area – Offshore of Torr Head

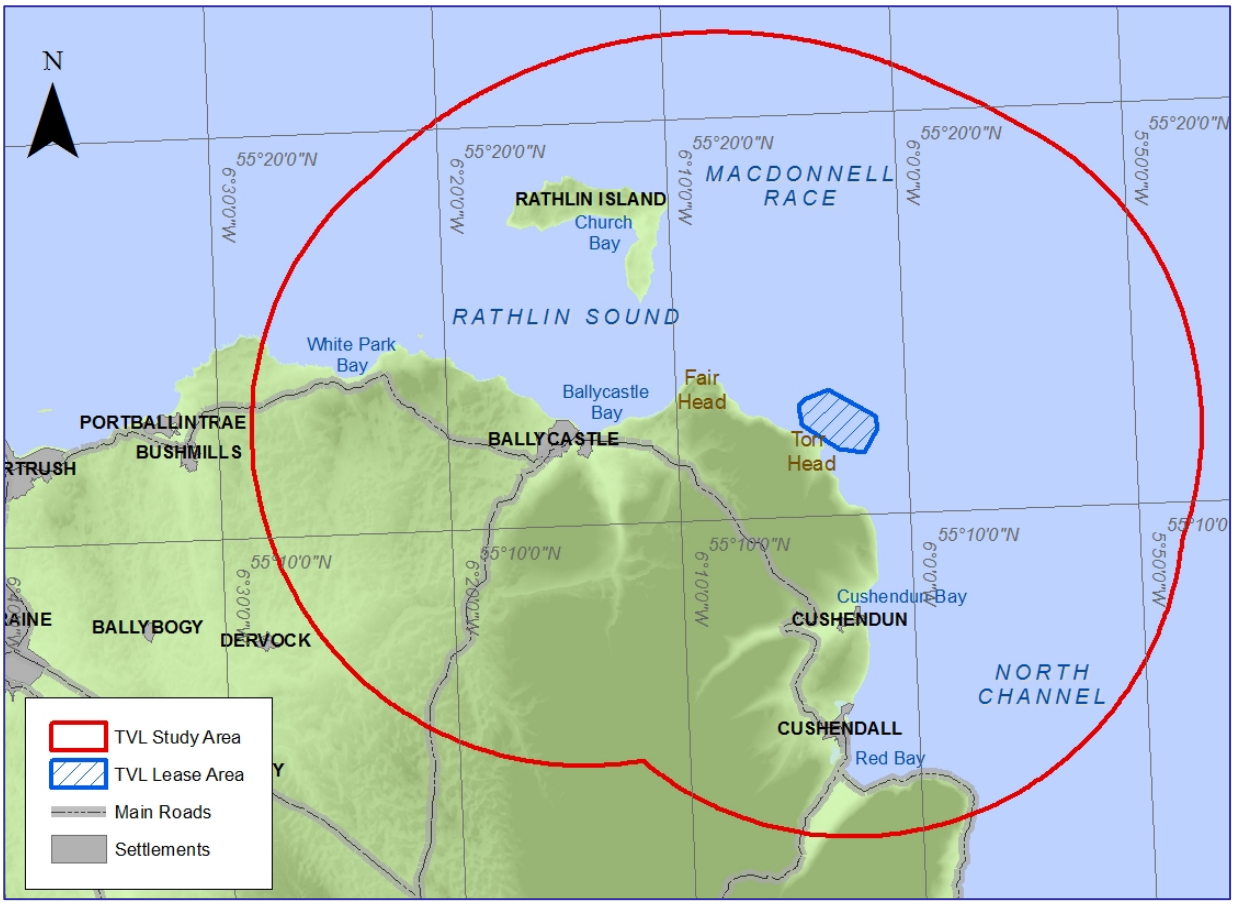


As the project will require electrical cabling to shore to allow for the connection of the proposed development to the existing electrical transmission network the proposal has the potential for environmental impacts outside of the lease area and consequently the study area must incorporate a wider region than the lease area. Therefore the study area considered in this Scoping Assessment includes the lease area, potential subsea cable routes to shore (identified through TCE Lease Application process), nearby cable landfall sites (identified through TCE Lease Application process, the DETI Offshore Energy Strategic Environmental Assessment (SEA) (DETI, 2009) and the Regional Locational Guidance (RLG) for Offshore Renewable Energy Developments in NI Waters (DETI, 2011a)), and routes of the nearest 33kV transmission lines/substations (located at Ballycastle), all buffered by 15km.

Figure 1.3 demonstrates the resulting study area for this EIA Scoping Assessment. The 15km buffer distance is selected to provide a reasonable assessment of all potential environmental impacts of the proposal based on UK and Irish Guidelines for Habitats Regulation Assessment (HRA). The final study area for the EIA will depend on the final extent of the development proposal and on the outcome of consultations with NIEA,

Department of Environment (DoE) Marine Division, DoE Planning Northern Ireland (NI) and DETI.

Figure 1.3 TVL Torr Head EIA Scoping - Study Area



1.6 Consultation

Following receipt of the AfL from TCE, TVL have been in consultation with various statutory and non-statutory consultees. **Table 1.1** demonstrates the range of consultation meetings that have taken place to date.

Table 1.1 Consultation Meetings

Consultee	Meeting Date
The Crown Estate (TCE)	October 2012
System Operator Northern Ireland (SONI)	October 2012
Northern Ireland Electricity (NIE)	October 2012
Department of Enterprise, Trade & Investment (DETI)	October 2012 November 2012
Northern Ireland Environment Agency (NIEA)	October 2012 November 2012
Department of Environment - Marine Division	October 2012 November 2012 January 2013
Department of Agriculture & Rural Development (DARD)	October 2012 November 2012
Department of Environment - Planning Division	October 2012
Rathlin Island Ferry Service	November 2012
Agri-Food & Biosciences Institute (AFBI)	November 2012
Torr Head Salmon Fishery	November 2012 April 2013
Moyle District Council Harbour Master	November 2012 December 2012
Department of Culture, Arts & Leisure	November 2012
Rathlin Fishermen	November 2012
North Coast Lobster Fishermen's Association (NCLFA)	November 2012
Northern Ireland Fish Producers Organisation (NIFPO)	November 2012
Northern Ireland Scallop Fisherman's Association (NISFA)	November 2012
Anglo Northern Ireland Fish Producers Organisation (ANIFPO)	November 2012 April 2013
East Antrim MLA	November 2012
Royal Society for the Protection of Birds (RSPB)	December 2012
Red Bay Boats	December 2012
Causeway Coast and Glens Heritage Trust	December 2012
Royal National Lifeboat Institution (RNLI)	December 2012
Aquaholics	December 2012
Rathlin Development and Community Association	December 2012
Moyle District Council	December 2012 January 2013
Council for Nature Conservation & Countryside (CNCC)	January 2013
National Trust	January 2013
Ballycastle Community Group	January 2013
East Londonderry MLAs	January 2013 March 2013
Green Party	March 2013
Irish Federation of Sea Anglers	April 2013
Northern Ireland Environment Link	May 2013
Friends of the Earth	May 2013

In addition to the consultee meetings being undertaken by TVL, RPS distributed a Request for Information letter in February 2013, containing an outline scope of works, to an extensive list of consultees and stakeholders. Submissions made in response to these letters have

been incorporated, where appropriate, into this Scoping Report and for completeness all of the responses received to date have been included in **Appendix D**.

Table 1.2 EIA Scoping - Request for Information Letter Recipients

Agri-Food & Biosciences Institute (AFBI)	Loughs Agency	Seatons Marina
ANIFPO (Anglo Northern Ireland Fish Producers Organisation)	M.A.G Marine	Sustainable NI
Aquaculture Initiative	Marine Conservation Society in Scotland	Systems Operator for Northern Ireland (SONI)
Aquaholics Dive School	Marine Scotland	The Crown Estate (TCE)
Argyll & Bute Council	Maritime and Coastguard Agency	The Wildfowl and Wetlands Trust
Ballycastle Harbour/Marina	Ministry of Defence	Torr Head Harbour (Portaleen Harbour)
Ballymena Borough Council	Moyle District Council - Chief Executive	Ulster Farmers' Union
Bangor Marina	Moyle Interconnector	Ulster Provincial Council, Irish Federation of Sea Anglers
Belfast Harbour Commissioners	Moyle District Council - Director of Technical Services	Ulster Wildlife Trust
Canoe Association NI	Moyle Sea Angling Club	Waterways Ireland
Causeway Coast and Glens Heritage Trust	National Federation of Fishermen's Organisations	WWF Northern Ireland
CEFAS	National Trust	Green Party
Centre for Maritime Archaeology	NI Environment Link	Mr Sammy Wilson. MP (E.Antrim)
Civil Aviation Authority	NI Marine Taskforce	Mr Ian Paisley Jnr. MP (N. Antrim)
Coleraine Borough Council - Chief Executive	North Coast Lobster Fishermen's Association	Mr Gregory Campbell MP (E.Londonderry)
Coleraine Harbour Commissioners	North East Coast Lobster Fisherman’s Association	Cllr. Joan Baird
Coleraine Marina	Northern Ireland Agricultural Producers' Association	Cllr. Seamus Blaney
Commissioners of Irish Lights	Northern Ireland Electricity (NIE)	Cllr. Donal Cunningham
Council for Nature Conservation and the Countryside	Northern Ireland Environment Agency (NIEA) – Natural Heritage	Cllr. Noreen McAllister

Cushendall Sailing & Boating Club	Northern Ireland Environment Agency – Biodiversity	Cllr. Catherine McCambridge
Department of Agriculture & Rural Development (DARD)	Northern Ireland Environment Agency – Pollution Prevention	Cllr. Randal Daniel McDonnell
Defence Estates	Northern Ireland Environment Agency – Water	Cllr. Willie Graham
Department for Regional Development (Air and Seaports)	Northern Ireland Environment Agency – Conservation Designation and Protection	Cllr. Sandra Hunter
Department for Regional Development (Roads) Northern Division	Northern Ireland Environment Agency - Industrial Pollution and Radiochemical Inspectorate	Cllr. Davy McAllister
Department of Culture, Arts and Leisure (DCAL)	Northern Ireland Environment Agency – Central Contact	Mr Chris Burns
Department of Enterprise, Trade & Investment (DETI)	Northern Ireland Federation of Sub Aqua Clubs	Ms Helen Kirk
Department of Environmental Science – University of Ulster	Northern Ireland Fire and Rescue Service	Mr David McIlveen (MLA)
Department of Environmental Science – Queens University	Northern Ireland Fish Producers Organisation (NIFPO)	Mr Daithi McKay (MLA)
Department of Health, Social Services & Public Safety	Northern Ireland Fishery Harbour Authority	Mr Jim Allister (MLA)
Department of the Environment – Planning Service	Northern Ireland Housing Executive	Mr Mervyn Storey (MLA)
Department of the Environment – Marine Division	Northern Ireland Scallop Fisherman's Association	Mr Robin Swann (MLA)
Department of the Environment – Roads	Northern Ireland Tourist Board	Mr Paul Frew (MLA)
Frazer McConnell – NI Agent for the Crown Estate	Northern Ireland Water	Cllr. Cara McShane
Friends of the Earth Northern Ireland	Portrush Harbour	Cllr. Padraig McShane
Geological Survey Northern Ireland (GSNI)	Rathlin Development and Community Association	Cllr. Colum Thompson
Health and Safety Executive	Rathlin Island Ferry Service	Cllr. Margaret McKillop
HM Coastguard Coleraine (North Coast)	Red Bay Boats Ltd	Cllr. Noreen McAllister
Irish Federation of Sea Anglers	Rivers Agency	Cllr. Robert McIlroy
Irish Surfing Association	RNLI Portrush	Cllr. Sharon McKillop
Irish Whale & Dolphin Group	Royal Yachting Association NI	ANIFPO (Anglo Northern Ireland Fish Producers Organisation)
Joint Nature Conservation Committee (JNCC)	Royal Society for the Protection of Birds (RSPB) Northern Ireland	Mr Oliver McMullan (MLA)

Larne Borough Council	Sea Mammal Research Unit	Marine Conservation Northern Ireland
Larne Harbour Authority	Seafood Industry Authority	DP Energy Ireland Ltd
Londonderry Port and Harbour Commission	Seasearch Northern Ireland	

2.0 DESCRIPTION OF THE PROJECT

2.1 Project Description

2.1.1 Tidal Energy

Tidal energy is a form of renewable energy that has the potential to provide safe and clean power to local communities and businesses in a way that is efficient and sensitive to the environment.

2.1.1.1 How does it work?

Tidal streams are created by the constantly changing gravitational pull of the moon and sun on the world's oceans. Tides never stop, with water moving first one way, then the other, the world over. In certain areas geographic features such as headlands or channels serve to accelerate this movement of water. Since the relative positions of the sun and moon can be predicted with complete accuracy, so can the resultant tide and the electricity it can generate. It is this predictability that makes tidal energy such a valuable resource.

The development of the Torr Head Tidal array will be approximately an eight year project and is the first of its kind in and around the island of Ireland. The turbines will be fully submerged, making them silent and invisible. The project will have the capacity to power more than 75,000 homes in Northern Ireland and is expected to be completed by 2020.

2.1.1.2 What are the benefits?

TVL believe the ultimate renewable solution will depend on a blend of renewable technologies such as tidal, wind, wave and solar working together. Tidal energy will play a significant part in this mix given the predictable nature of the energy and the size of the resource. The particular benefits of tidal energy include:

- Energy is produced from a resource that is entirely predictable
- Tidal turbines are located beneath the ocean surface and cannot be seen or heard, allowing for adequate clearance above the tidal energy array to avoid navigational traffic.

- Water is 830 times denser than air meaning that, for a given electricity output, tidal turbines can be much smaller than equivalent wind turbines

2.1.2 Tidal Technology

The exact turbine type for the site has yet to be decided, but the OpenHydro turbine is what TVL have based their proposal on. It is anticipated that the OpenHydro turbine be used if proven to be the most technically and commercially viable for the site. The proposed turbine design, location, configuration of the array, subsea cable routes and cable landfall will be determined following detailed site analysis of the TVL AfL area. This will include survey works to investigate the baseline conditions of the proposed site. It is anticipated that the tidal turbine devices will be fully submerged reducing the impacts on seascape and collision risk as well as reducing navigational hazard. The foundation type will be subject to detailed engineering analysis and environmental considerations in order to identify optimum turbine locations. Where details of the proposed development cannot be finalised ahead of the submission of the ES, a project envelope approach will be applied.

2.1.3 Scoping

The scoping stage is one of the earliest in project development, which can make it difficult to confirm detailed design parameters such as turbine type, array layout, electrical infrastructure and grid connection. It is therefore critical that sufficient flexibility is permitted in the application process to allow developers to specify a “project envelope” i.e. a range of design parameters that will be presented as the project description and refined as the consent application and EIA process is developed. This enables the project to develop as more detailed information is gathered about the proposed site and associated impacts.

When consenting tidal projects in the Pentland Firth, Marine Scotland have acknowledged *that ‘the EIA process is on-going and iterative and it is not unreasonable for a scheme to evolve from pre-application stage, over time and in response to the assessment process.’*

2.1.4 Project Envelope

The project envelope approach is typically used for both the onshore and offshore elements of tidal energy projects, especially where there are valid reasons why the full details of the entire project are not available when an application for consent is submitted. Such an approach has been used under other consenting regimes in the UK (e.g. the Town and

Country Planning Act 1990, the Town and Country Planning (Scotland) Act 1997 and the Electricity Act 1989) where an application has been made at a time when the full details of a project cannot be confirmed.

Applying the project envelope approach to the planning application process for tidal developments allows for evolution of specific elements of the design, such as turbine technology, site design, layout and electrical infrastructure, following the submission of the consent application. This flexibility is important because of the stage of development in the tidal technology industry i.e. it mitigates the risk that a specific technology might become unavailable or is superseded by the time of construction.

For the reasons set out above, a project envelope approach is proposed for the TVL project and the following design parameters have been identified for the purposes of the scoping assessment. The environmental impact assessment process will take account of the envelope approach, within these parameters, and will reflect the likely significant effects of such in the ES.

1. **Rotor Diameter & Turbine Rating**

Based on our current understanding of the AfL area and of the technology available, devices with a rotor diameter of up to 21m and capable of generating at least 1MW will be considered for installation.

2. **Blade Geometry**

The turbines proposed will be Bi-directional Horizontal Axis Turbines (HAT) that can be either shrouded or un-shrouded. The bi-directionality ensures that the turbine can extract energy in both the ebb and flood flow directions. The design of un-shrouded HAT resembles that of wind turbines with blades rotating around a central nacelle. Devices typically have two or more blades which may be of fixed or variable pitch. A shrouded HAT is enclosed in a venturi shaped duct.

3. **Support Structure**

The foundation type and footprint dimensions will be determined during detailed design analysis and informed by the geophysical and resource assessment surveys. For the potential devices it is assumed that there are a range of potential support structures i.e.

structures which fix or hold devices to the seabed. For the purposes of the EIA, the foundation solutions being considered include the following:

- Weighted gravity based to allow the device to sit on the sea floor;
- Fixed to the sea floor using drilled pins; and
- Piled or drilled.

4. Array Layout & Spacing

The location, spread and layout of devices and infrastructure will be determined through detailed planning, informed by the resource assessment, engineering design, EIA, Marine Navigational Risk Assessment, and stakeholder consultation.

5. Visual & Navigation

It is anticipated that the tidal turbine devices will be fully submerged reducing the impacts on seascape and collision risk as well as reducing navigational hazard.

6. Electrical Infrastructure

Subsea cables will connect the turbines together in an array formation (inter-array cabling) as well as connecting the array to the onshore infrastructure (export cables) via a shore landfall site. As part of the site design process, export cable routes from the tidal array to landfall and any grid connection options will be identified based on technical and environmental criteria as well as through discussions with the system operators and regulatory authorities. All cables would be armoured to protect against abrasion, and where there is a lack of sediment they would be laid directly onto the seabed. In some areas concrete mattresses or a similar form of protection may also be required on top of the cable. In inshore waters and towards landfall points, where there is sufficient sediment, cables may be buried. Selection of offshore cable routes will be dependent on available landfall locations and detailed route analysis.

While the exact connection methodology for the tidal energy array will be determined following engagement with the grid operators and regulatory authorities, it is likely that the connection will have the general form described below:

- Subsea cables to connect the individual turbines;

- Subsea cables may connect to one or more subsea transformer where the voltage will be increased;
- Subsea transformer(s) will likely connect to shore via one or more cables at a voltage of less than 110 kV;
- Onshore cable(s) will likely connect to a near shore substation where the voltage will be increased to 110kV; and
- The existing Northern Ireland electrical grid may be extended to connect the near shore substation.

2.2 Grid Connection

The proposed tidal energy array will be connected to the Northern Ireland electrical grid with voltage, current and frequency that are compatible with those of Northern Ireland electrical grid. At this stage in the development of the TVL project it is not possible to know the exact details of the connection requirements.

TVL have requested a grid connection feasibility study from the Systems Operator for Northern Ireland (SONI) and the Northern Ireland electricity distribution system operator, Northern Ireland Electricity (NIE). This study will consider the existing network capacity and future development scenarios, and will suggest options for the method of grid connection. The findings of this study and directions from the regulatory authorities will inform the Environmental Impact Assessment process.

The onshore elements of the cable route, substation and onshore grid connection will be defined through consultations with NIE, SONI and key stakeholders, and will be influenced by a number of factors including environmental, technical and socio-economic reasons. Key considerations used to identify suitable locations for this infrastructure will include proximity to grid connection, length of both the offshore and onshore cabling, methods of onshore electrical connection, impacts on humans, landscape, nature conservation designations and local amenity.

The technical feasibility of the grid connection is currently being investigated by NIE and SONI. When the available connection points are identified and upon agreement from SONI and NIE, this transmission planning can commence and can be synchronised with the EIA for the TVL proposal.

2.3 Installation and Decommissioning

There are a wide range of installation and decommissioning methodologies currently being trialled in the testing of tidal energy turbines and support structures ranging from the use of custom-built barges, jack-up barges, moored and tugged barges, anchor crane barges to dynamically positioned (DP) heavy lift construction vessels. Potential installation and decommissioning method(s) for the offshore components of the proposed development will be determined through detailed engineering design which will run in parallel with and will be influenced by the EIA process.

The installation phase of the proposed development is anticipated to take place over a number of years. Marine construction activities will take place during the summer and autumn months when weather conditions are favourable and to allow for safe working conditions when working in marine environments. The outcome of the EIA will determine whether there will be any seasonal restrictions associated with undertaking installation activities.

At the end of the project's operational life, forecast at 20 – 25 years, two alternatives will be considered:

- Repower the site using a commercially available technology at the time. This will be subject to securing all necessary permits and consents; or
- Decommission the site in accordance with the relevant legislation.

Under the terms of the Energy Act 2004 a decommissioning scheme for offshore wind, wave and tidal energy installations must be introduced by each developer. The Secretary of State of the DECC may require the developer responsible for any installations to submit (and eventually carry out) a decommissioning programme for the installation.

The offshore elements of the project will be decommissioned in line with the Energy Act 2004. Decommissioning of the tidal energy array will likely be the reverse of the installation procedure. The onshore infrastructure will also be fully decommissioned such that the site is reinstated to its original condition. Hardware removed from the site will be disassembled, and where possible all materials will be recycled. Removal of subsea cables and electrical infrastructure is likely to be a reverse of the laying process for cables that are laid on the seabed. Subject to consent, cables that are buried or trenched to a safe depth in subsea

sediment may be left in place as this may have a lower impact on the environment than their removal.

2.4 Grid Connection

The TVL lease area is approximately 40km at the nearest point from any existing transmission infrastructure in Northern Ireland with the closest 110kV substation being at Coleraine. Historically all such onshore transmission connections into the Grid have been facilitated by SONI through NIE, with the necessary application for 110kV infrastructure and overhead lines being made to DoE Planning by NIE.

Normally the NIE process for undertaking such connections involves a route corridor selection and appraisal process to identify a preferred environmental and technical corridor. This is followed with the completion of an EIA based on a preliminary design traversing this corridor from a starting point near to the lease area, to an existing substation at 110kV or higher.

NIE do not normally progress pre-planning design of a new transmission connection until a generating development has received statutory approvals, in line with their remit and financial approval mechanisms with the Utility Regulator. However in order to assist developers to meet EIA requirements for the generating application, SONI and NIE may facilitate a Rochdale Envelope approach to investigate all physical and planning constraints for a new 110kV transmission connection between the proposed lease area and an existing 110kV station, including a route corridor selection study (to assist with alternatives), and possibly EIA surveys upon the emerging preferred corridor envelope. Thus NIE can assist the generating customer to include sufficient information within the project specific consent applications without falling foul of the requirements of the EIA Directive.

NIE has commenced an investigation into the technical feasibility of providing TVL with a grid connection. Once the available connection points are identified and subject to agreement by SONI and NIE, the transmission planning can be commenced to provide the necessary inputs to the EIA for the TVL proposal.

3.0 PLANNING AND LEGISLATIVE REQUIREMENTS

It is likely that the proposal under consideration will require both terrestrial and marine construction works. For the terrestrial elements of the project, i.e. that located landward of the low water mark, the connecting transmission line/cable route and any associated infrastructure will be subject to the grant of planning permission from the DoE (NI) Planning Service. Planning is governed by the Planning (Northern Ireland) Order 1991. Under Schedule 2 of the Planning (Environmental Impact Assessment) Regulations (NI) 2012, development type 3(c) Energy Industry, "*Transmission of electrical energy by overhead cables; if the normal voltage of the electrical line is more than 33kV; and the purpose of the line is the provision of a supply to more than one consumer; where the modification of an existing line is proposed, it is outside the tolerances specified in the Overhead Lines (Exemption) Regulations (NI) 1992 (SR 1992 No 118)",* the development of a suitable electrical connection to the existing grid is likely to require an EIA. The output of an EIA is an Environmental Statement (ES) which will accompany the planning application.

Below the low water mark the proposals will be subject to Marine Licensing under the Marine and Coastal Access Act 2009. Part 4 of the Marine and Coastal Access Act 2009 introduced the framework for a new marine licensing system for activities carried out in the marine environment. This new framework replaced the previous licensing system set out in Part 2 of the Food and Environmental Protection Act 1985 (FEPA). The 2009 Act has subsequently been supplemented by a suite of subordinate legislation produced by the DoE(NI), including:

- The Marine Licensing (Application Fees) Regulations (Northern Ireland) 2011;
- The Marine licensing (Exempted Activities) Order (Northern Ireland) 2011;
- The Marine Licensing (Register of Licensing Information) Regulations;
- The Marine Licensing (Appeals) Regulations (Northern Ireland) 2011; and
- The Marine Licensing (Civil Sanctions) Order (Northern Ireland) 2011.

The specific activities that require licensing are defined in Section 66 of the 2009 Act and include construction on the sea bed. As a result the current proposals will require a Marine Licence under Part 4 of the Marine and Coastal Access Act 2009. The DoE(NI) Marine Division is the appropriate licensing and enforcement authority for devolved matters within the Northern Ireland "inshore region" as defined in Section 322 of the 2009 Act. When determining Marine Licence applications the Marine Division takes into account the need to

protect the environment, human health and other legitimate users of the sea and in accordance with sustainable development principles and the requirements of national, European and international law.

Under the Marine Works (Environmental Impact Assessment) Regulations 2007 (as amended by the Marine Works (Environmental Impact Assessment) (Amendment) Regulations 2011), any activity that requires a marine licence, that is considered likely to have significant effects on the environment, must conduct an EIA and submit an ES with the application.

The construction and operation of any generating station over 10MW and the transmission of electricity, requires Article 39 consent from DETI (NI) under the Electricity (Northern Ireland) Order 1992. Under Schedule 2, paragraph 1(a), of the Offshore Electricity Development (Environmental Impact Assessment) Regulations (Northern Ireland) 2008, the proposed development will require an ES to be submitted to the DETI with the consent application.

It is envisaged that a single Environmental Statement will be produced to cover all marine and terrestrial aspects of the proposal and that this document will be able to satisfy the requirements of all three regulators, namely DoE Planning, DoE Marine Division and DETI.

As the proposed development area is in close proximity to and has the potential for impacts upon Natura 2000 sites (SACs / SPAs), a Habitats Regulation Assessment (HRA) will be required under the Habitats Directive 92/43/EEC, which is enacted into Northern Ireland legislation through the Conservation (Natural Habitats) Regulations (Northern Ireland) 1995 (SR No. 380 of 1995) and amendments.

The proposal will also require licencing from the Northern Ireland Authority for Utility Regulation (NIAUR) under Article 10(1)(a) and/or Article 10 (1) (b) of the Electricity Order. The grid connection requirements of the proposed development will be determined in collaboration with the grid system operators SONI and NIE as the project progresses.

Throughout the planning, EIA and consenting process TVL will need to be aware of new and upcoming environmental, marine and energy legislation and guidance that has the potential to affect their proposal, as these are constantly evolving legislative area. Examples of upcoming relevant legislation are:

- The Northern Ireland Marine Bill (as currently drafted), which sets out a new framework for Northern Ireland's seas based on: a system of marine planning that will balance conservation, energy and resource needs; improved management for marine nature conservation and the streamlining of marine licensing for electricity projects.
- The Northern Ireland Marine Plan (NIMP) is a marine plan being prepared under Article 51 of the Marine and Coastal Access Act 2009 and equivalent provisions of the Marine Bill (when enacted) by the DoE Marine Plan Team. The Marine Plan aims to achieve better management of marine resources in a sustainable way. The Marine Policy Statement (MPS) published in March 2011 provides the high-level policy context within which all marine plans in the UK will be developed, implemented, monitored, amended and/or withdrawn.
- The Marine Strategy Framework Directive (and its eleven descriptors for "Good Environmental Status", (GES) including hydrographic conditions, noise, biodiversity, etc). The EIA should consider whether the project is likely to affect the achievement of GES for any of the descriptors.

4.0 ENVIRONMENT

The following **Sections 5** to **20** outline the main environmental receptors and environmental baseline information for the study area. The environmental information is grouped by EIA topic area, and within each topic there are proposed recommendations for future studies to inform the EIA and subsequent ES. Within the ES each of the subject areas will be addressed identifying the following:

- Baseline Conditions;
- Sensitive Receptors;
- Potential Impacts, their Magnitude and Significance;
- Direct, Indirect and Cumulative Effects;
- Mitigation Measures, and
- Residual Impacts.

The ES will have to cover all environmental topic areas to satisfy the requirements of the Planning (Environmental Impact Assessment) Regulations (NI) 2012, the Marine Works (Environmental Impact Assessment) (Amendment) Regulations 2011, and the Offshore Electricity Development (Environmental Impact Assessment) Regulations (Northern Ireland) 2008.

Note that for each subject area it is recommended that a review of national, regional and local legislation, policies and guidelines is undertaken within the EIA, supplemental to the information within this Scoping document, as environmental legislation, guidance and policies are continually changing and evolving.

A summary of identified potential environmental impacts is provided in **Section 22**.

5.0 AIR

5.1 Baseline

The study area intersects Moyle District Council, Larne Borough Council and Ballymoney Borough Council and is close to Coleraine Borough Council. There are currently no designated Air Quality Management Areas (AQMA) within Coleraine Borough Council, Moyle District Council or Larne Borough Council areas. Ballymoney Borough Council had previously designated one AQMA for particulate matter (PM_{10}), located north west of

Ballymoney Town, bounded to the east by the railway line, to the north by the A26 and to the west by the B66. This AQMA was however revoked in February 2012. Ballymena District Council has three AQMAs, two being for particulate matter (PM_{10}) and one for nitrogen dioxide (NO_2), however all are well outside the study area. The study area has no significant air quality issues, with low traffic levels and no significant industrial activity, there are few anthropogenic pollution sources. Within the study area the main sources of greenhouse gas emissions and odour emissions would be from agricultural activities.

5.2 Potential Impacts

It is anticipated that the principal impacts upon air quality are likely to arise during terrestrial construction activities i.e. activities associated with the construction of transmission lines/cable routes and substation. This may include impacts in terms of dust & particulate matter (PM_{10} and $PM_{2.5}$), and other minor emissions from construction plant. There is also likely to be increased marine traffic within the study area during the construction phase of the proposed development; however the air emission impacts from this are likely to be temporary and insignificant.

If the transmission of electricity as part of the proposed development is via transmission lines there is the potential for ozone generation to occur in the immediate vicinity of the lines via corona discharge. This is however unlikely to cause any significant increases in atmospheric ozone levels.

The operation of the tidal energy array will not result in the release of air pollution emissions to the atmosphere. It will help to create a net reduction in national air emissions, as operation of the array will lessen the requirement for gas and coal power stations in Northern Ireland to burn fossil fuels to create electricity. Given the current understanding of the site, the project has the capacity to generate 100MW of energy, which is enough to power over 75,000 homes in Northern Ireland. The potential emissions offset by this proposal will be calculated within the ES to demonstrate the positive impacts of the tidal energy array.

There are unlikely to be any increases in air emissions from traffic during the operation of the tidal energy array and the associated onshore infrastructure, although periodic episodes of maintenance may be required which may involve the use of construction plant, which has the potential for temporary generation of emissions.

5.3 Recommendations

An Air Quality Assessment (AQA) may be required for the traffic associated with the terrestrial construction activity for the proposal, as the likely low baseline levels of traffic in the area means an introduction of even relatively low levels of Heavy Goods Vehicles (HGVs) may cause a significant increase in HGV traffic. The Design Manual for Roads and Bridges (Highways Agency, 2010) recommends an air quality screening takes place if the Annual Average Daily Traffic for a road, or the number of HGVs using a road, increases by more than 10%. The decision on the need for an air quality assessment will be the responsibility of the local council(s). A dust management plan may be required as part of the construction and environmental management plan for the proposal.

6.0 CLIMATE

6.1 Baseline

The climate of the north Antrim coast is a maritime climate, with cool summers and mild winters. The proposed development is unlikely to cause or contribute to climate change; however its operation will create renewable energy, which in turn will mean a reduced requirement for burning fossil fuels to create electricity. This in turn means reduced emissions of GHGs which are believed to be a contributor to increased rates of global warming. It is estimated that energy generation contributes approximately 25% of our GHG emissions in Northern Ireland (EHS, 2008). The proposed development has the capacity to generate 100MW of energy, which is enough to power over 75,000 homes in Northern Ireland.

6.2 Potential Impacts

The proposal is unlikely to have significant negative impacts on climate, however will have to be designed to take into account predicted climatic changes through potential rises in sea level and the increased frequency of stormy weather. This will be assessed in the coastal processes and water (drainage) sections of the ES and will depend upon the proposed location of infrastructure, whether fluvial, pluvial and/or coastal flooding assessments are required.

6.3 Recommendations

The reductions in national GHG emissions due to the operation of the tidal energy array should be calculated in the ES for the lifetime of the project. The design of the tidal energy array, subsea cabling and onshore infrastructure will need to allow for potential climatic changes, such as sea level rises and increased rainfall intensity.

7.0 CULTURAL, ARCHITECTURAL AND ARCHAEOLOGICAL HERITAGE

7.1 Baseline

Within the study area there are numerous known cultural, architectural and archaeological heritage designations, as shown in **Figure 7.1**. There are 180 known shipwrecks within the study area and 3 within the lease area. Confirmed shipwrecks in the vicinity of Torr Head are The Helen & Agnes (1816), Unknown (1854), The Taymouth Castle (1867), The Seileren (1915), The Grateful (1916), The Maja (1917), The Irishman (1925), and the Saint Ronaig (1955) (Irish Shipwrecks, 2013 & Irish Wrecks, 2013). Some of these shipwrecks may be protected under The Protection of Wrecks Act (1973).

There are approximately 309 industrial heritage features, 1,348 registered sites and monuments, 110 scheduled zones (protection areas around scheduled monuments), 4 historic parks and gardens and 338 listed buildings within the study area. There are too many of these heritage designations to be shown adequately in **Figure 7.1**, therefore only the designated areas are presented. These various heritage designations are protected under the following legislation in Northern Ireland:

- Sites and Monuments - The Historic Monuments and Archaeological Objects (NI) Order 1995;
- Historic Buildings - The Planning (NI) Order 1991;
- Maritime Sites - The Protection of Wrecks Act (1973).

7.2 Potential Impacts

Marine studies and investigations in planning for the proposal, such as Acoustic Doppler Profiler (ADP) deployment or geophysical surveys, and the marine installation activities for the array (e.g. tidal turbine placement, vessel anchoring, cable laying etc) have the potential

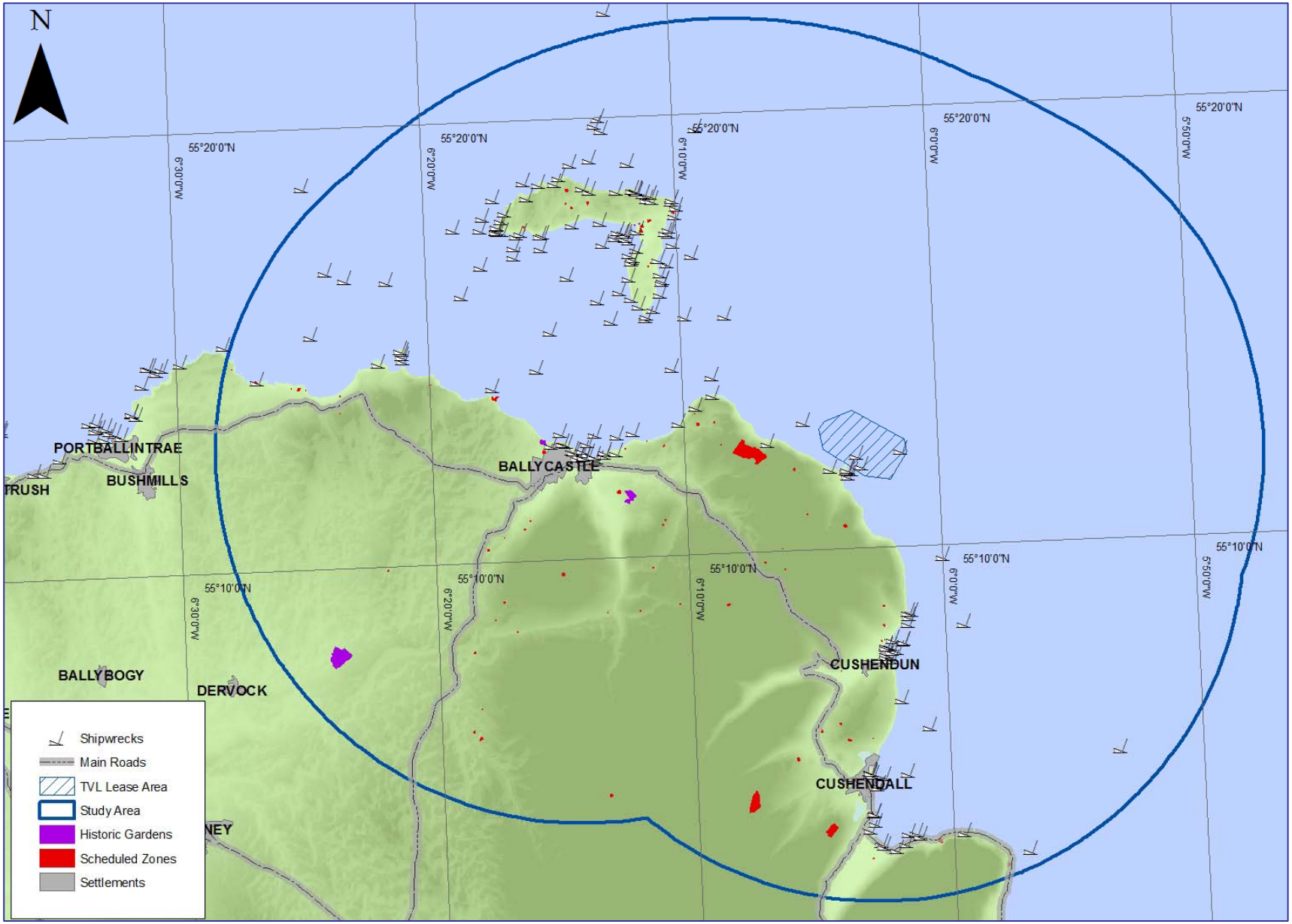
to impact upon submerged heritage features (known and unknown). Operation of the tidal energy array is unlikely to have significant impacts on offshore heritage, unless there are significant changes in coastal processes due to the tidal energy array (e.g. sediment transport and deposition), which impact upon coastal / marine cultural, architectural or archaeological heritage features.

The construction of any onshore transmission line/cable route and substation has the potential to impact upon known and previously undiscovered heritage features. The operation of onshore facilities is unlikely to have any impacts on heritage features.

7.3 Recommendations

It is recommended that suitably qualified archaeologists undertake all aspects of the cultural, architectural and archaeological heritage assessment. Desk top surveys of the proposals for both the marine and terrestrial components of the project, and consultations with NIEA – Built Heritage are recommended as are walkover surveys of the proposed terrestrial construction areas, e.g. cable landfall areas, transmission lines/cable route and proposed substation locations, to verify the location and conditions of identified heritage features, and to identify the potential for previously undiscovered heritage features. For the marine components of the proposal a review of geophysical survey data gained as part of EIA, should be undertaken to identify potential heritage features (including shipwrecks and prehistoric landscapes) on or beneath the seabed both within the lease area and along or adjacent to any potential marine cable routings. If identified marine heritage features or landscapes cannot be avoided in the planning of the proposal, then subsequent archaeological dive surveys may be required to fully ascertain the potential significance of impacts on submerged heritage features.

Figure 7.1 Shipwrecks, Historic Gardens and Scheduled Zones



8.0 ECOLOGY

8.1 International & European Designations

Figure 8.1 shows the International and European environmental designations within the study area. The main international designation in County Antrim is the United Nations Educational, Scientific and Cultural Organisation (UNESCO) site at the Giants Causeway, which was inscribed as a World Heritage Site (WHS) by the UNESCO in 1986. The Giant's Causeway lies at the foot of the basalt cliffs along the sea coast on the edge of the Antrim plateau in Northern Ireland. It is made up of some 40,000 massive black basalt columns projecting out of the sea. The site is of outstanding universal value and meets two of the criteria set out in the World Heritage Convention, as it is an outstanding example representing major stages of the earth's history, including the record of life, significant on-going geological processes in the development of landforms, significant geomorphic and physiographic features, and it contains superlative natural phenomena areas of exceptional natural beauty and aesthetic importance (EHS, 2005). The Giant's Causeway is located outside of the study area, approximately 25km to the west of the TVL Lease Area and is unlikely to be negatively affected by the proposal.

8.1.1 Special Areas of Conservation - Baseline

There are six Special Areas of Conservation (SAC) that intersect the study area, one of which is a candidate SAC (cSAC) that has been submitted to the EU. SACs are designated under the Habitats Directive (92/43/EEC), and are enacted in Northern Ireland by The Conservation (Natural Habitats) Regulations (Northern Ireland) 1995 (SR No. 380 of 1995) and amendments. These areas contain rare and vulnerable habitats and/or species of European importance. A summary of these SACs with their main qualifying features (annexed habitats and species) is provided in **Table 8.1**. The Natura 2000 data forms for these sites are included in **Appendix B**.

The Rathlin Island SAC (and SPA) and the Red Bay SACs are also OSPAR Marine Protected Areas (MPA), which have been selected as providing good representation of their habitats and/or species. Within OSPAR, MPAs are understood as areas for which protective, conservation, restorative or precautionary measures have been instituted for the purpose of protecting and conserving species, habitats, ecosystems or ecological processes of the marine environment. OSPAR is the mechanism by which fifteen Governments of the western coasts and catchments of Europe, together with the European Community, cooperate to

protect the marine environment of the North-East Atlantic. The main legal protection of the habitat is however still under the Habitats Directive (92/43/EEC).

Table 8.1 SACs located in the Study Area

Name	Code	Description	Distance to Lease Area
Red Bay SAC	UK 0030365	Annex I Habitats: (1110) Sandbanks which are slightly covered by sea water all the time	5.8km
Rathlin Island SAC	UK0030055	Annex I Habitats: (1110) Sandbanks which are slightly covered by sea water all the time, (1170) Reef, (1210) Annual vegetation of drift lines, (1230) Vegetated sea cliffs of the Atlantic and Baltic coasts, (1330) Atlantic salt meadows *Glauco-Puccinellietalia maritimae*, (8330) Submerged or partial submerged sea cliffs. Annex II Species: (1364) *Halichoerus grypus, (1365) Phoca vitulina*	6.9km
Breen Wood SAC	UK0030097	Annex I Habitats: (4010) Northern Atlantic wet heaths with *Erica tetralix*, (91A0) Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles, (91D0) Bog woodland Annex II Species: (1355) *Lutra lutra*	12.7km
Garron Plateau SAC	UK0016606	Annex I Habitats : (3130) Oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and/or of the Isoëto-Nanojuncetea, (3160) Natural dystrophic lakes and ponds, (4010) Northern Atlantic wet heaths with *Erica tetralix*, (4030) European dry heaths, (7030) Blanket bogs, (7040) Transition mires and quaking bogs, (7230) Alkaline fens. Annex II Species: (1528) *Saxifraga hirculus*	16.9km
North Antrim Coast SAC	UK0030224	Annex I Habitats: (1230) Vegetated Sea Cliffs of the Atlantic and Baltic Coasts, (1210) Annual vegetation of drift lines, (1330) Atlantic salt meadows *Glauco-Puccinellietalia maritimae*, (2120) Shifting dunes along the shoreline with *Ammophila arenaria* (`white dunes`), (2130) Fixed dunes with herbaceous vegetation (`grey dunes`), (6230) Species-rich *Nardus* grassland, on siliceous substrates in mountain areas (and submountain areas in continental Europe). Annex II Species: (1010) Narrow-mouthed whorl snail *Vertigo angustior*	19.5km
Skerries and Causeway cSAC	UK0030383	Annex I Habitats: (1110) Sandbanks which are slightly covered by sea water all the time, (1170) Reef, (8330) Submerged or partially submerged sea caves. Annex II Species: (1351) *Phocoena phocoena*	23.7km

8.1.2 Special Areas of Conservation – Potential Impacts

Installation and decommissioning of the marine aspects of the proposed development are unlikely to have significant impacts on the Annex I habitats in the study area, unless the subsea cabling runs through the Red Bay SAC. However there is the potential for negative impacts upon the Annex II species known to travel through and forage in the lease area and potential cable routing areas, from installation and decommissioning activity.

There is potential for operation of the marine aspects of the proposed development to impact upon the coastal SACs from alterations to the coastal processes. The North Antrim Coast SAC, the Rathlin Island SAC, the Skerries and Causeway cSAC and the Red Bay SAC all have the potential to be affected by any alterations to the local marine sediment transport regimes. The Annex II species at the Rathlin SAC and the Skerries and Causeway cSAC, namely the Grey Seal *Halichoerus grypus*, the Harbour Seal *Phoca vitulina*, and the Harbour Porpoise *Phocoena phocoena* also have the potential to be impacted upon by operation of the tidal energy array.

The terrestrial transmission line/cable routes and substation associated with the proposed development have the potential to impact upon the terrestrial SACs of Breen Wood and the Garron Plateau, if the proposed transmission line/cable route or substation location is through or in close proximity to these designated areas, via habitat loss and displacement. Negative impacts on the nearby coastal SACs from terrestrial works should be avoidable by planning cable landing areas away from these sensitive habitats and species, and keeping transmission lines/cable routes away from the coastline.

8.1.3 Special Areas of Conservation – Recommendations

This close proximity to and the potential for impacts upon these Natura 2000 sites from the proposal means a Habitats Regulation Assessment (HRA) will be required under the Habitats Directive 92/43/EEC. This is enacted into Northern Ireland legislation through the Conservation (Natural Habitats) Regulations (Northern Ireland) 1995 (SR No. 380 of 1995) and amendments. All of the SACs in **Table 8.1** will require at a minimum a HRA screening exercise to be undertaken.

8.1.4 Special Protection Areas - Baseline

Special Protection Areas (SPA) are designated under the EU Directive on the Conservation of Wild Birds (EC/79/409), "The Birds Directive", as areas that are important for rare and vulnerable bird species as they use them for breeding, feeding, wintering or migration. There are 3 SPAs within the study area. A summary of these SPAs with their main qualifying features (annexed birds) is provided in **Table 8.2**. The Natura 2000 data forms for these sites are included in **Appendix B**.

Table 8.2 SPAs located in the Study Area

Name	Code	Description	Distance to Lease Area
Antrim Hills SPA	UK 902301	Annex I Birds: (A082) *Circus cyaneus*, (A098) *Falco columbarius*	2km
Rathlin Island SPA	UK 9020011	Annex I Birds: (A200) *Alca torda,* (A103) *Falco peregrinus,* (A188) *Rissa tridactyla*, (A199) *Uria aalge*	6.9km
Sheep Island SPA	UK9020021	Annex I Birds: (A017) *Phalacrocorax carbo*	17.8km

In addition to the SPAs within the study area, NIEA Natural Heritage have commented that other SPAs within Northern Ireland that may contain seabirds which could forage within the study area are Larne Lough SPA (42km from the lease area, breeding Common, Sandwich and Roseate Terns), and the Copeland Islands SPA (65km from the lease area, breeding Manx Shearwater and Arctic Tern). NIEA Natural Heritage also commented that the lease area is likely to be used by birds from SPAs in Scotland (eg. Ailsa Craig), and possibly from SPAs in England, Wales and the Republic of Ireland, during the breeding season, migration periods and winter. The NIEA have also mentioned that the coastal area likely to receive the onshore substation consists mainly of sea cliffs topped by improved and semi-improved grassland. In addition to seabirds nesting at low density, the cliffs within a 2.5km radius of Torr Head held at least two pairs of Peregrines (EU Birds Directive: Annex I) during 2011.

8.1.5 Special Protection Areas – Potential Impacts

The Hen Harriers *Circus cyaneus* and Merlins *Falco columbarius* of the Antrim Hills SPA are unlikely to be impacted upon by the marine aspects of the proposals. However the protected

fish-eating Annex I birds from the Rathlin Island SPA and the Sheep Island SPA have the potential to be impacted by any marine development in the area. The Great Cormorant *Phalacrocorax carbo,* Razorbills *Alca torda,* Kittiwakes *Rissa tridactyla,* and Guillemots *Uria aalge* may all forage for fish within the lease area and offshore portion of the study area. During the tidal velocity and seabed video surveys completed in July 2011 for the TCE lease application, Guillemots, Razorbills, Kittiwakes, Gannets and Gulls were all recorded within the offshore area between Torr Head and Fair Head.

Any terrestrial cable routing and substation construction may have the potential to impact upon the Hen Harriers and Merlins of the Antrim Hills SPA, either through construction disturbance or operation footprint if placed within their foraging and nesting areas.

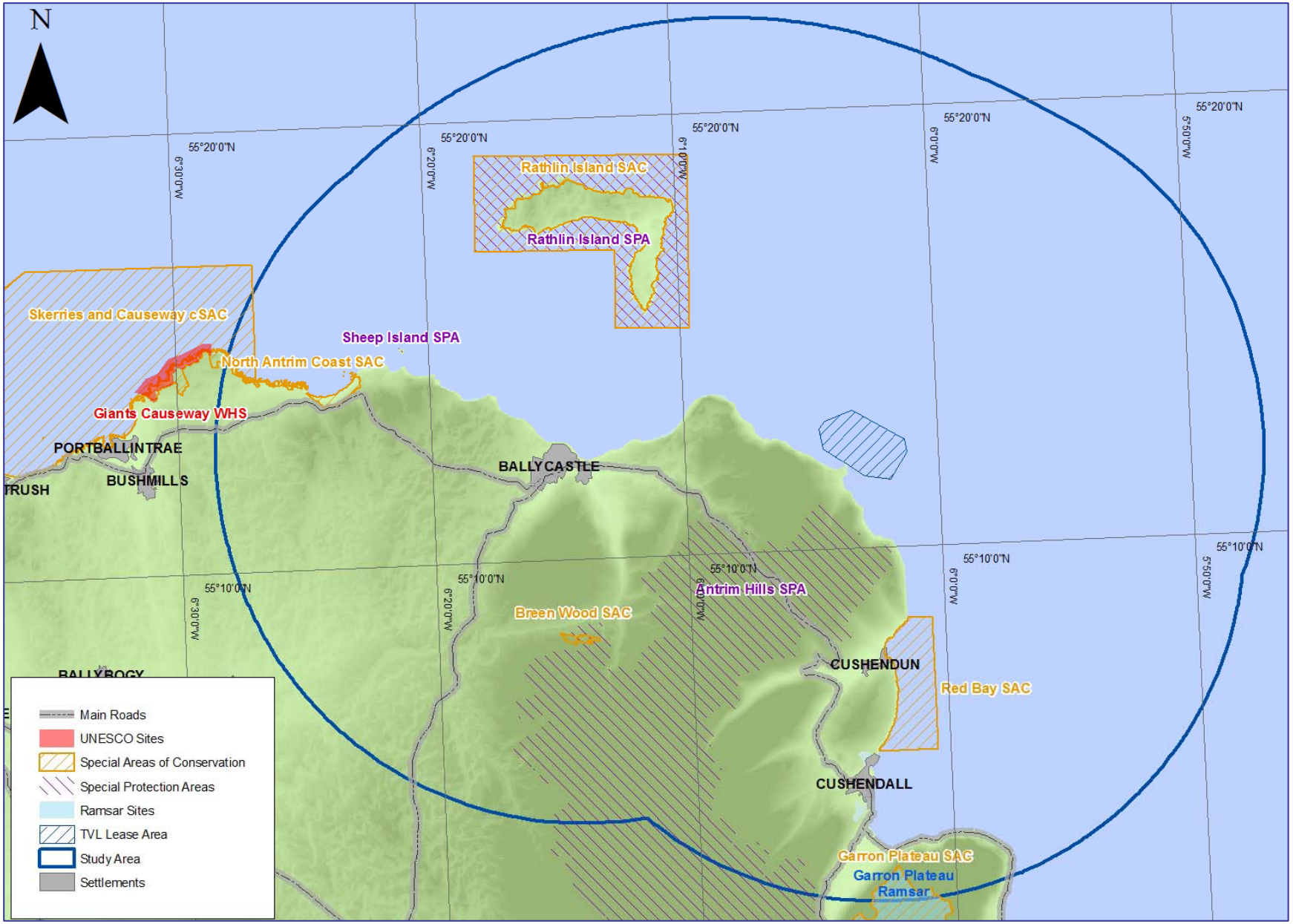
8.1.6 Special Protection Areas - Recommendations

To assess the potential impacts of the proposed development on these SPAs a HRA will be required under the Habitats Directive 92/43/EEC. All of the SPAs in **Table 8.2** will require at a minimum a HRA screening exercise to be undertaken.

8.1.7 Ramsar Sites

The Convention on Wetlands in Ramsar, Iran (1971), called the "Ramsar Convention", is an intergovernmental treaty that embodies the commitments of its member countries to maintain the ecological character of their Wetlands of International Importance. These designations are known as Ramsar sites. There is one Ramsar site that intersects the study area, which is the Garron Plateau, over 16km south of the TVL lease area. This designated area will not be affected by any marine activity and is only likely to be affected by terrestrial works if the terrestrial transmission line/cable route were to be routed south, over the plateau.

Figure 8.1 International and European Designations



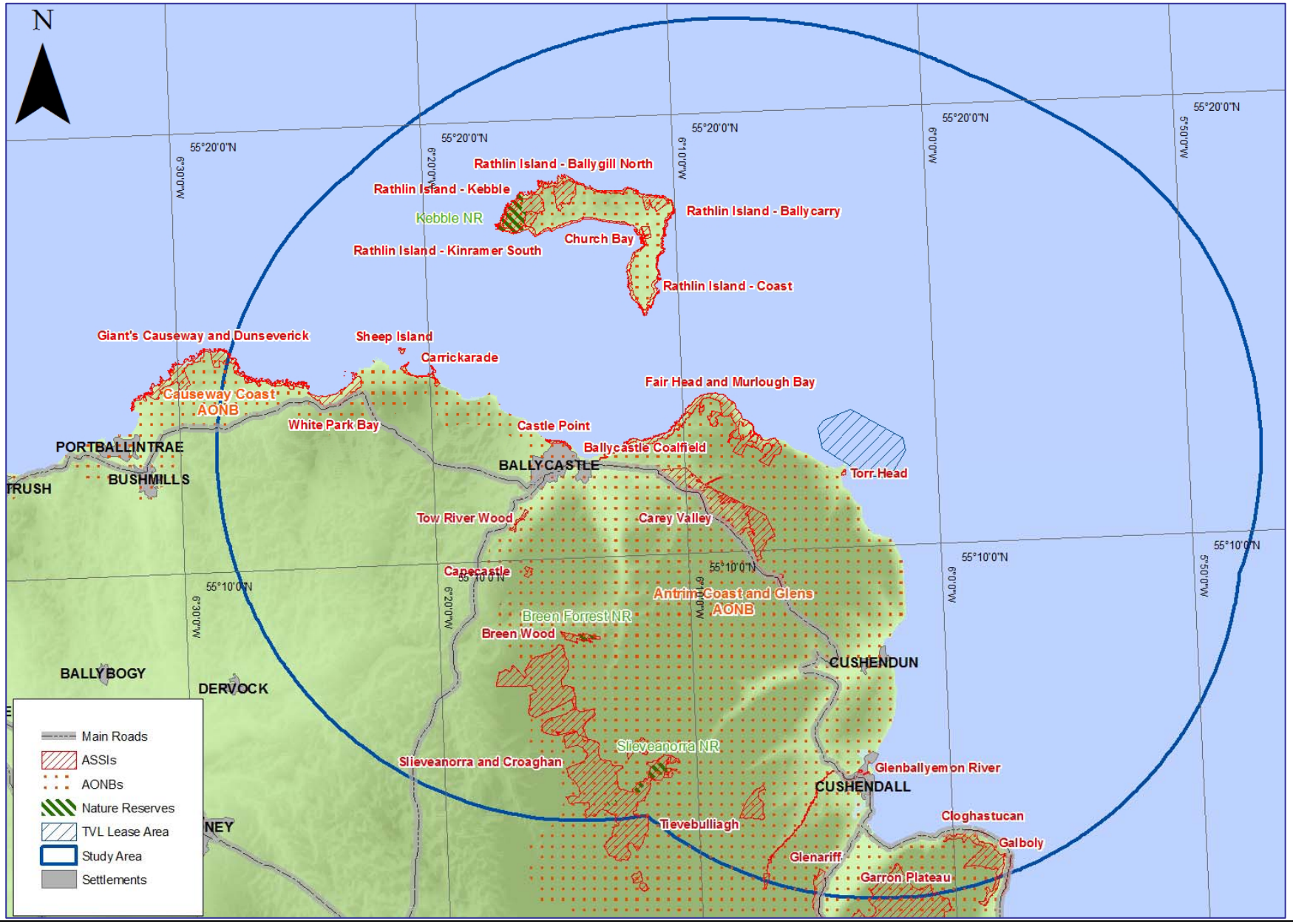
8.2 Northern Ireland and Local Designations - Baseline

Figure 8.2 shows the Northern Ireland environmental designations that intersect the study area. These have been designated under Northern Ireland legislation for environmental protection and consist of Areas of Outstanding Natural Beauty (AONB), Areas of Special Scientific Interest (ASSI) and National Nature Reserves (NNR). There are two AONBs that intersect the study area, the Antrim Coast and Glens AONB and the Causeway Coast AONB, both of which are designated under the Nature Conservation and Lands (NI) Order 1985, as areas of landscape of distinctive character and special scenic value (NIEA, 2012). A summary of the AONBs is provided in **Table 8.3**. The potential impact of the proposal on landscape and AONBs is discussed in **Section 11**.

Table 8.3 AONBs located in the Study Area

Name	Designation Year	Description	Distance to Lease Area
Antrim Coast and Glens AONB	1988	The coastline of County Antrim from Ballycastle to Larne and the world famous Glens of Antrim contain some of the most beautiful and varied scenery in Northern Ireland. The area is dominated by a high undulating plateau cut by deep glens which open north and eastwards to the sea. It is an area of contrasts: gentle bays are separated by blunt headlands; exposed moorland gives way to sheltered valleys; wide open expanses to enclosed farmland. This AONB includes Rathlin Island.	0.1km
Causeway Coast AONB	1989	The Causeway Coast, particularly the Giant's Causeway itself, must be the Province's most renowned area internationally and boasts the only World Heritage Site in Northern Ireland. It encompasses 18 miles of spectacular coastal scenery with dramatic cliffs and headlands broken by the wide sweep of fresh sandy beaches backed by dunes. Dark volcanic rocks and brilliant white chalk, eroded by the vigorous North Atlantic, form magnificent geological features including the renowned Giant's Causeway and Carrick-a-Rede.	11.7km

Figure 8.2 National Designations



ASSIs are protected under the Environment (Northern Ireland) Order 2002, and the NIEA must, as required by the law laid down in the Order, declare land as an ASSI if it is of special scientific interest because of the flora or fauna that is found on it, or because of geological features (NIEA, 2012). There are 25 ASSIs which intersect the study area. A summary description of the ASSIs is provided in **Table 8.4**.

The NIEA commented that there are three ASSIs outside the study area, which are designated for seabirds that may have the potential to forage within the lease area. These ASSIs are Portmuck (45km from the lease area, breeding Razorbill), The Gobbins (46km from the lease area, breeding Razorbill and Kittiwake) and The Maidens (37km from the lease area, breeding Shag).

Table 8.4 ASSIs located in the Study Area

Name	Code	Description	Distance to Lease Area
Torr Head	ASSI 233	Earth Science: The site is of international importance as the exposure of metamorphosed limestone from the Dalradian age is crucial in aiding the understanding of the relationships between rock sequences elsewhere in Northern Ireland and Scotland.	0.1km
Fairhead and Murlough Bay	ASSI 330	Habitats: Presence of large number of rare plants, mosses, lichens, fungi and invertebrates. Peregrines nest in a number of locations on the cliffs. Earth Science: The three main classes of rocks (igneous, sedimentary and metamorphic) can all be seen within the site.	1.6km
Carey Valley	ASSI 302	Earth Science: Presence of deglacial landscape features (meltwater channels, glaciofluvial terraces and a flat topped Gilbert type delta) which were defined by events that occurred during the last Ice gives an insight to the glacial history of Northern Ireland.	3.9km
Ballycastle Coalfield	ASSI 146	Earth Science: Best exposure of a coalfield sequence in Ireland containing a series of Carboniferous sedimentary rocks (335-330 million years old) with contemporary lavas and younger Tertiary igneous rocks (60 M.y.). Historic Industry: Contains evidence of early industrial activity: the coals and iron ores were mined between the 16th and 19th centuries. Flora & Fauna: Underlying geology and the spoil heaps give rise to both base rich and acidic habitats, including wet grassland, base-rich flushes and maritime heath.	5.5km
Rathlin Island-Coast	ASSI 033	Flora & Fauna: Nesting ground for guillemots, razorbills and kittiwakes, small colonies of Manx shearwater (Annex I species). Rare plant species occur in the coastal strip including Scots lovage, juniper, roseroot and oyster plant. Earth Science: Sea Cliffs, Subtidal Sea Caves, Sand Banks, Reefs	8.6km

Castle Point	ASSI 286	Earth Science: The presence of Ulster White Limestone Formation and are overlain by basalt of the Antrim Lava Group provides indications that the Chalk Members were deposited in a warm, shallow sea during the Cretaceous, some 80 million years ago.	10.2km
Rathlin Island - Church Bay	ASSI 327	Earth Science: Contains landforms that are unique in Ireland. Fossils of the common periwinkle have been found at the site, allowing an age of approximately 12,335 years before the present to be determined. This puts formation during a warm period between two colder periods during the last Ice Age.	10.8km
Rathlin Island- Ballycarry	ASSI 045	Flora & fauna: Presence of Heath and Wetland vegetation	11.3km
Breen Wood	ASSI 161	Woodland Area: Semi-natural, acid woodland dominated by mature oak and downy birch. Presence of the rare moss (*Hylocomium umbratum*). Avian Breeding: The rare wood warbler and notable pied flycatcher as well as a rich mixture of perching, song birds and raptors. Mammals: Red squirrel and otter.	12.1km
Glenballyemon River	ASSI 254	Physical Features and associated Flora and Fauna: The Glenballyemon River is a short sinuous river, which rises on the Antrim Plateau near Glenariff Forest Park. It has a relatively small but steep catchment most of which is unforested mountainside.	12.3km
Tow River Wood	ASSI 163	Woodland: Base-rich woodland that has a well developed, mature structure and is highly variable with a range of woodland plant communities and a rich assemblage of woodland species.	12.6km
Capecastle	ASSI 363	Earth Science: Capecastle is of importance because of its geology. The site contains excellent exposures of the Ulster White Limestone Formation. In particular the influence of the positive Dalradian ridge during chalk sedimentation can be demonstrated.	13.2km
Tievebulliagh	ASSI 082	Earth Science: Internationally important type site for the interpretation of the mineralogies associated with the thermomorphic conversion of laterite and lithomarge to porcellanite. A range of rare minerals has been recorded. Flora and Fauna: A range of upland vegetation communities that are representative of those which are widespread throughout northwest Antrim including a range of dry heath, shallow peat and flushed acid grassland habitats. Notable wet grassland species present are pale butterwort and lesser clubmoss. It is also a site for breeding peregrine falcon.	13.8km
Rathlin Island- Ballygill North	ASSI 043	Flora and Fauna: Presence of complex pattern of heath and there associated habitats, which form a mosaic of vegetation within a varied topography of plateaux and valleys. Dry dwarf-heath community on shallow peat soils and are dominated by heather, bell heather and Western gorse. This distinctive type of heath is restricted in its distribution within the British Isles and Rathlin is the most northerly site known for it. Surface depressions have impeded drainage and are covered by a mixture of wet heath, where cross-leaved heath is prominent, and acid grassland with species such as mat Grass and purple moor grass. Many of the slopes are flushed by mineral rich waters and are dominated by sedges like carnation sedge, common sedge,	14.1km

		common yellow sedge and black bog-rush. The troughs and valley bottoms contain a range of wetland communities with a large number of wetland species, including bogbean, bog pondweed, bottle sedge and marsh cinquefoil.	
Slieveanorra and Croaghan	ASSI 303	Flora and Fauna: Peatland flora and associated fauna. Blanket bog and montane heath. Presence of Merlin and Hen Harrier.	14.2km
Rathlin Island-Kinramer South	ASSI 044	Flora and Fauna: Presence of Pyramidal Bugal *Ajuga pyramidalis* which is associated with the unimproved acid grassland pastures which occur at the base of basalt rock out crops which is very rare in the British Isles.	14.8km
Cloghastucan	ASSI 338	Earth Science: The area provides excellent access to important exposures of limestone. The rocks are around 85 million years old and are part of the Ulster White Limestone that is exposed along much of the Antrim coast. It is an important site as it is a type locality for one of the many beds that comprise the Ulster White Limestone.	15.2km
Galboly	ASSI 333	Earth Science: Galboly ASSI contains important geological features. The rocks at Garron Point are dark basalt on top of white limestone. The basalt is igneous and the limestone is sedimentary. Habitats: Woodland, grassland (herb-rich calcareous grassland), cliff vegetation, bryophyte-rich scree, dry heath, intertidal communities, rare plants and fungi.	15.4km
Rathlin Island-Kebble	ASSI 356	Flora and Fauna: Declared ASSI due to the presence of heathland, grassland & wetland vegetation and there associated plant and animal species.	15.5km
Carrickarade	ASSI 116	Earth Science: Presence of a volcano which exploded during the Tertiary period 60 million years ago. Also contains one raised sea cave which has the only known example of speleotherm development within the Ulster white limestone. Habitats: The site is home to two rare snails, the wrinkled snail and the heath snail, and breeding birds including twites, kittiwakes, guillemots and razorbills.	16km
Glenariff	ASSI 335	Flora and Fauna and associated Habitats: Glenariff Glen has been declared an ASSI because of the rare plants, mosses and liverworts found on the site. The glen forms a steep-sided valley around the Glenariff River and is shaded by the surrounding woodland, providing a cool, humid environment.	16.6km
Garron Plateau	ASSI 067	Earth Science: The Garron Plateau is the largest area of blanket bog in Northern Ireland. The peatland complex is comprised of a series of raised and flushed peat bog units, and a number of oligotrophic (a body of water in which nutrients are in low supply) water bodies, all within the enveloping blanket bog peat mantle. Habitats: The peatland supports an array of associated floral and faunal communities, including a number of rare and notable plant and animal species, and a diverse upland breeding bird population.	16.9km
Sheep Island	ASSI 050	Breeding Ground: Breeding ground for sea bird species such as: Cormorant *Phalacrocorax carbo* as well as shag, fulmar, kttiwake, greater black-backed gull, razorbill, black guillemot and guillemot.	17.8km
White Park Bay	ASSI 130	Flora and Fauna: Presence of diverse plant and animal communities; Common lizard, Pygmy shrew and grey seals. Avian nesting grounds Habitats: Cliffs: Fulmar, house martin and swift, chough and	19.6km

		buzzard. Stream Banks: Sand martin. Beach: Ringed plover and oystercatcher. Eider congregate	
Giants Causeway and Dunseverick	ASSI 202	Flora and Fauna and associated Habitats: Higher plant assemblage, Invertebrate assemblage, Narrow-mouthed whorl snail. Coastal saltmarsh, Coastal vegetated shingle, Maritime cliff and slopes, Calcareous grassland, Wet heath, Purple Moor-grass and rush pastures. Tertiary igneous, Mass movement.	21.5km

8.2.1 National Nature Reserves

National Nature Reserves (NNR) are chosen from among the very best examples of Northern Irelands' wildlife, habitats and geology. They contain a wide range of species, communities and geology and their designation is a public recognition by Government of their importance. The primary aim of managing NNR is to conserve their features now and for future generations through the development of experience and techniques in managing land for conservation. A secondary aim is to provide opportunities, where practical, for the public to experience these natural habitats and landscape features and to interact quietly with nature (NIEA, 2012). There are three NNRs that intersect the study area. A summary of these designated areas is provided in **Table 8.5**.

Table 8.5 NNRs located in the Study Area

Name	Description	Distance to Lease Area
Breen Forest NR	Breen Oakwood is one of the last fragments of these once extensive woodlands. The mature oaks form a dense canopy overhead, with birch on the higher ridges. Rowan, hawthorn, holly and hazel grow beneath to form an understory, with alder and willow in the damper areas beside the streams. Ferns fungi and mosses thrive in the damp, shady conditions and in winter the dark green holly bushes contrast with the leafless branches of the oak, birch and hazel and are bedecked with both lichens and mosses. Tits and treecreepers are common and sparrowhawk and buzzard hunt among the trees. There is also a small population of red squirrels present in the adjacent conifer plantation which are often seen in the hawthorn bushes skirting the oakwood.	12.1km
Slieveanorra NR	High on the slopes of Slieveanorra Mountain are four plots of peat bog which show different stages in the formation and erosion of peat. The Owennaglush plot is a rare example of a raised bog in which the peat is actively growing, while the Orra Bog and Slieveanorra plots show what happens when shallow blanket peat is eroded. The plant life varies from heather and deer grass in drier areas, to damp patches where sphagnum moss, sedges and cotton grass grow. Bog asphodel, bog-bean and insect-eating sundews live on the edges of bog pools on Owennaglush. Hen harriers, merlins and red grouse have adapted to life and made their home in these upland areas.	14.2km
Kebble NR	At the western end of Rathlin Island, sheer cliffs rise more than 100 metres above raised beaches of rounded cobbles, while towering stacks of rock stand just off the shore. The best time of the year to visit Kebble is the height of the breeding season for seabirds, early May to mid July, when the rough faces of the cliffs and rocky islands are crowded with thousands of breeding seabirds. Guillemots, razorbills, kittiwakes and fulmars raise their young on bare ledges, while puffins nest in burrows dug into the cliff-side	15.5km

	grassland. Peregrine falcons, buzzards and ravens also build nests on cliff ledges. Early summer sees the island's orchids in bloom and a trip in August will be rewarded by the sight of the heathlands in full flower. Above the cliff top stretches an area of rough grassland and heather, broken by a lake and an area of marsh. These wet areas attract nesting waterfowl such as ducks, snipe, grebes and coots. Rabbits and hares graze on the reserve, while grey seals can be seen hauling themselves out onto the rocky foreshore.	

8.2.2 Local Plan Designations

Figure 8.3 shows the Sites of Local Nature Conservation Interest (SLNCI) environmental designations located within the study area. There are 75 SLNCI that intersect the study area. These SLNCI designations are required under Planning Policy Statement 2, Planning and Nature Conservation, and are designated by District Councils under Article 22 of the Nature Conservation and Amenity Lands (Northern Ireland) Order 1985. These SLNCI are wildlife refuges where special protection measures for some or all species are implemented, or are non-statutory nature reserves managed by voluntary conservation bodies. A list of the SLNCI are given in **Table 8.6**.

Table 8.6 Sites of Local Nature Conservation Interest (SLNCI)

Reference	Location	Feature
BSLN 04	Ballymoney Countryside	BALLYNAGOR, BALLYMONEY COUNTRYSIDE
BSLN 06	Ballymoney	BALLYVEELY BOG, BALLYMONEY
BSLN 12	Ballymoney Countryside	CARNCULLAGH, BALLYMONEY COUNTRYSIDE
BSLN 15	Ballymoney Countryside	CROAGHAN BOG (A PORTION OF WHICH IS SITUATED IN THE MOYLE DISTRICT), BALLYMONEY COUNTRYSIDE
BSLN 16	Ballymoney Countryside	CULBANE BOG, BALLYMONEY COUNTRYSIDE
BSLN 24	Ballymoney Countryside	KNOCKAVRINNAN BRIDGE, BALLYMONEY COUNTRYSIDE
MSLN 02	Moyle Countryside	ALTATAUNAGHRANNY WOODLAND, MOYLE COUNTRYSIDE
MSLN 03	Moyle Countryside	ALTGAL BURN, MOYLE COUNTRYSIDE
MSLN 04	Moyle Countryside	ALTIFIREN GLEN, MOYLE COUNTRYSIDE
MSLN 05	Moyle Countryside	ALTMORE BURN, MOYLE COUNTRYSIDE
MSLN 06	Moyle Countryside	ARDCLINIS, MOYLE COUNTRYSIDE
MSLN 07	Moyle Countryside	BALLINTOY CARRICK-NA-FORD, MOYLE COUNTRYSIDE
MSLN 08	Moyle Countryside	BALLYBERIDAGH GLEN, MOYLE COUNTRYSIDE
MSLN 10	Moyle Countryside	BALLYCASTLE - BALLINTOY COAST, BALLINTOY COAST, BALLYCASTLE COAST, KINBANE HEAD, PORT CALLIAGH - BALLYCASTLE, MOYLE COUNTRYSIDE
MSLN 11	Moyle Countryside	BALLYCASTLE BEACH, MOYLE COUNTRYSIDE
MSLN 12	Moyle Countryside	BALLYCONAGAN, MOYLE COUNTRYSIDE
MSLN 13	Moyle Countryside	BALLYEMON RIVER INCORPORATING BALLYMON WOOD, MOYLE COUNTRYSIDE
MSLN 14	Moyle Countryside	BEAGHS, MOYLE COUNTRYSIDE
MSLN 15	Moyle Countryside	BROUGHMORE, MOYLE COUNTRYSIDE
MSLN 17	Moyle Countryside	CAPECASTLE QUARRY, MOYLE COUNTRYSIDE
MSLN 18	Moyle Countryside	CAREY VALLEY INCORPORATING CAREY VALLEY GRASSLAND AND ACRAVALLY, MOYLE COUNTRYSIDE
MSLN 19	Moyle Countryside	CARNANEIGH POINT, MOYLE COUNTRYSIDE
MSLN 20	Moyle Countryside	CAVE HOUSE, MOYLE COUNTRYSIDE
MSLN 23	Moyle Countryside	CLADY BURN, MOYLE COUNTRYSIDE
MSLN 25	Moyle Countryside	COOL WOOD, MOYLE COUNTRYSIDE

MSLN 26	Moyle Countryside	COOLMAGHRA, MOYLE COUNTRYSIDE
MSLN 27	Moyle Countryside	COOLRANNY, MOYLE COUNTRYSIDE
MSLN 28	Moyle Countryside	CRAIGAGH WOOD, MOYLE COUNTRYSIDE
MSLN 29	Moyle Countryside	CUSHENDUN BAY, MOYLE COUNTRYSIDE
MSLN 30	Moyle Countryside	CUSHENDUN CAVES, MOYLE COUNTRYSIDE
MSLN 31	Moyle Countryside	CUSHENILT, MOYLE COUNTRYSIDE
MSLN 32	Moyle Countryside	CUSHLEAKE MOUNTAIN INCORPORATING CUSHENDUN QUARRY, MOYLE COUNTRYSIDE
MSLN 34	Moyle Countryside	DOEY PLANTATION, MOYLE COUNTRYSIDE
MSLN 35	Moyle Countryside	DOURHERY WATER, MOYLE COUNTRYSIDE
MSLN 36	Moyle Countryside	DRUMACULIN BLANKET BOG, MOYLE COUNTRYSIDE
MSLN 37	Moyle Countryside	DRUMFRESKY, MOYLE COUNTRYSIDE
MSLN 38	Moyle Countryside	DUNFINN, MOYLE COUNTRYSIDE
MSLN 39	Moyle Countryside	ESCORT PORT, MOYLE COUNTRYSIDE
MSLN 40	Moyle Countryside	GALBOLY INCORPORATING CLOGHASTUCAN, MOYLE COUNTRYSIDE
MSLN 41	Moyle Countryside	GLASSANEERAN BOG, MOYLE COUNTRYSIDE
MSLN 42	Moyle Countryside	GLENAAN, MOYLE COUNTRYSIDE
MSLN 43	Moyle Countryside	GLENARIFF CLIFF, MOYLE COUNTRYSIDE
MSLN 45	Moyle Countryside	GLENDUN INCORPORATING KNOCKNACARRY, MOYLE COUNTRYSIDE
MSLN 46	Moyle Countryside	GLENSHESK VALLEY INCORPORATING DOONFIN, MOYLE COUNTRYSIDE
MSLN 47	Moyle Countryside	GLENSHESK WOOD, MOYLE COUNTRYSIDE
MSLN 48	Moyle Countryside	GORTGONNY, MOYLE COUNTRYSIDE
MSLN 49	Moyle Countryside	GREENAGHAN, MOYLE COUNTRYSIDE
MSLN 51	Moyle Countryside	ISLANDBOY SOUTH, MOYLE COUNTRYSIDE
MSLN 52	Moyle Countryside	KILLEN VALE, MOYLE COUNTRYSIDE
MSLN 54	Moyle Countryside	KINRAMER NORTH, MOYLE COUNTRYSIDE
MSLN 55	Moyle Countryside	KNOCKSOGHEY, MOYLE COUNTRYSIDE
MSLN 56	Moyle Countryside	LECKPATRICK POINT, MOYLE COUNTRYSIDE
MSLN 57	Moyle Countryside	LIFEBOAT HOUSE, MOYLE COUNTRYSIDE
MSLN 58	Moyle Countryside	LOUGH GALBOLY, MOYLE COUNTRYSIDE
MSLN 59	Moyle Countryside	LOUGHAN BAY, MOYLE COUNTRYSIDE
MSLN 60	Moyle Countryside	LOUGHAN WOOD, MOYLE COUNTRYSIDE
MSLN 61	Moyle Countryside	LOUGHAREEMA, MOYLE COUNTRYSIDE
MSLN 63	Moyle Countryside	MOYARGET LOWER, MOYLE COUNTRYSIDE
MSLN 64	Moyle Countryside	MURLOUGH, FAIR HEAD COMPOSITE INCORPORATING MURLOUGH BAY/ FAIRHEAD, MOYLE COUNTRYSIDE
MSLN 65	Moyle Countryside	OLD PIER, MOYLE COUNTRYSIDE
MSLN 66	Moyle Countryside	PORT OBE, MOYLE COUNTRYSIDE
MSLN 67	Moyle Countryside	PORT VINEGAR, MOYLE COUNTRYSIDE
MSLN 68	Moyle Countryside	RED ARCH, MOYLE COUNTRYSIDE
MSLN 69	Moyle Countryside	RETREAT, MOYLE COUNTRYSIDE
MSLN 70	Moyle Countryside	ROCK PORT, MOYLE COUNTRYSIDE
MSLN 71	Moyle Countryside	SLIEVANORRA MOOR, MOYLE COUNTRYSIDE
MSLN 72	Moyle Countryside	SOUTH LIFEBOAT HOUSE, MOYLE COUNTRYSIDE
MSLN 73	Moyle Countryside	TAVNAGHBOY, MOYLE COUNTRYSIDE
MSLN 74	Moyle Countryside	TAVANAGHORNA WOOD, MOYLE COUNTRYSIDE
MSLN 75	Moyle Countryside	TOBERBILLY, MOYLE COUNTRYSIDE
MSLN 76	Moyle Countryside	TORNAMONEY, MOYLE COUNTRYSIDE
SNC/F/0001	Larne Borough LGD	GARRON POINT - GEOLOGICAL, GARRON POINT
SNC/F/0003	Larne Borough LGD	GARRON PLATEAU - BOGS/BIRDS, LARNE
SNC/F/0002	Larne Borough LGD	GARRON ESCARPMENT - BIRDS PLANTS, LARNE
SNC/F/0004	Larne Borough LGD	LOUGHAN/BINABANAN - WOODED SCARP, LARNE

In Local Authority planning terms the study area intersects the Northern Area Plan 2016 and the Antrim, Ballymena and Larne Area Plan 2016. Under these Area Plans 2016 the study area contains the following conservation policy areas: 4 areas of archaeological potential, 3 conservation areas, 3 historic parks, gardens and demesnes, 1 area of village character, 40

local landscape policy areas, 5 countryside policy areas, and also 3 areas of constraints on mineral developments. These designations will affect local area planning, however they are unlikely to be impacted upon by the marine aspects of the proposal. The terrestrial elements of the proposed development will have to consider and be informed by the occurrence of the SLNCI and other Area Plan Policy Areas.

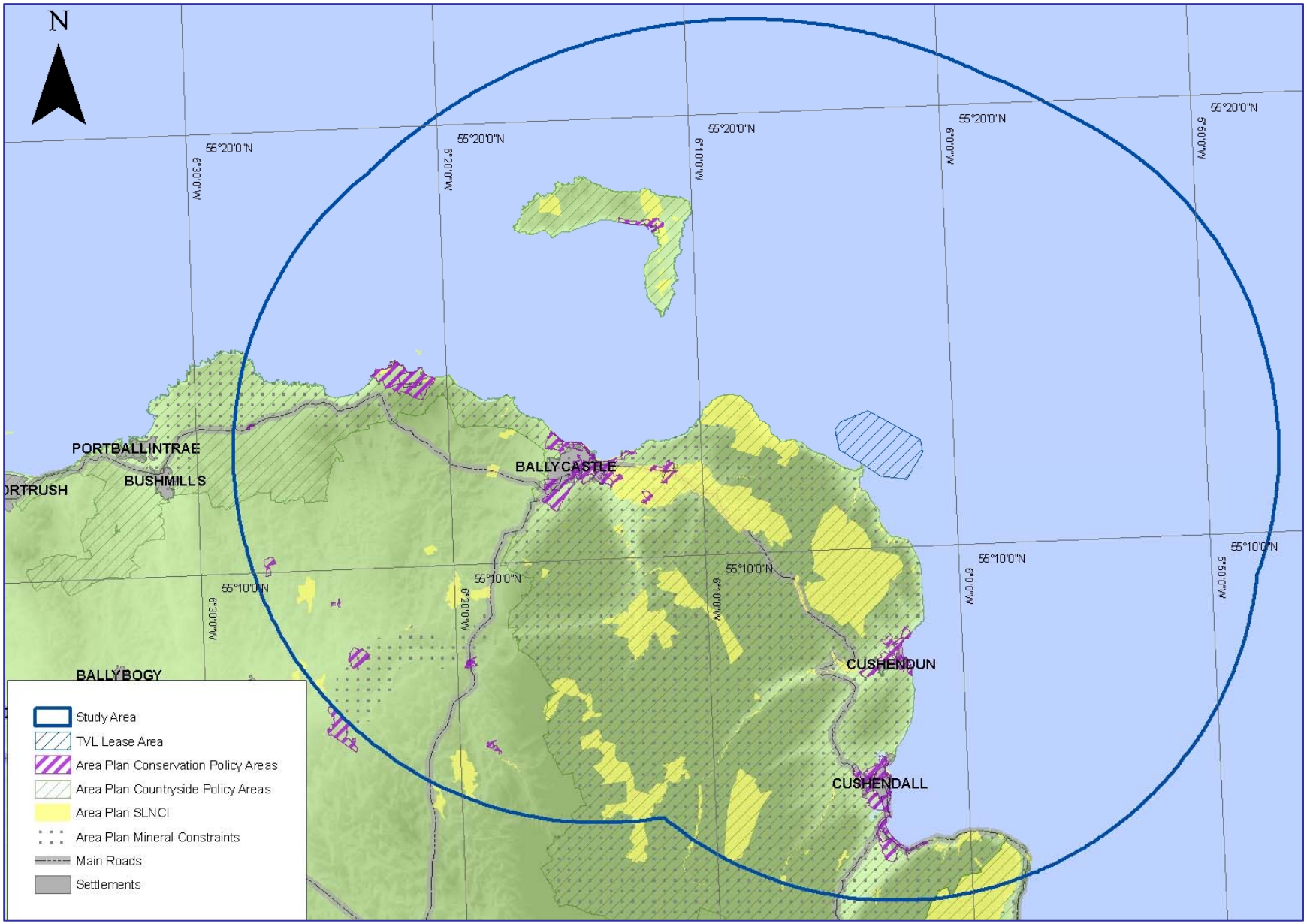
8.2.3 Terrestrial Ecology – Potential Impacts

The terrestrial ASSIs in the study area are unlikely to be affected by the marine element of the proposed development; however any alteration to the coastal processes in the area may have the potential to impact on nearby coastal designations. The development may therefore have the potential to significantly affect the Fair Head and Murlough Bay ASSI, the Torr Head ASSI, and the Rathlin Island – Coast ASSI, and any construction would therefore require consent from the NIEA. Any terrestrial development works, i.e. transmission line/cable route or substation construction, in or close to any of these ASSIs may require consent from the NIEA.

The NNRs in the study area are unlikely to be affected by the proposed development; however it will be important to ensure that the marine elements of the proposed development do not negatively affect the numbers of sea birds that populate the cliffs at Kebble Nature Reserve.

The construction of any transmission line/cable route and substation has the potential for direct impacts on terrestrial ecology (including European, national and local designated habitats and species) from displacement and disturbance. The construction of any transmission line/cable route may temporarily displace flora and fauna; however this area may be re-colonised post construction. The direct footprint of a substation will cause a permanent loss of habitat. Maintenance of the transmission lines and substation may cause temporary and intermittent disturbance to terrestrial fauna, however general operation of the transmission line/cable route and substation is unlikely to cause significant disturbance.

Figure 8.3 Northern Area Plan Environmental Designations



8.2.4 Terrestrial Ecology - Recommendations

It is recommended that full habitats surveys of the likely transmission line/cable route and proposed substation location is completed to at least Joint Nature Conservation Committee (JNCC) Phase 1 level, with the identification of priority habitats being particularly important. Following the findings of the initial Phase 1 habitat surveys there may be a requirement for Phase 2 habitat surveys and a requirement for specialists to undertake assessments for specific species, e.g. bats, otters, hares etc.

For terrestrial bird surveys, it is recommended that vantage point surveys are undertaken during migratory periods and breeding seasons in the vicinity of the proposed terrestrial infrastructure, with a focus on whooper swans and raptors such as the peregrine falcon. Walkover surveys during the breeding and wintering seasons in the vicinity of the proposed terrestrial infrastructure will also be required.

The RSPB have recommended that two additional consultees are included within the EIA process, namely the Northern Ireland Raptor Study Group (NIRSG) and the British Trust for Ornithology (BTO). Land based vantage point and boat based bird surveys will be required to establish the bird species frequenting the lease area and subsea cable routes. The RSPB recommend that the boat based surveys are developed using the European Seabirds at Sea (ESAS) methods from the JNCC, with a survey period of 2 years.

The NIEA recommend that all seabird designated areas located within foraging range of the lease area should be assessed within the EIA. This will include SPAs in Scotland, and possibly from England, Wales and the Republic of Ireland. The NIEA also recommend that significant seabird sites in the Isle of Man should also be taken into consideration in the EIA. The NIEA recommend that the EIA should attempt to assess the proportional attribution of birds using the development area during the breeding season to particular SPAs. The NIEA have provided a detailed list of recommendations for both the onshore and offshore bird surveys for the proposal. This is included in the correspondence in **Appendix D**. The final survey specifications, including temporal and geographic scope, for bird surveys will be agreed with the NIEA by the appointed ornithological experts prior to any surveys commencing.

TVL have agreed with NIEA that 1 year of offshore bird surveys should be undertaken as a minimum. Following this a review of the results obtained will be completed to ascertain the

requirement for further surveys. All survey methodologies will be agreed in consultation with NIEA and DoE Marine Division.

8.3 Marine Ecology

8.3.1 Marine Protected Areas (MPA) – Marine Conservation Zones (MCZ)

To help deliver the UK's aim for an "ecologically coherent network of Marine Protected Areas (MPA)," a new type of MPA, called a Marine Conservation Zone (MCZ) was introduced through the UK Marine and Coastal Access Act (2009). The Marine and Coastal Access Act has yet to be fully adopted into Northern Ireland legislation as the Northern Ireland Marine Bill. However it has been recommended that the Northern Ireland Marine Bill should introduce similar new powers for the establishment of MCZs in Northern Irish waters. The aim is that MCZs will protect nationally important marine wildlife, habitats, geology and geomorphology. The management measures required within MCZs will be decided on a site-by-site basis and will depend on the reasons the site has been designated.

MCZs are likely to be identified within Northern Ireland with the aim of conserving and aiding the recovery of:

- The range of marine biodiversity in our waters;
- Rare or threatened habitats and species;
- Globally or regionally significant areas of geographically restricted habitats or species;
- Important aggregations or communities of marine species;
- Areas important for key life-cycle stages of mobile species, including habitats known to be important for their reproduction and nursery stages;
- Areas contributing to the maintenance of marine biodiversity and ecosystem function in our seas; and
- Features of particular geological or geomorphological interest.

There exists the potential for MCZs to be identified within the Study Area once the Northern Ireland Marine Bill has been fully adopted, which may subsequently influence the subject and extent of baseline and impact assessment studies required for the project.

It should be noted that Marine Protected Areas (MPAs) and Priority Marine Features (PMFs) within Scotland and Scottish waters should also be taken into consideration within the EIA.

These areas and features are likely to be finalised in the near future. The MPAs will be designated under The Marine (Scotland) Act 2010 and the UK Marine and Coastal Access Act 2009.

8.3.2 Benthic Habitats and Intertidal Ecology – Baseline

Under the European Nature Information System (EUNIS) 2004 habitat classification system the seabed in the vicinity of the lease area is summarised as being mainly composed of habitat types A4.13 and A5.4 with smaller areas of habitat A5.44:

- Habitat A4.13 – Boulders and cobbles with interstitial gravel, pebbles and sand. Short faunal turf, encrusting corallines and bare rock.
- Habitat A5.4 – Bryozoan turf and brittlestars on pebbles and cobbles, with proportion of silt.
- Habitat A5.44 – Hydroid and bryozoan turf including Flustra on pebbles and cobbles.

The seabed habitat information available for the study area from EUNIS is shown in **Figure 8.4**. The seabed areas off Ballycastle, Cushendun and Cushendall become more varied than in the high energy area around Torr Head and Fair Head. **Table 8.7** provides a description for the EUNIS habitat codes.

Table 8.7 EUNIS Habitat Codes and Description

Habitat Type	Description
A3.11	Medium to large boulders and bedrock, dominated by flustra plus tall, often thick, hydroid turf. 1 biol samples, indicating CR.
A3.116	Thick turf of foliose algae on boulders and cobbles. 1 validation sample indicating CMx.
A3.2	Medium to large boulders, with kelp forest and red foliose algae. 2 biol validation samples, 1 which is MIR
A3.215	Thick turf of foliose red algae on large boulders or bedrock. 11 biol validation samples predom 6 MIR samples.
A4.1	Medium to large boulders and bedrock, dominated by flustra plus tall, often thick, hydroid turf. 6 biol validation samples, 4 being MIR and 2 being CR.HCR.
A4.13	Boulders and cobbles with interstitial gravel, pebbles and sand. Short faunal turf, encrusting corallines and bare rock. 11 biol validation samples, 7 indicating XFa.
A4.2	Medium to large boulders and bedrock, dominated by flustra plus tall, often thick, hydroid turf. 3 biol samples, 2 indicate IR, one as IMx. No kelp suggests that this is not in infralittoral zone?
A4.21	Small to medium sized boulders with interstitial gravel, pebbles and sand. Short hydrozoan and bryozoan turf. 4 validation samples ranging from Mrl, CMx and IR
A5.1	70 percent sand and/or gravel. No biol validation data.
A5.13	Polygons in the infralittoral zone (shallower than 10m BCD). As this is a fairly exposed coast with strong currents, this has been translated to A5.12

A5.24	Polygons slightly deeper than 10m BCD. One validation sample indicates CFiMu, although the exposure and strong currents around this area makes this unlikely. Classed as IMuSa
A5.262	One validation sample of CMuSa.AbraAirr. Depth around 15m BCD. Translated accordingly
A5.4	Bryozoan turf and brittlestars on pebbles and cobbles, with proportion of silt. No biol validation samples.
A5.44	Hydroid and bryozoan turf including Flustra on pebbles and cobbles. 4 validation samples, 2 of which are CMx
A5.51	Pebbles and cobbles amongst maerl. 1 validation sample indicating CMx
A5.5211	Cobbles and,or pebbles on sand or gravel with a turf of foliose reds. Sounds like SS.SMp.KSwSS.LsacR.CbPb, so translated accordingly

The Sublittoral Survey Northern Ireland (SSNI) 2006-2008 (Goodwin *et al*. 2011), demonstrated that the east coast of Northern Ireland, from Larne to Fair Head contained a number of priority habitats such as maerl and seagrass beds. As part of a follow up survey the seagrass (*Zostera marina*) bed in Red Bay (SAC off Cushendun and Cushendall) was resurveyed and was found to be in good condition. A large population of the sea cucumber *Leptopentacta elongata* was also found in Red Bay, along with the rare nudibranch *Lomanotus genei.* The study also commented that there are three main habitats of importance to Northern Ireland Conservation Priority species that are present off Rathlin Island, being: rocky reef habitats, sand and gravel habitats in Church Bay, and boulder slopes on the east coast.

Species noted in the SSNI study and from dive surveys in the Torr Head to Fair head area include the following:

- Yellow skirt sea slug – *Okenia elegans*
- Crimson Cushion Starfish – *Porania pulvillus*
- Pin Head Squirt – *Pycnoclavella sp.*
- Nudibranch Mollusc – *Eubranchus doriae*

The following species were identified while carrying out tidal velocity and seabed video surveys in July 2011 for the TCE lease application:

- Sea Urchins (*Echinus sp.*);
- *Hydriods sp*.;
- Starfish (Common, Blood and Seven Armed Starfish);
- Encrusting sponges;
- *Wrasse sp.*;
- Lobster (*Gammarus*); and
- *Bryozoan sp*.

8.3.3 Benthic Habitats and Intertidal Ecology - Potential Impacts

There is the potential for direct physical disturbance to benthic and intertidal habitats during installation activities due to the placement of structures and cables, potential for accidental discharges during installation and maintenance, potential for disturbance of contaminated sediments, and indirect disturbance post-installation due to potential alterations to local waves and currents from new structures present on the seabed, including scour around turbine bases. The avoidance of previously unrecorded sensitive seabed habitats, such as maerl beds, which are known to exist in the locality, will be a key issue in the development of this project.

8.3.4 Benthic Habitats and Intertidal Ecology - Recommendations

It is recommended that a comprehensive review of the relevant national, regional and local policies concerned with the protection and conservation of benthic and intertidal habitats and ecology should be undertaken. A desktop study collating the existing benthic ecological data for the study area, including JNCC Seabed Surveys, RoxAnn surveys, geophysical seabed surveys, CEDaR diving records and the JIBS project should also be undertaken.

Consultation with the NIEA and DoE Marine Division should be undertaken to agree the precise extent and methodology for the benthic ecological surveys. The surveys should be designed in a manner that facilitates practical comparison of datasets over time, to allow ongoing monitoring during the construction and operational phases to be easily compared with baseline data.

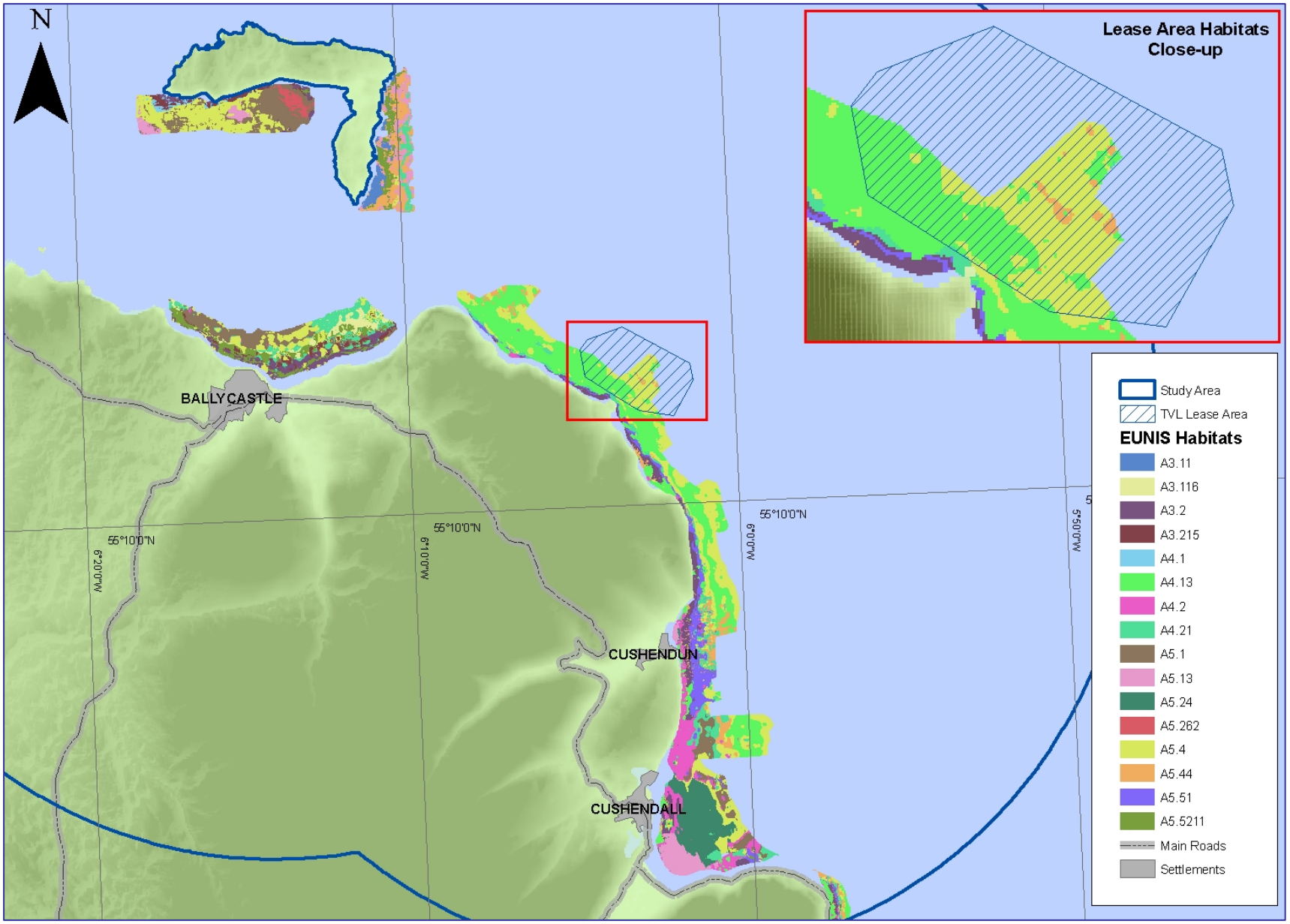
Due to the scale of the project, it will be necessary to conduct initial high level surveys (remote and/or interpolated) to provide a broad characterisation and biotope mapping of the seabed territory and to attempt to identify and avoid sensitive habitats. On this basis, a preferred positioning of the array and the subsea cable route(s) or routes can been identified, more detailed surveys can then be conducted within the footprint of these routes. Control surveys should take place outside the area expected to be influenced by the construction and/or operation of the project.

Characterisation of the lease area and cable routes should then be carried out using multi-beam sonar equipment and ROV or towed sledge video equipment, to allow more detailed seabed classification mapping to be created (this may be conducted as part of the

geophysical survey programme). Informed by these surveys, a programme of benthic infaunal surveys should be undertaken within the site of the proposed tidal energy array and subsea cable route(s). This should entail replicate grab sampling where soft sediments exist (or, if appropriate, dredges within coarser sediments), for subsequent macro-faunal and sediment analysis. Where a hard substrate or sensitive habitat is suspected to exist, a ROV camera or drop down system may be used. All recovered sediment samples should be sieved through a 0.5mm mesh and taxonomic identification undertaken by a laboratory with external accreditation for species identification and sampling, (e.g. participation in a quality assurance scheme such as the NMBAQC scheme). Statistical evaluation of the data (to include multi-dimensional scaling and hierarchial clustering) should be undertaken and a voucher specimen should be collected and retained for all species recorded. The appropriate survey techniques will however depend on seabed type, depths and tidal conditions, as it is it is extremely difficult to carry out ROVs in high tidal current zones and equally difficult to get grab samples/cores at depths over 30m. Much of the lease area is in excess of 50 metres water depth and therefore not suitable for marine diver surveys. However, these may be possible within some of the shallower areas of the lease area and the cable route(s), and it may be beneficial to undertake some dives where possible.

Intertidal fieldwork should comprise of walk-over surveys at low spring tide to provide characteristic information on the inter-tidal communities which will inform the decision-making process on potential cabling routes. If necessary, subsequent detailed intertidal surveys should be undertaken along the chosen cabling route with transects undertaken across fixed locations to enable ongoing monitoring.

Figure 8.4 EUNIS Habitat Data in Study Area



8.3.5 Marine Mammals and Megafauna – Baseline

There are numerous marine mammals and marine megafauna that are known to use the coastal waters between White Park Bay and Red Bay. These marine mammals and megafauna are commonly observed and studied in the Rathlin and Ballycastle areas. There are lesser numbers of sightings and lesser studies within the Fair Head to Torr Head areas, generally because there are fewer people and boats present in the area to record the information.

The Harbour Porpoise *Phocoena phocoena*, Bottlenose Dolphins *Tursiops truncatus*, and the short beaked Common Dolphin *Delphinus delphis*, have all been observed in abundance close to shore within the study area (DETI, 2009). There have also been some sightings of Minke Whales *Balaenoptera acutorostrata* and Risso's Dolphins *Grampus griseus* further offshore. Basking Sharks *Cetorhinus maximus* have also been commonly spotted in the area. Rathlin Island is a known Grey seal *Halichoerus grypus* and Harbour / Common Seal *Phoca vitulina* haul out area (SAC designation). All of these listed mammals and fish are on the Northern Ireland Priority Species List.

In addition to the above species the Irish Whale and Dolphin Group (IWDG) sightings programme has also spotted Killer Whales *Orcinus orca* within the study area. The IWDG also has records of sightings of Harbour Porpoises, Minke Whales and Basking Sharks within the study area. During tidal velocity and seabed video surveys carried out in July 2011 for TVL, Harbour Porpoises, Common Dolphins and Basking Sharks were all observed within the study area.

8.3.6 Marine Mammals and Megafauna – Potential Impacts

Any proposed marine installation will have to take care not to harm these marine mammals and marine megafauna, as they may be attracted to or disorientated by installation works through the noise and vibrations created by construction plant and activities. Ducted propellers, are of specific concern in this regard. A thorough understanding of marine mammal and marine megafauna activity in the area will be essential and it is likely that there will be the requirement for mitigation measures to safely deter all inquisitive marine life during construction. Should marine mammals be prevalent in the area and construction methodologies indicate potential impact then precautionary measure will have to be taken to ensure minimal impact. There is also the potential for disturbance during operation of the

tidal array due to operational noise, vibration, collision risk and exposure to electromagnetic fields.

8.3.7 Marine Mammals and Megafauna – Recommendations

It is recommended that a desktop study and data screening exercise is undertaken collating and reviewing all marine mammal, seal, turtle and basking shark usage of the area, including sightings, known routes, haul out sites, pupping areas, feeding grounds and population size. This should also include details on species-specific acoustic sensitivities. The study should also undertake a review of current research in regard to collision risk and incorporate the results of any marine mammal monitoring which has been reported as part of MCT's Strangford Lough project, OpenHydro's work in the Puget Sound and other wave and tidal projects such as those around Orkney.

It is recommended that comprehensive baseline field surveys be undertaken. These should include marine mammal / marine megafauna field surveys, which are recommended to be undertaken on a monthly basis for a minimum of 12 months to monitor and record marine mammal and megafauna activity within the proposed lease area. The surveys should also include an assessment of the known seal haul out sites within the study area.

TVL have currently agreed with NIEA that 1 year of mammal surveys will be undertaken as a minimum followed by a review of the results to ascertain the requirement for further surveys. All survey methodologies will be agreed in consultation with NIEA and DoE Marine Division.

The impacts of the turbines on marine mammals and marine megafauna from impact strike, noise, vibration and EMF will need to be considered taking into account spatial habitat usage of the area, along with the impacts on protected marine mammal habitats further afield.

8.3.8 Fish and Fisheries – Baseline

The sea area off the north coast of Northern Ireland from the North Channel through to the North Atlantic is a relatively heavily trafficked marine area with fishing trawlers and cargo vessels, however much less so in the near shore areas close to the coast due to the rocky coastline and strong currents. The wider study area is known to be fished by trawlers for semi-pelagic fish and Whitefish, and there is scallop dredging off Rathlin Island and Red Bay. The entire coastline of the study area, including the coastline in the study area, is used for lobster and crab potting (creel). DARD Fisheries Department estimate around 10 registered

vessels fish in the Torr Head to Rathlin area, with the majority of the vessels being less than 10 metres. These vessels are fishing for crab and lobster using static pot gear. There is one registered vessel over 10 metres in length that is known to fish for scallops in the vicinity, however this is mainly to the west and north of Rathlin Island. The study area is also frequented by larger fishing vessels travelling between ICES areas 6a and 7a.

There are two salmon fisheries in the area, with salmon cages in Red Bay off Cushendall, and a seasonal salmon netting operation (in late spring and summer when salmon are migrating) operating from Portaleen harbour across Portaleen Bay on the southern side of Torr Head. DARD – Fisheries Department have commented that both salmon and cod migratory routes run through the vicinity of the TVL lease area offshore of Torr Head.

There are seven salmonid rivers that discharge into the study area, being the Tow River, the Glenshesk River and the Carey River at Ballycastle Bay, the Glendun River at Cushendun Bay, the Glenaan/Dall River, the Ballyemon River and the Glenarriff River at Red Bay. Atlantic Salmon (*Salmo salar*) are a Priority Species and are protected under the Freshwater Fish Directive (78/659/EEC). They are listed in Annexes IIa and Va of the EC Habitat and Species Directive and in Appendix III of the Bern Convention.

A strategic level indication of the extents of these fisheries and the locations of the salmonid rivers are shown in **Figure 8.5**, as provided by the DARD – Fisheries Department.

The 2012 Centre for Environment, Fisheries & Aquaculture Science (CEFAS) report on *Spawning and Nursery Grounds of Selected Fish Species in UK Waters*, demonstrated no known fish spawning sites within the marine part of the study area for Spurdog *Squalus acanthias,* Tope *Galeorhinus galeus,* Common Skate *Dipturus batis*-complex, Thornback Ray *Raja clavata*, Spotted Ray *Raja montagui*, Undulate Ray *Raja undulata*, Ling *Molva molva*, Hake *Merluccius merluccius*, Anglerfish *Lophius piscatorius,* Horse Mackerel *Trachurus trachurus,* Herring *Clupea harengus,* Cod *Gadus morhua*, Whiting *Merlangius merlangus*, Blue Whiting *Micromesistius poutassou*, Blue Ling *Molva dypterygia,* European Hake *Merluccius merluccius,* Sandeels (Ammodytidae), Mackerel *Scomber scombrus*, Plaice *Pleuronectes platessa* and Sole *Solea solea.* The marine part of the study area however may include nursery grounds for Cod, Spurdog, European Hake, Mackerel, Anglerfish, Common Skate, Whiting and Nephrops.

The Fisheries Sensitivity Maps in British Waters (Coull, K.A., Johnstone, R., and S.I. Rogers. 1998) show the study area to be sensitive on account of *Nephrops* and sprat spawning

areas, with *Nephrops* spawning all year (peak spawning April to June) and sprat spawning from May to August. The sensitivity maps show parts of the study area to be sensitive to seismic activity from December to June.

8.3.9 Fish and Fisheries – Potential Impacts

There is the potential for direct physical disturbance to fish and shellfish during construction activities and disturbance post-construction due to operational noise, vibration, collision risk, exposure to electromagnetic fields and indirect effects from changes to benthic ecology.

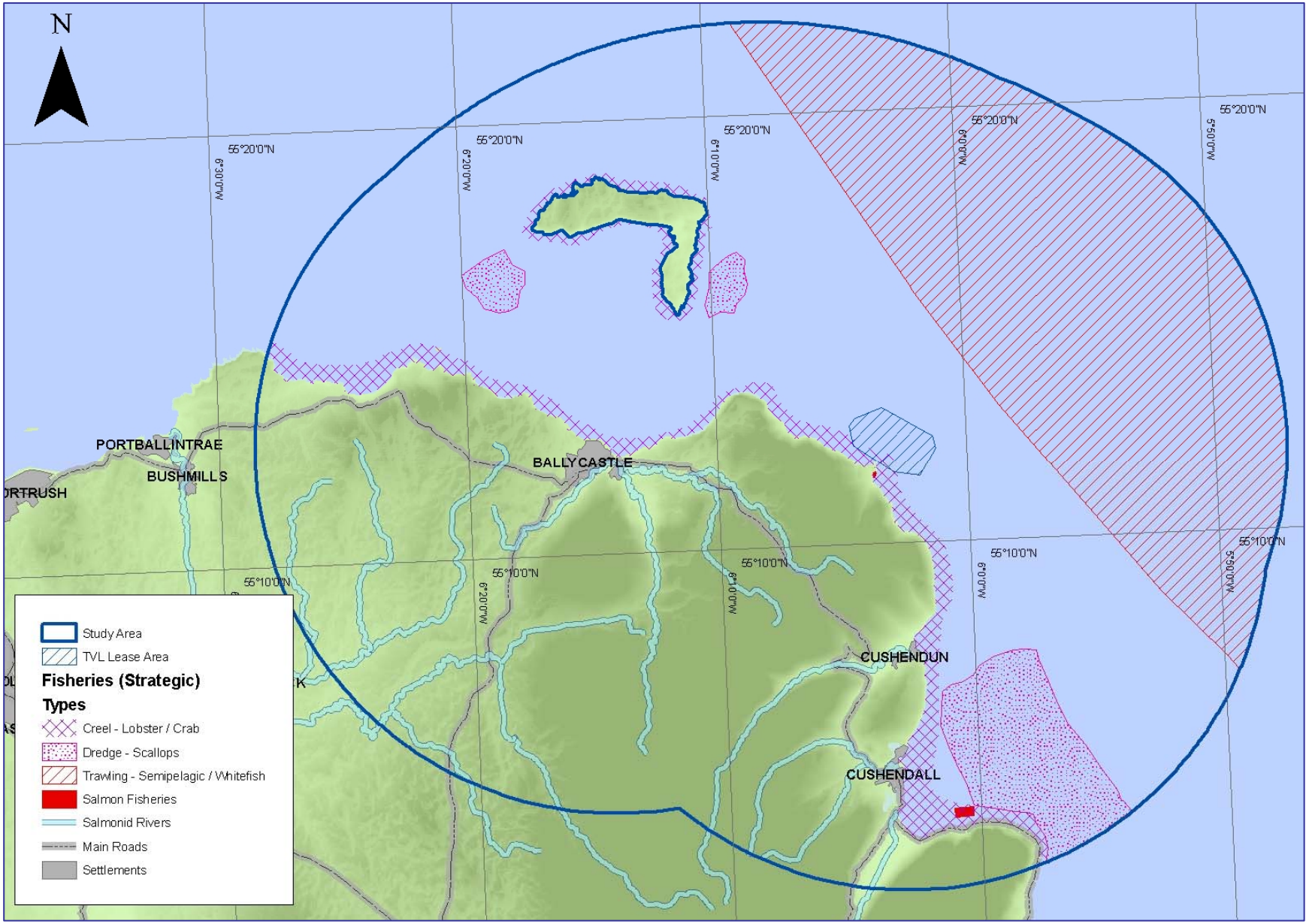
There is the potential for direct physical disturbance to fisheries from disruption to fishing activity and the imposition of temporary exclusion zones during installation activities and physical disturbance to commercial fish, shellfish and crustacean species, including spawning and nursery areas during the installation phase of the proposed development due to noise, vibration and suspended sediments. During the operational phase of the proposal, the presence of the tidal energy array may present a physical obstruction and/or a navigational risk and therefore has the potential to impact on certain fishing activities,. The route of the subsea cables may also pose an obstruction to certain types of fishing, and there may be indirect impacts to fisheries in terms of target species displacement, if the tidal energy array causes avoidance of the area.

8.3.10 Fish and Fisheries – Recommendations

It is recommended to undertake a desktop review of the relevant national, regional and local policies concerned with the protection and conservation of marine fish, shellfish and any relevant designations. These studies should also identify and assess the nearby salmon spawning rivers and their migration routes, including a review of migration times and catch data. Data on basking shark sightings in the area and a review of relevant elasmobranch literature should be considered. DARD – Fisheries Department and NIEA, with the assistance of the Agri-Food and Biosciences Institute (AFBI), undertake their own regular groundfish and shellfish surveys and it is likely that the information obtained from them will be sufficient to inform the EIA, unless data gaps are identified for information in the study area. Consultation with DARD – Fisheries Department and NIEA is recommended to determine whether beam trawl surveys or a specific elasmobranch survey programme will be necessary. The Department of Culture Arts and Leisure (DCAL) are responsible for inland salmon fisheries and consultation with them and local angling clubs should be undertaken to gain a greater understanding of salmon and trout movements.

Early consultation with the local commercial fishermen will be imperative, and a Fisheries Liaison Officer (FLO) should be appointed to undertake preliminary discussions with local fishery committees and individual fishermen who fish in the area to ascertain the level of use and the type of gear deployed within the study area. In addition to liaising with Northern Ireland based fishermen's organisations and individuals it may be necessary to liaise with fishery bodies in Scotland as there may be some Scottish boats operating in the area. The appointment of a FLO is essential to the project as they will act as the main conduit for consultation with the fishing community, the key stakeholders in regard to the proposed development project. A local contact on behalf of the fishermen of the area has already been nominated as Bob McMullan (North Coast Lobster Fishermen Association).

Figure 8.5 Fisheries and Salmonid Rivers



9.0 EMF

9.1 Baseline

Electric and Magnetic Fields, or EMF, are electromagnetic forces (protons and electrons) that are present throughout the earth and even in the living body. EMF levels are higher along transmission lines and cables as a current of electricity is running through these conductive lines. There is currently no significant electrical generation or electrical transmission in the study area. Electrical infrastructure in the study area is mainly the 11kV and 33KV distribution network.

9.2 Potential Impacts

It is unlikely that the construction phase of the tidal energy array, associated transmission line/cable route and substation would create additional significant EMF that would warrant further study.

The operation of the tidal energy array offshore of Torr Head, the transmission of the generated energy along subsea cables and terrestrial transmission line/cable routes, has the potential to create higher levels of EMF close to the transmission lines/cable routes, generating equipment (tidal energy array) and substation, with the EMF reducing with distance. The potential direct impacts of this additional EMF on human health and the local flora and fauna will need to be assessed. Concerns have been raised by consultees on the potential for indirect impacts of EMF on migratory species, such as salmon, by impeding their navigation.

9.3 Recommendations

It is recommended that a study of the potential operational EMF impacts of the proposal is carried out. This study should cover the operation of the tidal energy array, the subsea cables, the transmission line/cable route and the electrical substation. It is recommended that the outcomes of the study feed into the other environmental subjects of the EIA, namely marine and terrestrial ecology, fisheries, human health and birds, to establish the potential impacts on the living environment of the study area. The EMF study as part of the EIA should build on the work carried out to date by TCE in the Enabling Actions Projects and Publications for the Pentland Firth and Orkney Waters.

10.0 LAND USE

10.1 Baseline

The land cover types in the study area based on the Land Cover (LC2000) database are shown in **Figure 10.1**. The main land cover types include the following:

- Improved Grassland – 38% of the study area;
- Coniferous Woodland – 10.2% of study area;
- Acid Grassland – 9.8% of the study area;
- Dwarf Shrub Heath – 9.4 % of the study area, and
- Bog – 7.8% of the study area.

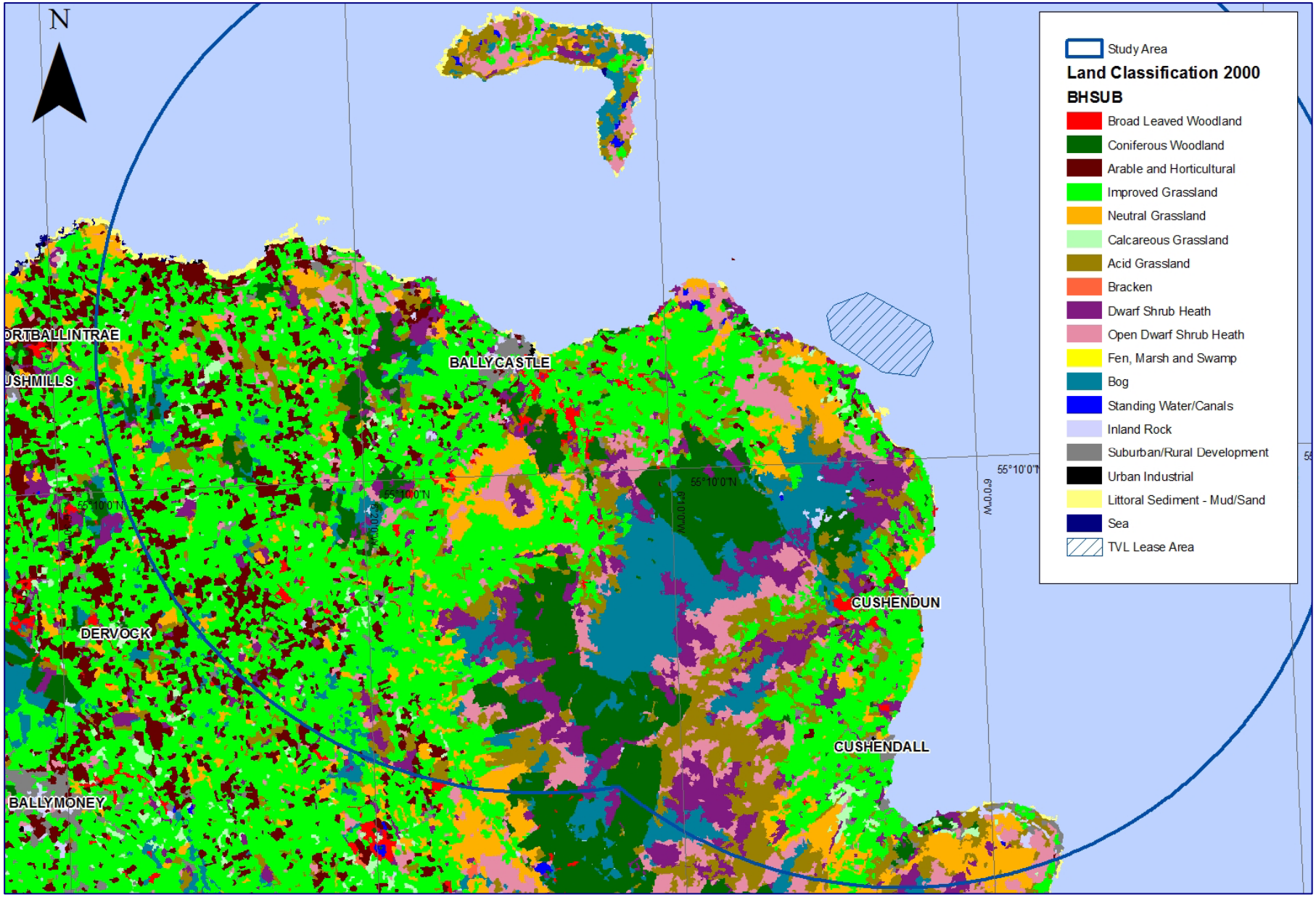
10.2 Potential Impacts

It is unlikely that the proposal will have any significant impacts on land cover types; however potential routings for any transmission line/cable route and substation will have to investigate the land cover sensitivity in more detail within the EIA.

10.3 Recommendations

It is recommended that a comprehensive review of the relevant national, regional and local land use plans and policies is undertaken for proposed land take areas and any transmission line/cable routes. Any potential changes in land cover or land sensitivity due to the proposal will need to be identified within the EIA.

Figure 10.1 Land Cover Types in Study Area



11.0 LANDSCAPE & SEASCAPE

11.1 Baseline

The North Antrim coastline is recognised for its visual importance, receiving high numbers of tourists each year. The TVL lease area lies offshore of the Fair Head landscape character area (LCA 120); while the coastline to the west of the area is defined as being within the Ballycastle Glens (LCA 119) (5km from the lease area). The coastline to the south of the study area is defined as being within the Moyle Glens (LCA 121) (4.2km from the lease area). Further inland from the Fair Head LCA is the Moyle Moorlands and Forest (LCA 118) (1.2km from the lease area). Within the study area there are also the Dervock Farmlands (LCA 56) (12.2km from the lease area), the Causeway Coast and Rathlin Islands (LCA 57) (12.2km from the lease area), the Garron Plateau (LCA 122) (15.4km from the lease area) and the Larne Glens (LCA 123) (15.5km from the lease area). The Cullybackey and Clogh Mills Drumlins (LCA 59) intersects the south western extent of the study area, however is unlikely to be impacted upon by any of the current proposals. The full landscape character assessments for Fair Head, the Ballycastle Glens and the Moyle Glens are provided in **Appendix B** (NIEA, 2011).

The key characteristics of the Fair Head LCA include the following:

- Narrow coastal strip on the northern slopes of the Antrim Plateau.
- Dramatic cliffs with igneous intrusions giving rise to prominent headlands and sheltered bays.
- Small scale rough pastures and rocky moorland cling to the steep coastal edge.
- Degraded round stoned walls and derelict stone farmhouses.
- Historic features are important on Fair Head.
- Coastal road winds precariously along the cliff edge linking, small stone cottages with dramatic seaward views.

The NIEA describe this coastal fringe landscape as being in a natural pristine condition, with an attractive combination of cliffs of varying geological strata, native woodlands, flowery pastures, headlands and secluded bays, and would therefore be very sensitive to change of any sort (NIEA, 2011).

The key characteristics of the Ballycastle Glens LCA include the following:

- Scenic river valleys and attractive rocky rivers enclosed by smooth, rounded hills.
- Undulating glen slopes support rough and improved pastures bounded by hedgerows which include gorse.
- Roads follow glen sides linking traditional white farmsteads and newer large farm buildings.
- Coastal town of Ballycastle occupies the mouth of the glens, within a sheltered bay.
- Historic remains including mottes, crosses, raths and standing stones are features.

The NIEA describe this area as a high quality landscape, which is reflected by its status as an Area of Outstanding Natural Beauty (AONB). Steep slopes, long views, and attractive wooded river corridors with low lying wetland areas of sedge and alder make the area very vulnerable to change (NIEA, 2011).

The key characteristics of the Moyle Glens LCA include the following:

- Dramatic steep glacial valleys within the Antrim Plateau.
- The northern glens (Glendun, Glenaan) have a v-shaped form with undulating sides, whereas those further south (Glenballyemon and Glenariff) have sweeping u-shaped profiles with dramatic basalt cliffs.
- Prominent hedgerows and trees in field boundaries, and ancient broadleaf woodlands give the glens a well wooded appearance.
- Long straight gorse hedgerows and degraded stone walls run perpendicular to the slopes along historic townland boundaries.
- Roads follow the contours along valley sides, linking distinctive white-washed stone cottages; settlement concentrated at bays.
- Extremely scenic and distinctive valleys, with long coastal views and a backdrop of wild moorland.

The NIEA describe the entire landscape of the Glens as extremely sensitive to change, hence their designation as an AONB. The steep upper slopes have a wild, remote character and any form of landscape change would be prominent against the backdrop of the high, open moorlands. At lower elevations, the landscape structure provided by existing vegetation is more robust, although the long open seaward views would result in any significant change being highly visible. The landscape in this LCA is generally in excellent condition, although small plantations on the upper slopes sometimes mask landscape

boundaries and stone wall boundaries are suffering degradation. Towards the coast, some new development occupies insensitive sites and lacks continuity with traditional design. Caravan sites (at Cushendun, Cushendall and Waterfoot) are often prominent (NIEA, 2011).

The Marine Renewables Strategic Environmental Assessment (SEA) (DETI 2009) divides this area into four separate seascapes, being the Giants Causeway coast, the Rathlin Coast, Ballycastle Bay and the Moyle Glens/Red Bay. It was noted in the SEA that the open expansive and elevated views to sea are significant components of the high scenic quality of the coastline and that the elevated viewpoints along the coast significantly increase the zones of visibility (DETI, 2009).

The Giant's Causeway Coast is described as being a wild, rugged and visually dramatic seascape, with a great vertical scale where often a high plateau landscape with basalt cliffs plunges abruptly to an incised coastal edge. This seascape contains the unique geological features at Giant's Causeway designated as a World Heritage Site. The main seascape features include the following:

- Topography consists of a dramatic series of cliff faces presenting a broken edge to the raised plateau. Typically the plateau edge is raised with limited views from the rural hinterland out to the open sea. Cliffs, headlands and islands form a complex indented coast with small sheltered bays below the cliffs with small scale views out to sea enclosed by headlands.
- Settlement is largely rural and scattered but tourism and tourist facilities such as hotels and viewpoints are a significant component. The coastal edge is undeveloped with the exception of a small number of defined coastal settlements.
- The steep cliffs (approximately 80 - 90m above sea level) present large scale expansive views to the open sea with long dramatic views of the coastline. The cliff landscape is exposed, rugged and of very high scenic quality.
- Long open elevated views along the coast and out to the open sea including long views along the north coast to Donegal. The land mass of Donegal was clearly visible from the world heritage site (approximately 28km at 2m above sea level) despite poor weather conditions (DETI 2009).

The main seascape features of the Rathlin Island Coast are described as follows:

- Topography consists of a dramatic series of cliffs and steep slopes edging to the rolling raised plateau. Cliffs, headlands and islands form a complex indented

coast with sweeping bays. Rathlin Island is a plateau landscape with cliffs and bays.

- Settlement is largely rural and scattered but tourism and tourist facilities such as hotels and viewpoints are a significant component.
- Long expansive elevated views (approximately 80 – 139m above sea level) along the coast and out to the open sea. The coast is of high scenic quality, rugged and exposed at cliff tops and headlands, sheltered within the low sandy bays (DETI, 2009).

The main seascape features of the Ballycastle Bay Coast are described as:

- Topography consists of an incised bay formed at the mouth of a large steep sided valley.
- The town of Ballycastle sits on the flat sheltered valley bottom with scattered rural settlement on the exposed uplands.
- Within the bay, views to the sea are reduced in scale, enclosed by the rocky headlands and Rathlin Island (approximately 6 km away) (DETI 2009).

The main seascape features of the Moyle Glens / Red Bay Coast are described as:

- Topography consists of an incised bay are formed at the mouth of a large very steep sided valley. The settlements of Cushendall, Waterfoot and Glenariff sit on the flat sheltered valley bottom with scattered rural settlement on the exposed uplands.
- Elevated views from the valley hinterland south of Fair Head (approximately 214m above sea level) long expansive views and large open sea horizons.
- Within the bay views to the sea are expansive but reduced in scale, enclosed by the rocky headlands (DETI 2009).

The seascape of the study area is shown in **Plates 1** to **5**.

Plate 1 Drumnakill Point Looking Towards Fair Head and Rathlin Island

Plate 2 Drumnakill Point Looking Towards Ruebane Point and Murlough Bay

Plate 3 Torr Head Looking Towards Fair Head

Plate 4 Torr Head Looking Towards Crockan Point and Runabay Head

Plate 5 Ballycastle Bay Looking West to Ballycastle

11.2 Potential Impacts

The siting of the offshore tidal energy array is only likely to affect the local landscape and vistas during the installation phase of the proposed development as there would be increased and less transient marine traffic in the area. It is anticipated that the proposed tidal turbines will be fully submerged, therefore during the operational phase the tidal energy array itself will not be visible from land and therefore should have no long term impacts on the landscape and saeascape. If navigation buoys are required to demarcate the turbine area there may be some visual presence of the marine development, however this is unlikely to be significantly intrusive. The navigation demarcation requirements will be subject to MCA Guidance MGN 372. During operation of the array, maintenance vessels may be required to visit the lease area, however these temporary visits are unlikely to have significant visual impacts.

If the landfall and routing of terrestrial cable routes employs underground cabling there is unlikely to be any significant impacts on the local landscape and views. However if overhead transmission lines are required to connect to the grid then detailed consideration of the visual

impacts will be required to ensure the routing does not impact on this sensitive coastal landscape. The location of any substation required as part of the proposed will need to be carefully planned and the visual impacts from local receptors will need to be assessed.

11.3 Recommendations

It is important that a detailed landscape and seascape study is undertaken for both the marine and terrestrial components of the proposal. The landscape and seascape characteristics will need to be assessed for their sensitivity to the proposed development. A visual impact assessment will be required to map the zones of theoretical visibility. Photomontages and/or 3D computer generated visual representations of the proposal may be required to assist in the visual assessment for any significant infrastructure.

12.0 NOISE & VIBRATION

12.1 Baseline

Baseline noise and vibration levels are likely to be low within the study area, particularly from anthropogenic sources, as there is relatively few industrial developments, low population density and low traffic levels in the area. The majority of noise generated within the study area is likely to be either agricultural or natural, outside of the more urbanised areas of Ballycastle, Cushendun and Cushendall. Also, as discussed in Section 19, the lease area and the coastal portion of the study area would only normally be frequented by smaller vessels, with more significant volumes of larger traffic using the deeper offshore areas in the north east of the study area within the Traffic Separation Scheme (TSS).

12.2 Potential Impacts

There is likely to be noise and vibration impacts associated with both the onshore and offshore elements of this proposal, as there is with any construction proposal of this scale. Both the terrestrial and marine noise and vibration from the proposed construction activities have the potential to cause significant environmental impacts on local receptors and will need to be studied in detail during the EIA. The main marine receptors to potential noise and vibration impacts will be the marine mammal and fish species that use the area, and potentially to some extent diving birds. Some marine species, such as Dolphins, are known

to be sensitive to underwater noise and vibration, and may be disorientated by or attracted to the noise and vibration arising from installation activities, operation (e.g. moving parts of tidal turbines) and decommissioning of the turbines and marine cabling. The main terrestrial receptors to any noise and vibration associated with the construction, operation and decommissioning of onshore electrical infrastructure are likely to be the local population, livestock and protected fauna (such as nesting and breeding birds).

12.3 Recommendations

It is recommended that for terrestrial noise a baseline noise monitoring survey should be completed in accordance with ISO1996/BS7445 to determine the noise environment in the vicinity of all areas where significant construction works or operational plant is to be located. The instrumentation for this survey must conform to the requirements for integrating averaging sound level meters (Type 1) as specified in BS EN 60804. The nearest noise sensitive receptors to the proposed substation must be included in this survey, as must the nearest sensitive receptors to the construction works, potentially at Ballycastle Bay, Torr Head and a selection of intermediary locations adjacent to the coast between Ballycastle Bay and Torr Head.

A construction noise assessment will need to be completed in accordance with BS5228:2009 to determine the impact from construction noise at all of the nearest noise sensitive receptors in the vicinity of the proposed substation, at the cable landing location, at Torr Head and at a range of intermediary coastal locations between the cable landing area and Torr Head.

A traffic noise assessment should be completed in accordance with the Calculation of Road Traffic Noise (CRTN) to determine the likely traffic noise increases on the road network in the vicinity of the proposed development as a result of the construction traffic activities.

A BS4142:1997 assessment (or update to BS4142 depending on publication at the time of assessment) should be completed in relation to the operational substation noise at the nearest noise sensitive receptors in the vicinity of the proposed substation. Any other potential operational phase noise sources associated with the proposed development should also be assessed in accordance with this methodology.

The noise impact assessment should make reference to a range of standard noise guidance documents where relevant, including WHO Guidelines (1999), BS8233:1999 (or subsequent update), PPG24.

A vibration assessment should be completed for the construction and operation of the proposal, the extent of which will depend on the requirement and extent of piling, drilling or blasting activities associated with the construction phase and the consequent likelihood of significant vibration impacts at the nearest sensitive properties. Any impacts from vibrations associated with the operation of the turbines will also need to be assessed.

Human-induced marine underwater noise is included in the definition of 'pollution' within the Marine Strategy Framework Directive. A marine underwater noise monitoring survey should therefore be completed to determine the baseline marine noise environment in the vicinity of all marine areas where significant construction works are proposed. Hydrophone or hydrophone arrays should be capable of measuring in the approximate range of 1 - 600,000Hz.

A bespoke marine noise and vibration impact assessment should therefore be completed, focused on determining the marine noise impact from the proposed installation works on the key marine mammals, birds and fish species known to be active in the study area (e.g. diving birds, dolphins, porpoises, seals and basking sharks). The operational noise impact of the turbines will also need to be assessed.

13.0 MATERIAL ASSETS

13.1 Baseline

The landward side of the study area is mainly agricultural land of low stocking density. The main settlements in the area are Ballycastle, which is approximately 10km to the west of the lease area, and Cushendun, which is approximately 7.5km to the south. The majority of the roads in the area are C class, unclassified roads, or country lanes, with the main route in the vicinity being the A class Cushendall Road, which runs between Ballycastle and Cushendun. There is no existing rail network within the study area.

There are approximately 7,200 properties within the study area, of which the majority are residential, with the main population centres being at Ballycastle, Cushendun and Cushendall. Within 5km of the TVL lease area there are approximately 70 properties, of which about 10 are commercial and the remainder residential.

Electrical infrastructure in the vicinity of the study area consists of 11kV distribution lines, with 33kV lines coming into Ballycastle from Coleraine and into Cushendun from Larne. The nearest 110kV and 275kV electricity transmission lines are at Coleraine and Larne respectively. There is a submarine power cable running from Ballycastle harbour to Rathlin Island and an Atlantic submarine telecommunication cable transecting the north east of the study area, approximately 15km offshore.

Within the study area the main marine infrastructure facilities are at Ballycastle. Photographs of the harbour at Ballycastle are shown in **Plate 6** and **Plate 7**. There is a local ferry service which operates between the harbours at Ballycastle and Rathlin Island. There are also several slipways/piers within the vicinity of the study area, Portaleen (Torr Head), Cushendun and Cushendall. A photograph of the slipway at Portaleen is shown in **Plate 8**. There are also known anchorage areas within the study area at Ballycastle Bay, Church Bay, Murlough Bay and Cushendun Bay.

There is a marine traffic separation scheme in the north east of the study area, designed to keep large vessels a safe distance apart when navigating between Rathlin Island and the Mull of Kintyre. Admiralty charts of the area show there to be Ministry of Defence (MoD) submarine exercise areas to the west and east of the study area, however none actually within the study area or near the lease area. Admiralty charts of the area also show several sea dumping/spoil areas within Rathlin Sound, used for disposal of dredge material from Ballycastle Harbour and Rathlin Harbour.

Consultation with the Ministry of Defence (MoD) has to date revealed no known sea dumping sites for unexploded munitions within the lease area or study area. Further liaison with the MoD will be undertaken throughout the planning process of the proposed development.

It must be noted that offshore of Fair Head, to the north of Torr Head, there is a second site which has been granted an AfL by TCE to investigate the feasibility of developing a commercial scale 100MW tidal energy array. This site is known as Fair Head and is leased by DP Marine Energy Ltd (DPME) and DEME Blue Energy (DBE). Any investigations in the EIA will need to ensure that the TVL proposals do not inhibit this site, and will also need to consider the cumulative effects associated with the construction, operation and decommissioning phases of both of these proposed developments.

13.2 Potential Impacts

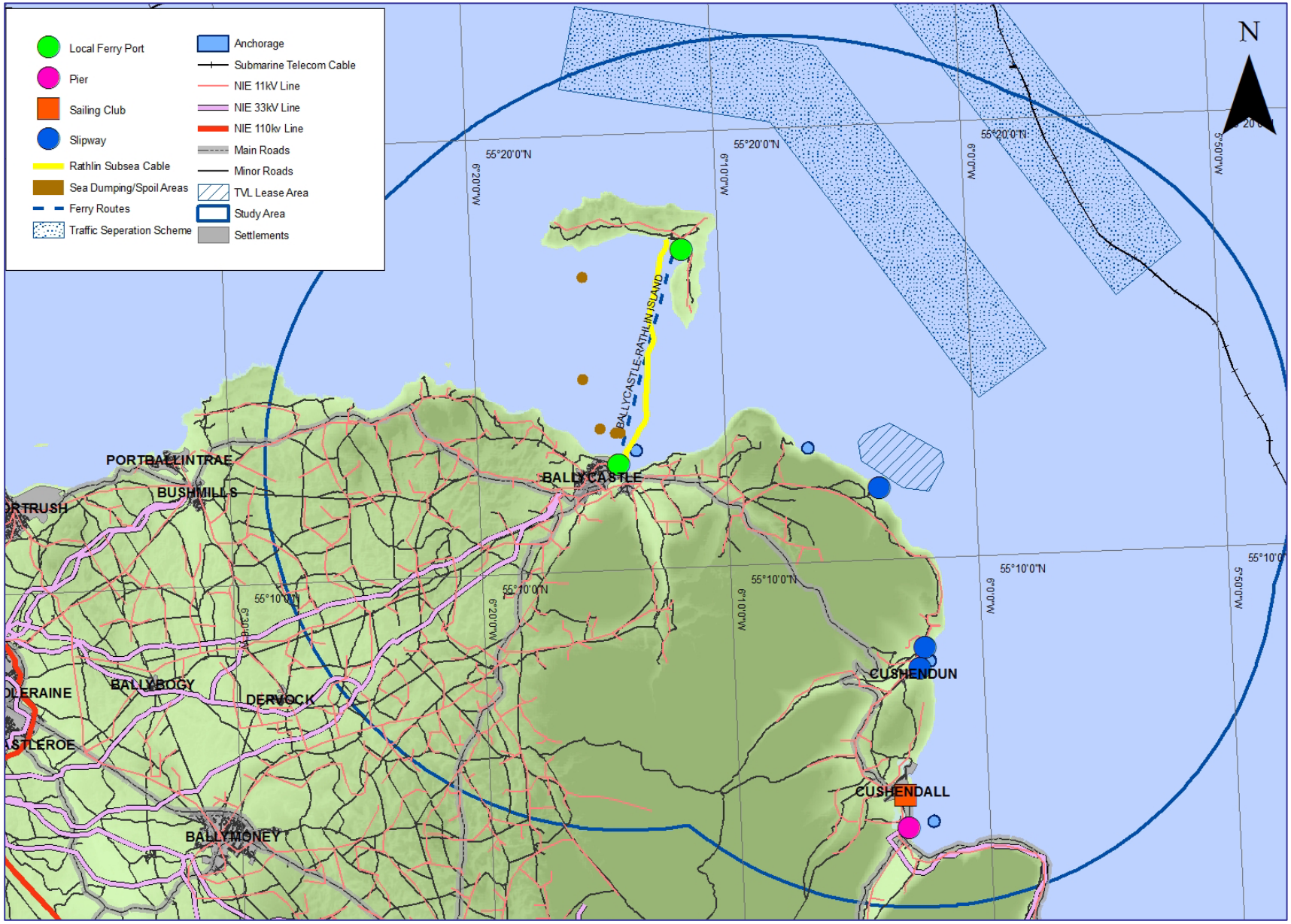
The main material assets and infrastructure within the study area are shown in **Figure 13.1**. As there are very few material assets within close proximity to the lease area it is unlikely that the marine proposals of tidal energy array deployment and cable laying will have any significant impacts on the existing assets and infrastructure. However there will be an asset requirement for this proposal, as it is essential that adequate upgrading of the local electrical grid infrastructure is undertaken to ensure it can cope with the electrical generation of the proposed development. The proposed onshore transmission line/cable route and substation will provide new material assets to the study area in the long term; however their construction may cause disruption to existing infrastructure (e.g. roads) in the short term.

Plate 6 Ballycastle Harbour – Ferry Terminal

Plate 7 Ballycastle Harbour – Private Berthing

Plate 8 Portaleen Slipway

Figure 13.1 Material Assets within the Study Area



13.3 Recommendations

A Traffic Impact Assessment (TIA) for the terrestrial construction, operation and decommissioning of the proposal is likely to be required. The construction/assembly site for the proposed tidal turbines is likely to be located at a port location on the north or east coast of Northern Ireland, the north east coast of Ireland or the west coast of Scotland. If a significant increase in traffic is anticipated at this construction/assembly site, then a TIA may also be required at this location. A Marine Traffic Impact Assessment will also be required; however this is covered in **Section 19**. The options for connection to the electrical grid network will be dependent upon the outcome of SONI and NIE investigations into the technical capacity of the present electrical system and assessment of upgrade requirements. Any new transmission line/cable route used to connect the offshore array to the grid will be required to undergo route studies and environmental assessment.

14.0 COASTAL PROCESSES & SEABED CONDITIONS

14.1 Baseline

14.1.1 Metocean Information

The wave climate on the north coast of Ireland is dominated by swell waves generated across the North Atlantic Ocean. These waves predominantly arrive from a west-north-westerly direction with a period of 8-10 seconds and with heights in the order of 2m and above. The smaller period wind waves are generally less than 3m in height but may exceed 5m at times. Typically the wind waves have around a 5 second period and are limited from the north east due to the shelter provided by Scotland and mainland UK.

Figure 14.1 and **Figure 14.2** show the combined wave height and period data respectively from the European Centre for Medium-Range Weather Forecasting (ECMWF) wave model. The data presented covers a period of 9 years for the location 55.5° north and 6.0° west. Similarly **Figure 14.3** shows the wind rose for the same location.

Figure 14.1 Combined Wave Height Rose – 55.5° -6.0°

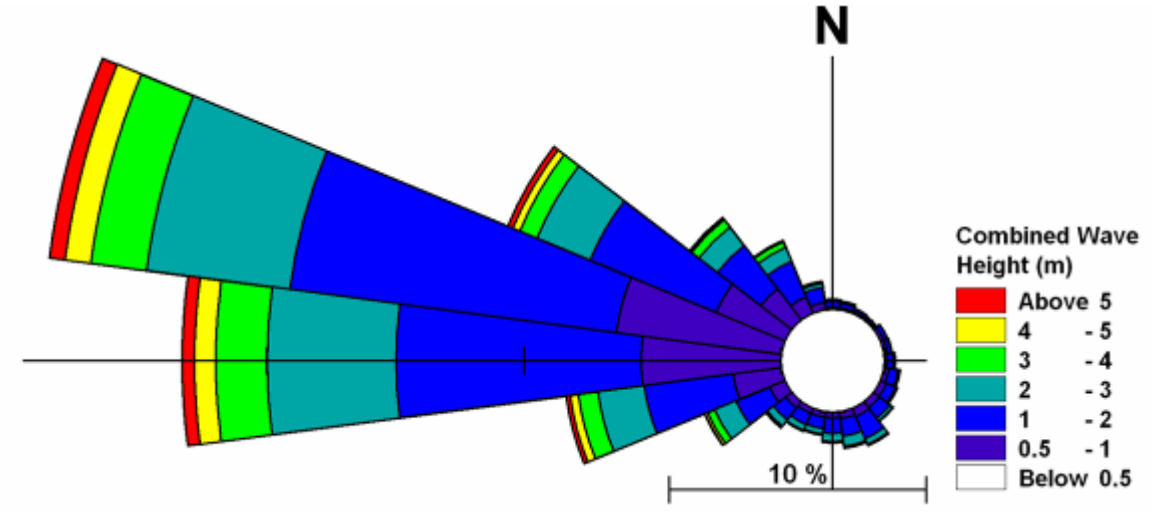


Figure 14.2 Combined Wave Period Rose – 55.5° - 6.0°

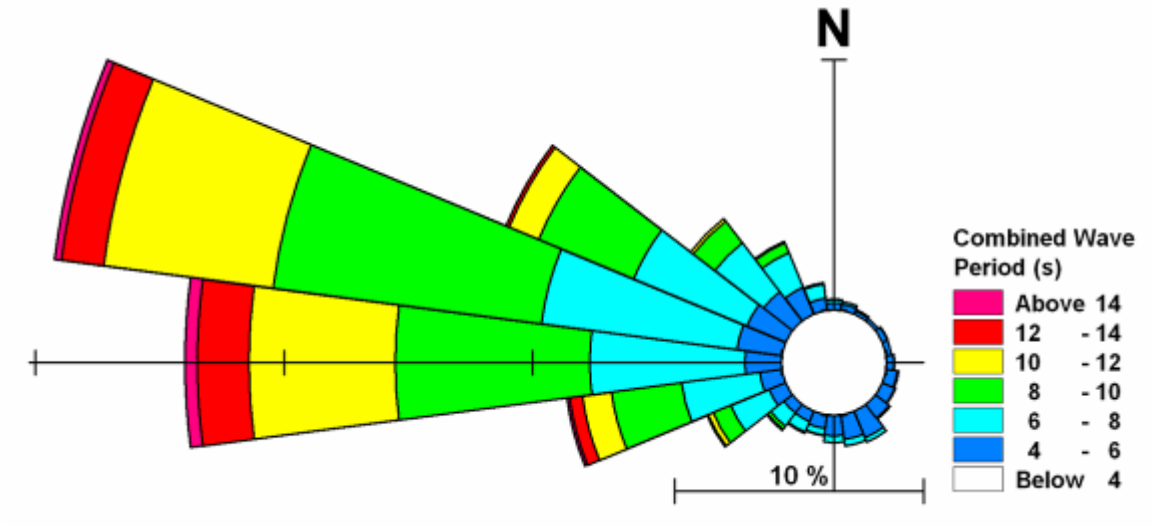
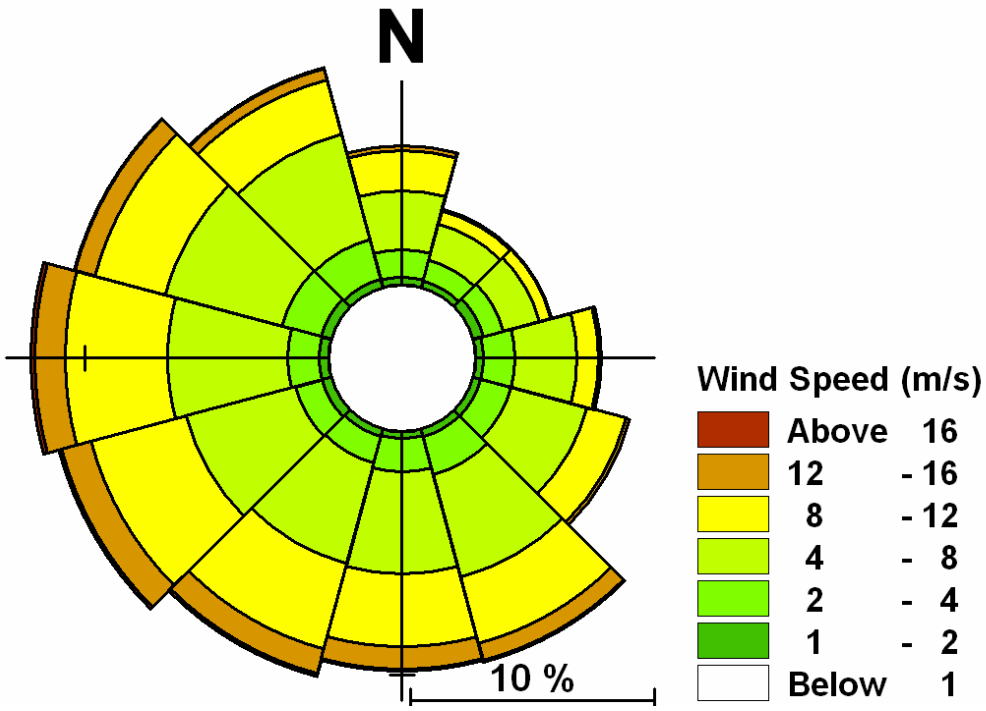


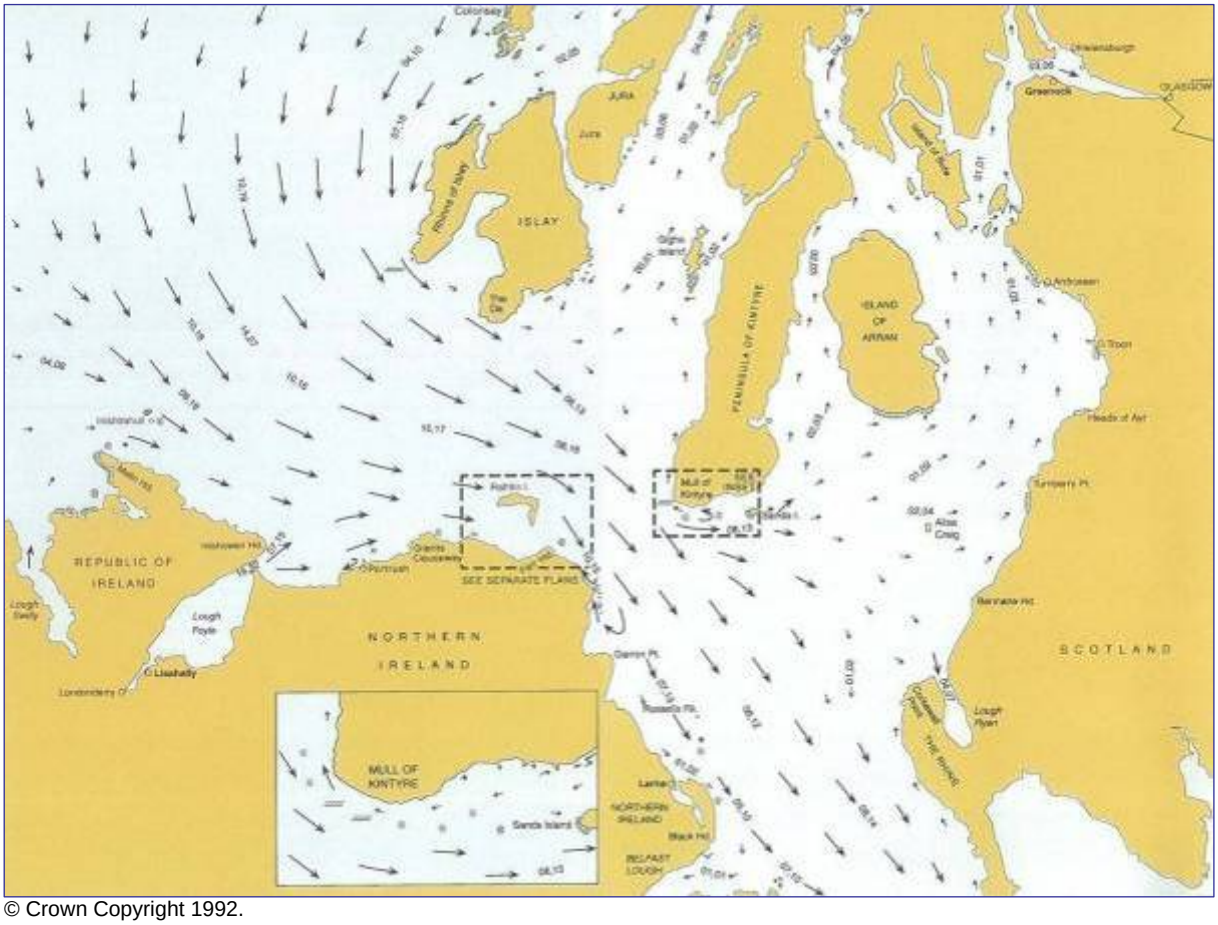
Figure 14.3 Wind Rose – 55.5° - 6.0



14.1.2 Current Velocity and Direction

Admiralty Tidal Atlas plots shown in **Figure 14.4** and **Figure 14.5** illustrate the complexity of the tidal system in the Rathlin / Fair Head / Torr Head area with eddies occurring in Church Bay, south of Rathlin, Ballycastle Bay and Torr Head.

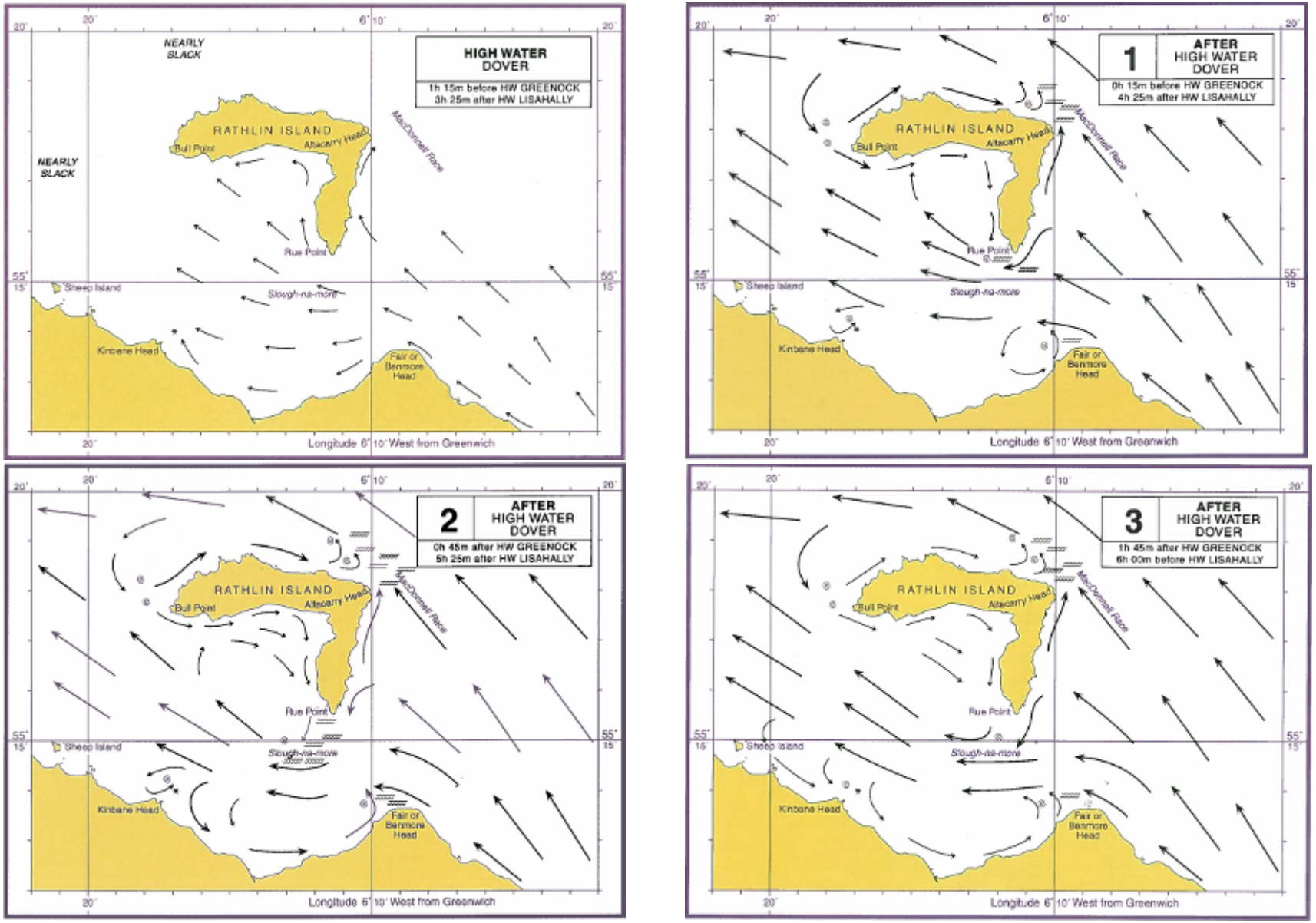
Figure 14.4 Admiralty Tidal Atlas Excerpt - 1hr Before High Water Dover (HO, 1992)

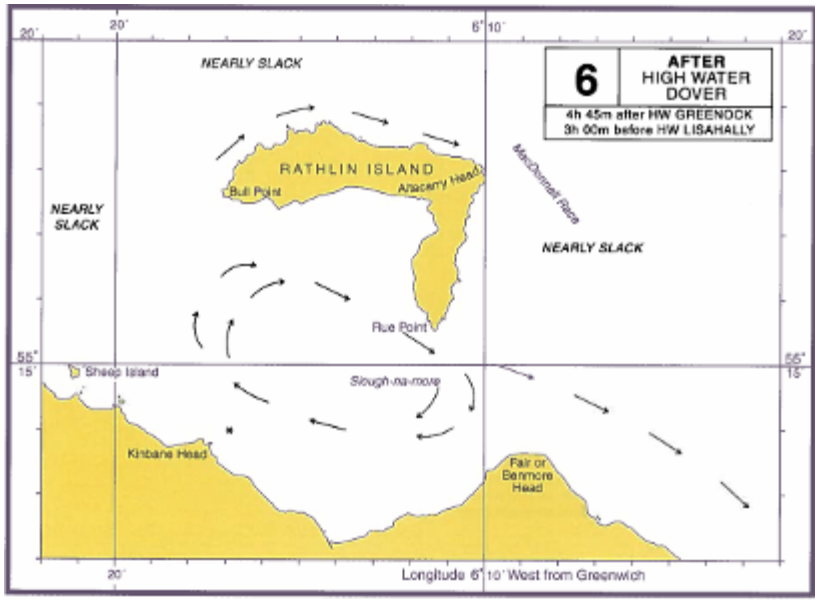


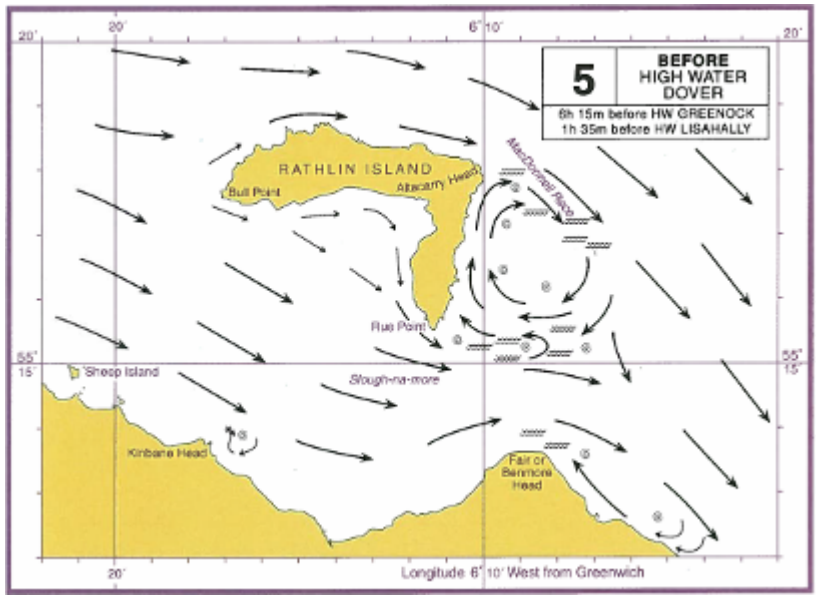
© Crown Copyright 1992.

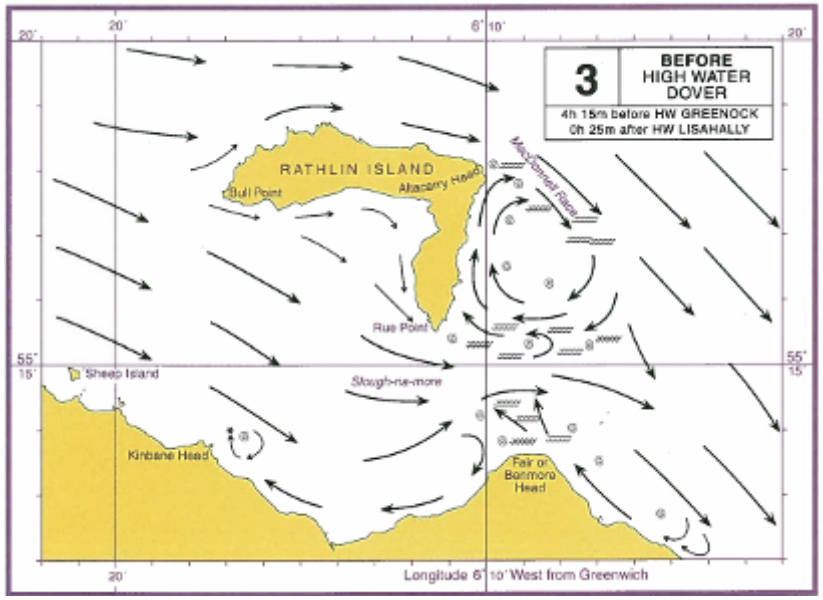
Tidal energy modelling completed by RPS in 2011 demonstrated depth averaged current speeds and directions as shown in **Figure 14.6** for ebb spring tides and **14.7** for flood spring tides. Current speeds in the study area are shown to be in the region of 2.5 – 3.0m/s for typical ebb spring tides and up to 3.5 – 4.0m/s at Torr Head and Fair Head for typical flood spring tides. Mean neap tide current speeds in the area of search are generally between 1.0 – 1.5m/s.

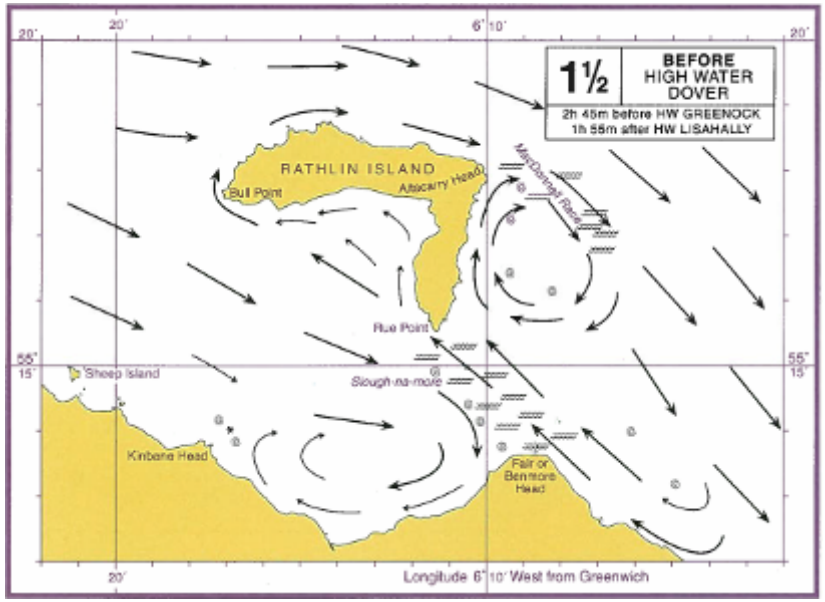
Figure 14.5 Admiralty Tidal Atlas Excerpt for Rathlin Island and Rathlin Sound (HO, 1992)











© Crown Copyright 1992.

Figure 14.6 Typical Ebb Tide Pattern – Spring Tide

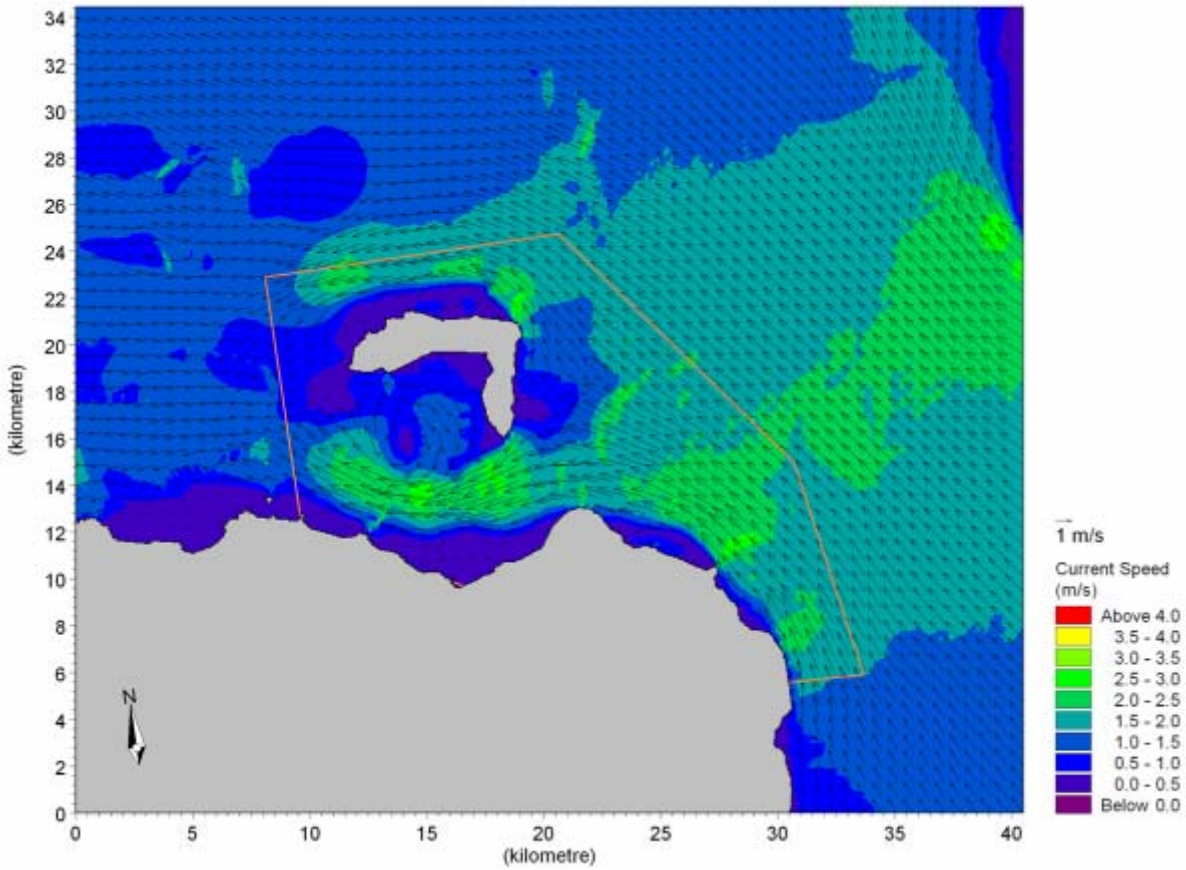
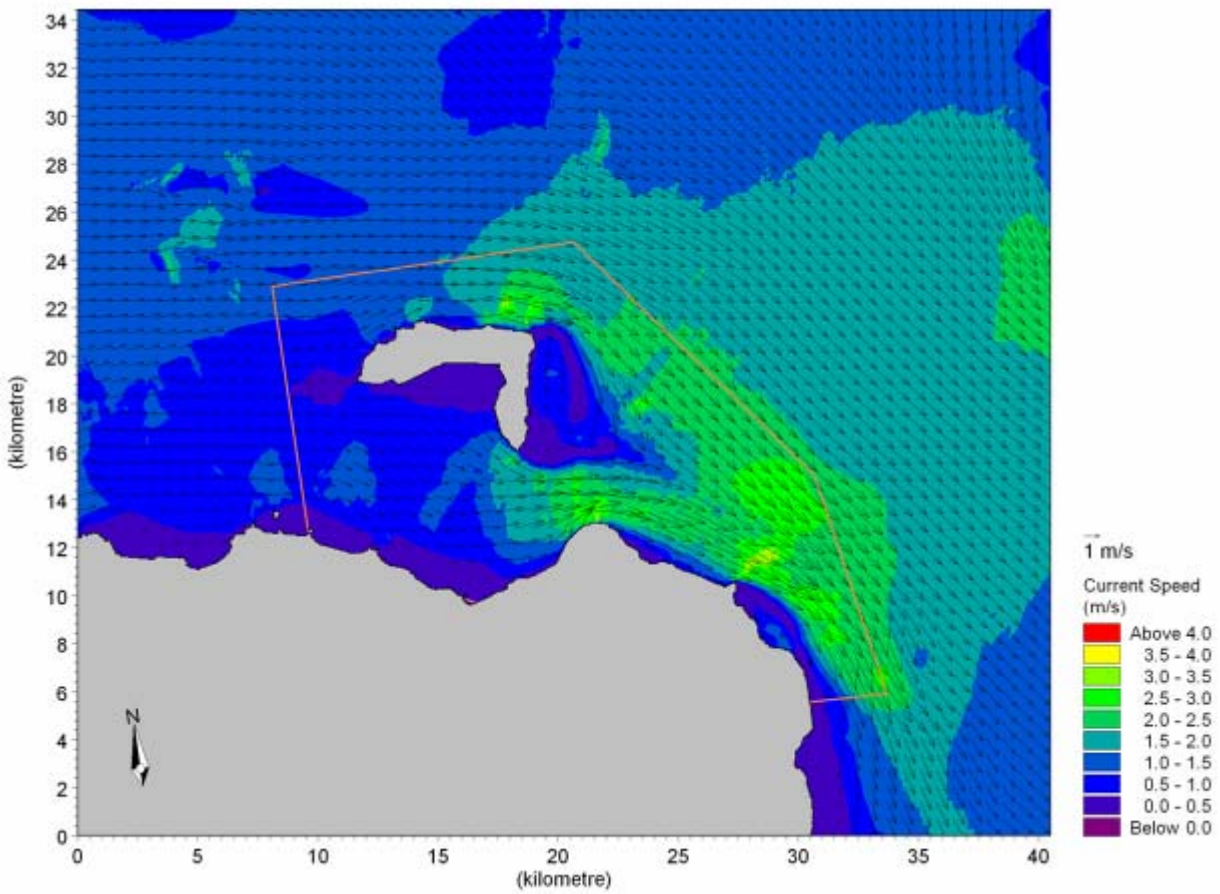


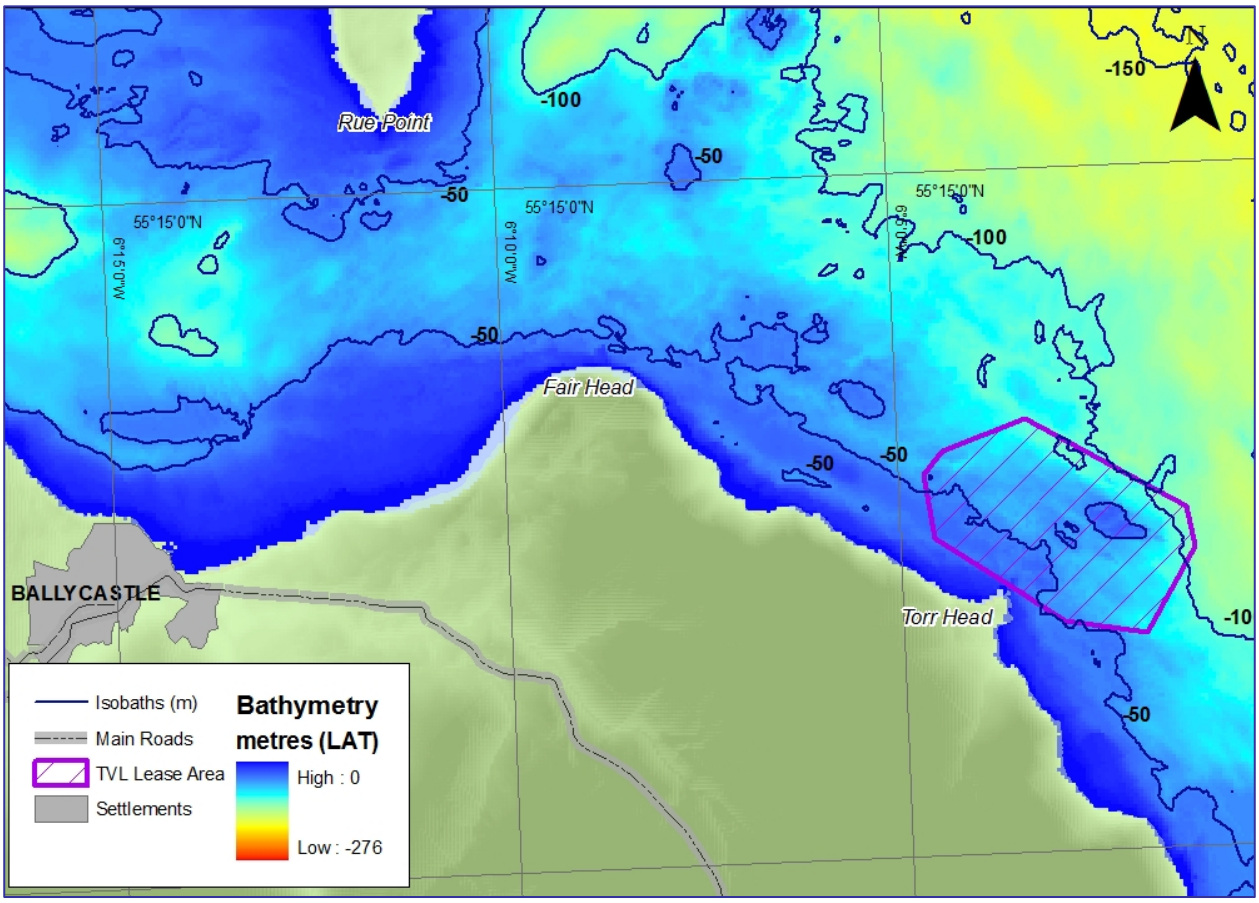
Figure 14.7 Typical Flood Tide Pattern – Spring Tide



14.1.3 Bathymetry

Bathymetry data for the study area was extracted from the Joint Irish Bathymetric Survey (JIBS) Project in December 2011. **Figure 14.8** illustrates the general bathymetry on a 45m grid resolution and demonstrates how the seabed in the lease area generally slopes away from the south west to the north channel in the north east. The study area incorporates water depths of mainly between -30m to -100m (LAT).

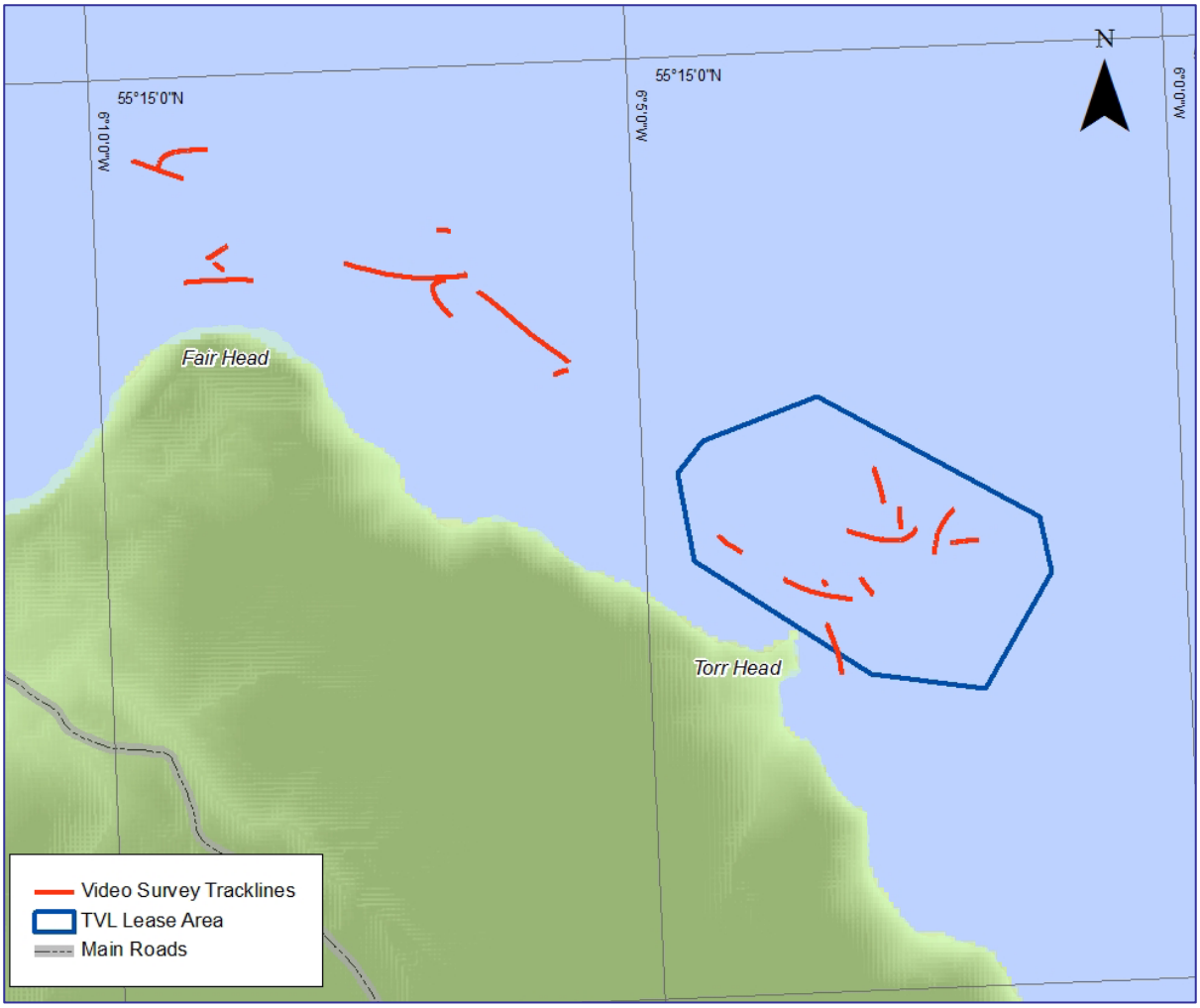
Figure 14.8 General Bathymetry of the Study Area



14.1.4 Seabed Surface Conditions

In January 2012, RPS carried out a study on the likely seabed sediment conditions based on the JIBS bathymetry and video surveys which partially cover the study area. The seabed sediment classifications outlined were based on the Wentworth Scale of sediment grain sizes. Where possible, videos of the seabed were used to identify the sediment type, however as the video coverage was limited, most areas were identified solely from features identifiable in the bathymetry data. Partrac undertook a number of video survey lines between the 10th and the 13th July 2011. These are shown in **Figure 14.9**.

Figure 14.9 Video Survey Lines – July 2011



British Geological Survey 1:250,000 offshore mapping of the seabed sediments show the seabed in the area to be overlain by gravel, sandy gravel and gravelly sand. Codes for the sediments identified within the lease area, as shown in **Figure 14.10,** are as follows:

Bo – Boulders

Co – Cobbles

cS – Coarse Sand

G – Gravel

P – Pebbles

R - Rock

sG – Sandy Gravel

14.1.5 Torr Head Sediments

The seabed sediments offshore of Torr Head are dominated by coarse sediments of gravel, cobbles and boulders, with coarse sand a lesser component. The sediment distribution

exhibits a strong northwest-southeast fabric reflecting the dominant direction of the tidal current. Much of the central zone of the lease area looks to have a veneer of cobbles and boulders over bedrock, with bedrock exposed as a sediment-free, bare-rock platform in the central east of the area. Scour is evident along the southern and western margin of this exposed bedrock forming a north west – south east orientated trough. The appearance of scour is also present in the form of longitudinal furrows cut into the gravel floor. It is anticipated that gullies cut into the rock platform may act as traps for coarse-grained sand sediment. Elongated gravel ridges occur in the central northwest of the lease area orientated longitudinally (parallel) to the direction of current flow. Similar bedforms occur in the southeast of the lease area, although their appearance is more suggestive of gravel furrows and waves grading to ribbons that possibly reflect a sandier lithology. Coarse sand and pebbles dominate in the south western corner of the lease area, likely related to slowing tidal velocities in the lee of the adjacent coast. Sand waves are observed at the northern margin of this zone showing a north north west – south south east migration, generally in keeping with the trend across the area and suggestive of increasing current speed away from the coast. A digitised output image of the seabed sediments is shown in **Figure 14.10**, while an image of the seabed bathymetry is provided in **Figure 14.11**.

14.2 Potential Impacts

Installation of the tidal energy array and subsea cables has the potential to cause temporary sediment plumes that may impact local water quality and ecology. Operation of the installed tidal energy array has the potential to impact coastal processes (e.g. water speeds and sedimentation patterns) along the Antrim coastline, as the tidal energy array is effectively removing energy from the tide, which in turn may impact upon the marine flora and fauna of the area, including Natura 2000 designated sites and species.

14.3 Recommendations

The hydrodynamic modelling which has been carried out to date involved an assessment of the area of influence on coastal processes of a sample site layout with generic device characteristics. In order to satisfy the needs of an EIA further coastal process modelling is recommended. The additional modelling should be tailored to the proposed site layout and encompass all environmental factors which may be affected.

The hydrodynamic modelling should be extended to include:

- The impact of the site layout on hydrodynamics, and
- The potential impact on the sediment transport characteristics of the area.

Detailed scoping of the modelling should be carried out following the collection of site specific data. However models derived during the resource assessment phase could be utilised in the extended study. The cumulative impacts on coastal processes of two sets of commercial tidal energy arrays operating (Torr Head and Fair Head) at the same time would also need to be considered in the EIA. The outputs and conclusions of the coastal processes studies will feed into the ecological impact assessment and Habitats Regulation Assessment.

Figure 14.10 Torr Head Interpreted Sediments

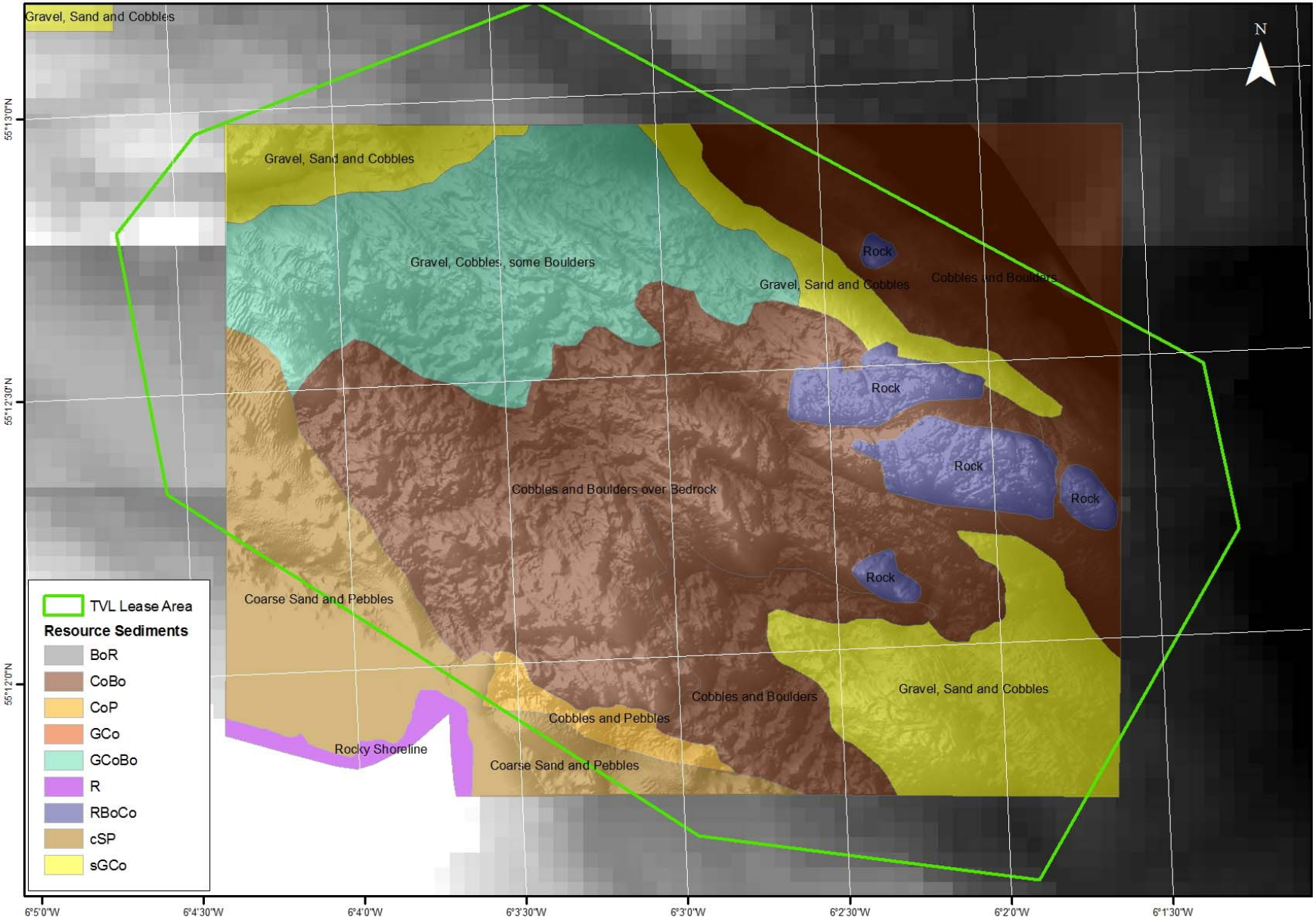
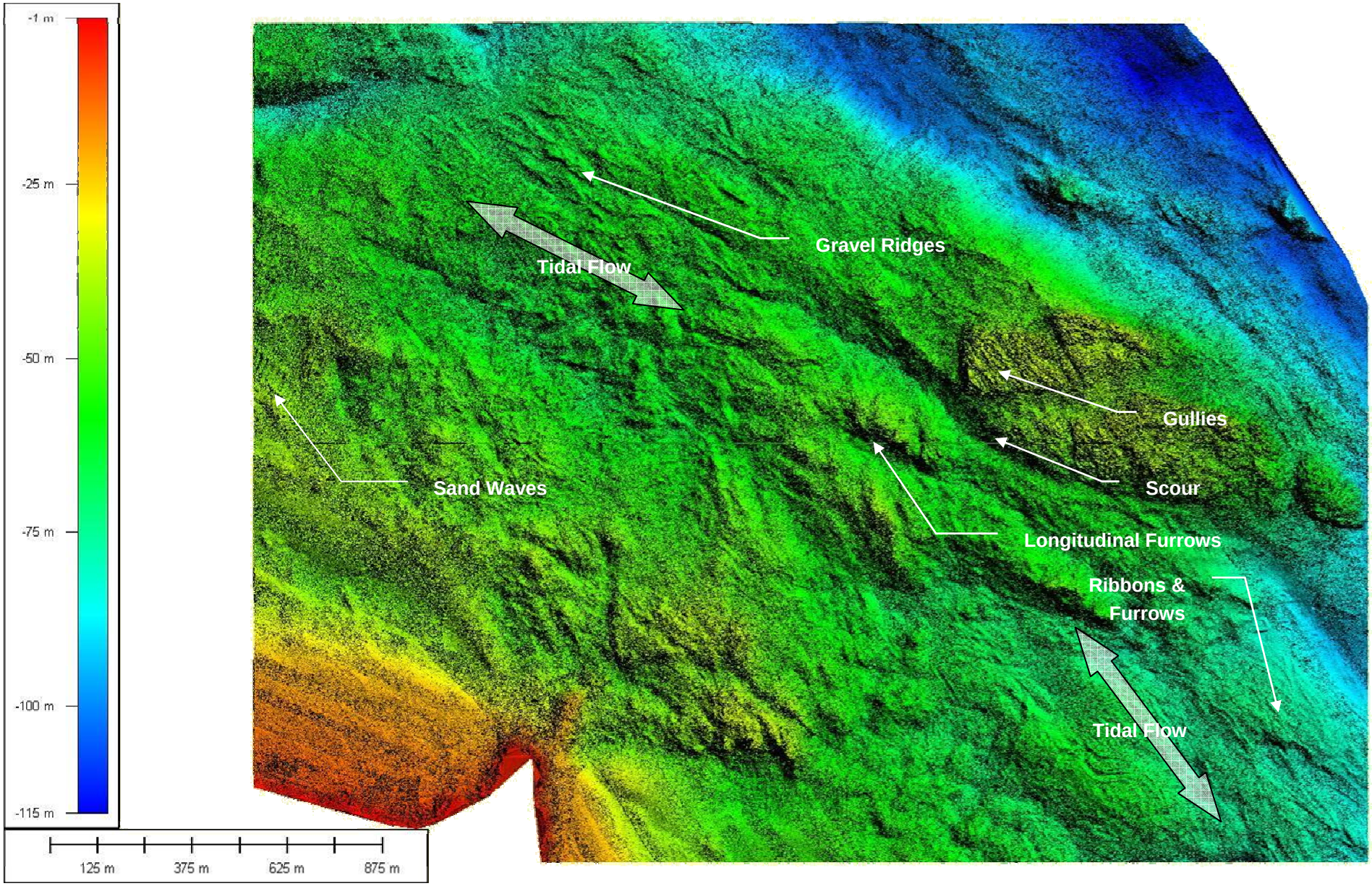


Figure 14.11 Torr Head Bathymetry



15.0 SOCIO-ECONOMICS

15.1 Baseline

Although the Torr Head area has few tourist facilities, the area offshore is sometimes used for recreational and commercial diving, fishing and sightseeing boat trips. Scuba diving companies reportedly take clients to the Torr Head, Fair Head and Murlough Bay areas, and use the general area for sightseeing boat trips. Discover Northern Ireland rates Torr Head as one of the best sites off the Causeway Coast for sea angling, albeit potentially dangerous and not to be fished alone[1].

The main industry within the study area is agriculture and agri-related businesses; however significant proportions of the population are employed in public administration. Approximately 6% of the population in the study area, which are economically active, were unemployed during the Northern Ireland Statistics and Research Agency 2011 census (NISRA 2013).

Tourism is a major contributor to the economy in the area, with the north and north east coast of Northern Ireland being one of the provinces main tourist areas. Within the study area Ballycastle, Cushendun and Cushendall are popular summer tourist resorts, with numerous caravan sites and B&Bs scattered throughout the area. Some of the main tourist attractions in Northern Ireland lie just outside the study area, such as the Giants Causeway and the Bushmills Distillery. The provision of accommodation and food services provides a significant proportion of the employment in the study area. Fishing is also a small, but important contributor to economic activity within the study area and has the potential to be proportionally more impacted by the proposed development than other industries.

15.2 Potential Impacts

The proposed development is unlikely to directly negatively affect any existing tourist attractions or visiting tourists, and may actually attract greater numbers of visitors to the area. The socio-economic impacts of the proposals to the area could be positive through the creation of skilled employment and by developing a world leading technology within an area which currently provides little potential for scientific and engineering employment and development.

[1] http://www.discovernorthernireland.com/Sea-Angling-A2068

15.3 Recommendations

The economics of the proposal will need to be established to ensure the venture is a viable long term project. The likely impacts to the area in terms of employment created or lost should be developed within the EIA. Any potential social and economic impacts on established businesses in the area will need to be assessed, such as commercial and recreational fishing, agriculture, tourism and diving.

16.0 POPULATION & HUMAN HEALTH

16.1 Baseline

The study area is mainly located within the Moyle District Council area, which has the smallest population of any principal authority in the United Kingdom. The Council area is approximately 480km^2 in size with a population of approximately 17,050 people in 2011, which gives a population density of 35 people/km^2. The main population centres in the study area are Ballycastle, Cushedun and Cushendall. The population of in the entire study area from the 2011 census is around 20,500 (NISRA 2013). According to the 2011 census the public within the study area estimated that their health was as follows:

- Very Good Health ~ 46%
- Good Health ~ 33%
- Fair Health ~ 16%
- Bad health ~ 4%
- Very Bad Health ~ 1%

16.2 Potential Impacts

The local population and their wellbeing should not be impacted on by any aspects of the proposal, provided that all relevant health and safety standards are adhered to in the construction and operational phases of the marine and terrestrial works. The low population density in the area should mean that any temporary construction works required are unlikely to have a significant impact upon a large population.

The study area intersects slightly into the areas of Ballymoney Borough Council and Larne Borough Council, however under the current proposal there are unlikely to be any impacts upon the populations of these Council areas.

16.3 Recommendations

Any potential impacts on the local population should be studied further within the EIA, such as construction impacts through noise, nuisance dust and general disturbance, or operational impacts associated with EMF from transmission lines/cable routes and any substation. Further studies should also be used to assess the potential positive impacts on human health on a national scale, through the significant reductions in emissions from power stations in Northern Ireland. Planning for the proposal should include consideration of all relevant marine and terrestrial health and safety requirements.

17.0 SOILS AND GEOLOGY

17.1 Baseline

The geology of the north Antrim coast is extremely interesting and diverse. The NIEA describes the geology of the Antrim Coast and Glens AONB as:

"*To read today's landscape requires a journey back in geological time. In the past the land surfaces consisted of sedimentary rocks: sandstones, limestones, shales and clays.*

On the surface some 55-60 million years ago poured lavas which formed a massive basalt plateau, capping and preserving the softer rocks below. To the north-west all these rocks have been stripped away to reveal silvery schists - the oldest rocks of the area some 300 million years old.

This geological variation produces many contrasts - red sandstones, grey clays, black basalts and white limestones, creating an ever-changing display reflected in local place names - Red Bay, Blackcave, Whitebay, while the 'dhu' in many names is Irish for black.

The present shape and form of the glens and coast is the result of intense glacial erosion during the last glaciation which was drawing to a close only 17,000 years ago. Ice has sculpted the landscape deepening pre-glacial valleys as at Glenariff and Glenballyemon.

At Fair Head and Rathlin rock surfaces bear the scars of passing ice, and ice-scoured hollows are filled with small loughs and bogs." [2]

[2] (http://www.doeni.gov.uk/niea/)

Fair Head and Murlough Bay are designated as ASSI partially due to the wide range of geology over a reasonably small area, with the three main classes of rocks (igneous, sedimentary and metamorphic) all being seen within the ASSI.

The Torr Head ASSI is described as being the best exposure of metamorphosed Limestone of Dalradian age in Northern Ireland. Torr Head is the type locality for the Torr Head (Limestone) Formation. The NIEA describe this site as being of international importance as it is crucial in aiding the understanding of the relationships between rock sequences elsewhere in Northern Ireland and Scotland. Some 600 million years ago sediment accumulating within an ancient ocean basin formed rocks which were later incorporated into an enormous mountain range. The residual core of this chain forms the uplands of North East Antrim, as well as the Sperrin Mountains. During this process the rocks were altered through the actions of temperature and pressure. In the case of the sequence at Torr Head the rocks were all altered and literally turned upside down. The Torr Head formation is best viewed from the southern side. Here parallel limestone layers of the Torr Head Formation overlie a series of altered sandstone (the Altmore Formation). At the top of the limestone section a massive metabasite extends at least 50m to the top of Torr Head. This sequence of rocks records the development of a shallow sea, along the margins of Laurentia (a former continent, roughly equivalent to North America today), approximately 600 million years ago. Volcanic activity at the time resulted in the association of limestone and basaltic rocks, which can now be seen at Torr Head.[3]

The Ballycastle Coalfield ASSI is described as the best exposure of a coalfield sequence in Ireland, containing a series of Carboniferous sedimentary rocks (335-330 million years old) with contemporary lavas and younger Tertiary igneous rocks (60 M.y.). The sedimentary rocks were deposited in a shallow marine bay which gradually developed into a vegetated coastal swamp subject to periodic flooding by the sea. The vegetation was preserved as seams of coal, with numerous fossils being found. The Tertiary dykes have metamorphosed the carboniferous shales to produce porcellanite and a range of minerals. The ASSI also contains evidence of early industrial activity, with coal and iron ores being mined between the 16th and 19th centuries. The underlying geology and the spoil heaps give rise to both base rich and acidic habitats, including wet grassland, base-rich flushes and maritime heath. Limited saltmarsh occurs on some of the beaches.[2]

[3] (http://www.doeni.gov.uk/niea/)

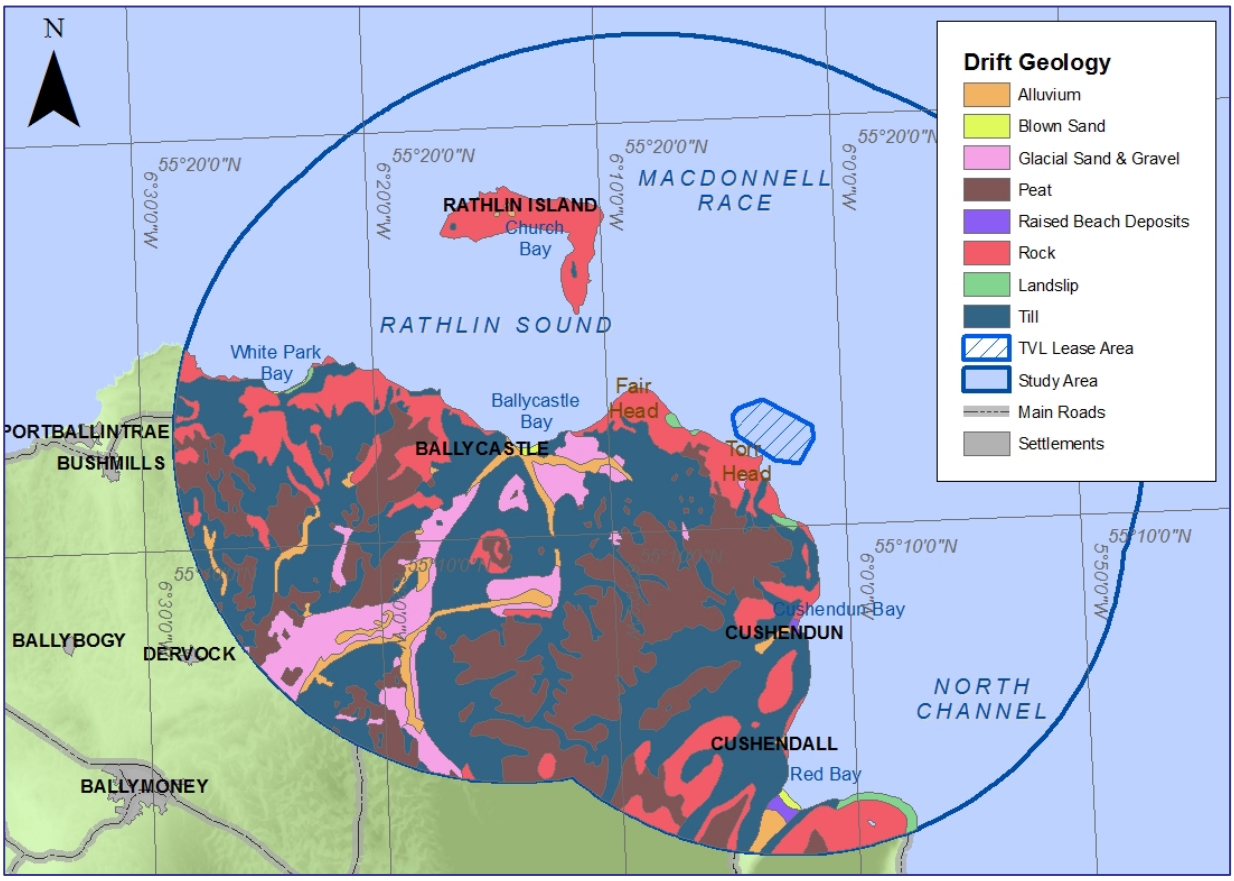
Within the study area there are also several geological localities designated as Sites of Local Nature Conservation Interest (SLNCI) that have been identified through the Northern Ireland Earth Science Conservation Review (ESCR) programme. The coastal section of the Escort port ESCR gives access to rocks of the Argyll Group of the Middle Dalradian, ancient rocks formed 600 million years ago. The divisions seen are the Owencam Formation and part of the overlying Torr Head Formation. The Altmore Burn ESCR is a deeply incised stream section carved into late Precambrian rocks of Upper Dalradian age. These are ancient rocks, over 570 million years old, formed at a time when there were almost no organisms with shells or skeletons capable of forming fossils. All these rocks have been regionally metamorphosed, which means that they have been deeply buried and subjected to high pressures and temperatures that have changed both their appearance and their mineral content. The Leckpatrick Point ESCR is a stratotype of the Leckpatrick Green Beds Member, the upper division of the Runabay Head Formation. The rocks form part of the Southern Highland Group, the upper division of the ancient Dalradian Supergroup. The Loughan Bay ESCR demonstrates the range of different rock types of the Runabay Head Formation. The rocks form part of the ancient Dalradian Supergroup of metamorphic rocks and belong to the Southern Highland Group, the second half of the period. The Runabay Head Formation is the middle of three formations that comprised the group.[4]

Figure 17.1 presents the drift geology of the study area, with the coastal strip from Torr Head to Fair Head, adjacent to the lease area, being composed of undifferentiated solid rock. Inland from the coast the drift geology of the Glens of Antrim consists of peat in the upland areas, with undifferentiated till lower down on the slopes. Glacial sand and gravels dominate the lowland areas, with sand and silt alluvium along the major river systems of the Bush and Glenshesk.

Figure 17.2 shows the British Geological Survey bedrock geology mapping of the study area (1:250,000), which shows the Torr head area, directly onshore from the lease area, to be composed of Limestone and Metamorphosed Lava and Tuff of the Torr Head Limestone Formation. North of Torr Head the coastal geology is mainly Metamorphosed Lava and Tuff, and Psammite and Semi-Pelite of the Owencam Formation. South of Torr Head the coastline comprises Psammite and Semi-Pelite of the Altmore and Runabay Formation. Psammite and Semi-Pelite of the Owencam Formation is predominant from Torr Head and into the Glens of Antrim, while the west of the study area is dominated by Basalt of the Upper Basalt Formation.

[4] www.habitas.org.uk

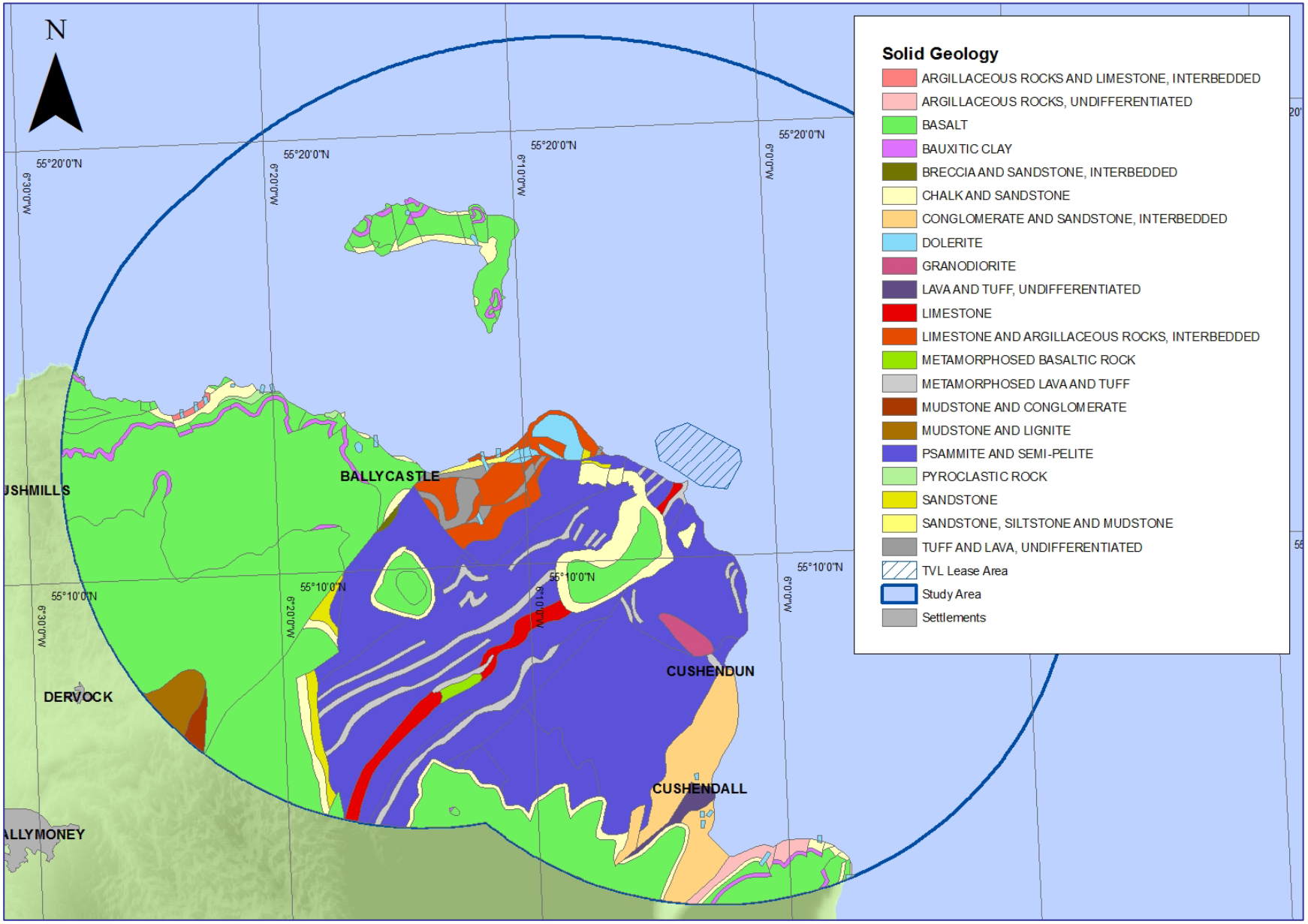
Figure 17.1 Drift Geology of the Study Area



The seabed in the lease area is interpreted to be composed of bedrock either at or close to the surface, overlain by limited if any till. The bedrock is interpreted to comprise a complex sequence of Dalradian Metasediments with complex outliers of Devonian, Carboniferous, Mesozoic and Tertiary (igneous) material. The weathering and the engineering potential of this material may therefore vary considerably. The geology of the offshore area will likely reflect the nature of the onshore strata. **Section 14** of this report provides information on the observed and the interpreted seabed sediments in the lease area.

Habitat Directive Annex I "*Reef*" habitats have been identified within the study area, such as those protected under the Rathlin Island SAC. The Joint Nature Conservation Committee (JNCC) also identify the potential for Annex I "*Reefs (Bedrock)*" near the shoreline at Drumnakill Point, Murlough Bay, Carrick-a-more, Ballycastle Bay and Castle Point. Any potential impacts on these potential reef areas will need to be assessed in detail during the EIA.

Figure 17.2 Bedrock Geology of the Study Area



17.2 Potential Impacts

The NIEA Natural Heritage Department commented that the main issues relating to the geological interests in the study area are likely to be associated with the land based elements of the project, including land based construction, storage of materials, development of access routes and cabling. All of the Earth Science ASSI in the study area are hard rock exposures, so it is likely that the direct impacts of construction and engineering activities pose the biggest risk of potential impacts. The NIEA also comment that there are some important geological elements of these ASSIs located in inter-tidal areas, and therefore could potentially be affected by changes to the hydrological-sediment system in the area.

17.3 Recommendations

The onshore portion of the study area is well researched and much of the terrestrial assessment work may be completed through desktop studies and consultations. However for the offshore component of the proposal it will be important that appropriate geotechnical and geophysical data is acquired, potentially from shallow seabed vibrocores and rock cores, to inform the required engineering designs for the proposal. The appropriate survey techniques will however depend on seabed type, depths and tidal conditions, as it is extremely difficult to carry out ROVs in high tidal current zones and equally difficult to take grab samples/cores at depths over 30m. Further seabed sediment interpretation and video sampling will be required to cover the full lease area and all potential cable routes. Sediment samples and cores along cable routes may be required to assist in design of the burial depths and landing locations, and to inform coastal process modelling. The coastal process modelling will inform the assessment of the impacts on offshore and inter-tidal geology and sediments.

18.0 WATER

18.1 Baseline

Under the Water Framework Directive (WFD) the TVL lease area lies within the North Channel coastal waterbody. The coastal waterbody on the western side of Fair Head is classified as the North Coast coastal waterbody. Both these waterbodies are currently of “Good” Status, with an objective for 2015 of maintaining “Good” Status. The coastal waters of the Rathlin Island coastal waterbody are currently classified as being of “High” Status, with an objective for 2015 of maintaining “High” Status.

There are no WFD river waterbodies that discharge into the lease area, as the onshore side at Torr Head is classified as being a coastal interbasin. The nearest surface waterbody to the TVL lease area is the Carey River, which discharges west to the Glenshesk River and then into Ballycastle Bay. The Carey River is currently of “Good” Status, and is unlikely to be impacted upon by the marine aspects of the proposal. As the development will be mostly offshore and above ground for the terrestrial components it is unlikely to impact upon any groundwater resources. As the terrestrial elements of the proposed development are onshore and above ground, it is recommended that any substation is located away from vulnerable groundwater resources.

Within the study area there is one bathing water which is designated under the Bathing Water Directive. This nearby bathing water is known as Ballycastle Beach and is approximately 9km to the west of the TVL lease area. The Bathing Water Directive 2006/7/EC sets quality standards for Bathing Waters. All countries in the European Union have to ensure that their Bathing Waters meet these standards. The water quality at this bathing water has been classed as “excellent” under the preceding EEC Bathing Water Directive 76/160/EEC during the bathing water season (3rd June to 6th September) for 2009, 2010 and 2011. Both Ballycastle Beach and Cushendun Beach have been classified as blue flag beaches in the past, however are not currently listed by the Foundation for Environmental Education (FEE) as being of blue flag status (www.blueflag.org).

18.2 Potential Impacts

Any proposed development along the coast has the potential to affect the water quality within a coastal waterbody and at designated bathing waters during both the construction phase, through standard construction activities, and during the operational phase with increased boat numbers, potentially increased sediment in the water column and the potential for unregulated discharges (e.g. fuel, oil and lubricant leaks/spills, anti-foulants, cements/grouts).

18.3 Recommendations

A water quantity and quality assessment of the offshore and onshore aspects of the proposal will be required for the EIA. For the marine elements of the proposal it will be important to assess any potential impacts on water quality from the marine installation works and any potential for pollution incidents during the installation, operation and decommissioning phases of the marine equipment (e.g. from lubricant and fuel leaks).

For the terrestrial elements of the proposal it will be important to assess any potential for impacts on existing waterways where crossings are required, and surface and groundwater quality during the construction of any transmission lines/cable routes. A drainage study and flood risk assessment may also be required if the proposed substation location is located within close proximity to a watercourse, floodplain or the coast.

The water quality assessment of an EIA should follow the NIEA Water Management Unit (WMU) Guidance Note: *"EIA Scoping Guidance for Developments Likely to Impact upon the Water Environment*" (March 2012) and should include the potential impacts on the water environment under the following categories:

- Impacts on Groundwater;
- Impacts on Surface water; and
- Impacts on Hydromorphology.

Impacts on Groundwater

The EIA will need to address the following potential groundwater impacts:

- The impact of dewatering on any groundwater dependent receptors, i.e. domestic/industrial/ commercial abstractions, waterways, boreholes, wetlands etc, within or outside of the proposed construction area;
- The potential mobilisation of contaminated groundwater within proposed construction areas or onto the site as a result of dewatering, thereby creating a contaminated discharge;
- The potential remobilisation of contaminants within the unsaturated zone due to artificial groundwater recharge activities causing natural groundwater levels to rise;
- How will dewatered water be treated prior to discharge and where will it be discharged;
- The impact of earthworks on any contaminated sites;
- The impact of any piling/tunnelling/excavations/earthworks or boreholes on the creation of preferential pathways for pollutants into groundwater;
- In coastal and estuarine areas saline ingress as a result of dewatering is a potential impact;
- The use of non inert infill material;

- The potential impact from the spillage of oils/fuels/cement/chemicals or other pollutants entering groundwater;
- The impact of soil sealing on groundwater recharge.

The discharge of water from any dewatering operations associated with the proposed development will require consent to discharge, under the Water (Northern Ireland) Order 1999.

Impacts on Surface Water

The EIA will need to address the following potential surface water impacts:

- The mobilisation of sediments due to storm water runoff from excavated/cleared areas or soil stockpiles;
- Spillages of oils/fuels/cement/chemicals or other pollutants;
- Landslide/bog burst due to works on steep slopes;
- Discharge of contaminated groundwater into surface waters;
- Discharge of effluent containing potentially polluting substances or at an inappropriate temperature;
- Unregulated surface water abstractions or discharges;
- Any works within water;
- The disposal of sewage from the site both during the construction and operational phases;
- The disposal of storm water from the site both during the construction and operational phases.

Where required, a discharge consent, issued under the Water (Northern Ireland) Order 1999, for the discharge of stormwater during the construction phase of the proposed development will be sought.

Impacts on Hydromorphology

The EIA should address the following potential hydromorphological impacts:

- The permanent or temporary diversion of watercourses;
- New, or alterations to existing, crossing structures such as culverts and bridges;
- New or altered structures impacting on a waterbody .e.g. cable ducting, jetties, piers, outfall structures, shoreline reinforcements;
- Loss of river continuity; and

- Dredging or any physical modifications of a waterbody.

Water Framework Directive Assessment

The Water Quality section of the EIA should also include a WFD Assessment and should follow the guidance provided by the NIEA Water Management Unit "Carrying out a Water Framework Directive (WFD) Assessment on EIA Development (March 2012). The assessment should include the following as a minimum:

- Identification of the River Basin District or Districts within which the scheme will be constructed or impact upon;
- Identification of all waterbodies that may be impacted by the scheme;
- The current status of each waterbody, as classified under the WFD;
- The water quality objectives for each waterbody;
- An assessment of the potential impact of the scheme component on the current status of each waterbody and on future water quality objectives; and
- A description of mitigation measures proposed to ensure deterioration in water quality or ecological status is avoided.

It is a fundamental requirement of the Water Framework Directive that there must not be any overall deterioration in water quality or the ecological status of any waterbody.

19.0 SHIPPING AND NAVIGATION

19.1 Baseline

The TVL lease area is a relatively lightly used area for large vessels, with more significant volumes of larger traffic using the deeper offshore areas in the north east of the study area within the Traffic Separation Scheme (TSS). Smaller vessels, such as recreational craft (e.g. yachts) and medium to small size fishing boats travel through or past the lease area. The lease area itself is a potentially dangerous area for small craft, due to the strong tides. The Royal Yachting Association (RYA) UK Coastal Atlas of Recreational Boating (2009) defines the area from Ballycastle to Cushendall, Ballycastle to Rathlin and the North Channel TSS to be of medium recreational use. All other recreational boating routes within the study area are defined within the RYA Atlas as being of light recreational use. The study area is frequented by larger fishing vessels that are travelling between ICES areas 6a and 7a, and there is a local ferry service which operates between the harbours at Ballycastle and Rathlin Island.

19.2 Potential Impacts

The installation, operation and decommissioning of the offshore tidal energy array has the potential to impact upon vessels that travel through or use the lease area, as there is potential for there to be an exclusion zone created for navigational safety reasons. There are unlikely to be any other impacts on shipping and navigation outside of the exclusion zone.

19.3 Recommendations

A comprehensive study of marine traffic patterns, known as a Navigation Risk Assessment (NRA), both in the lease area and in the vicinity of potential marine cable routes will be required. The NRA should include all commercial shipping, commercial fishing, recreational fishing and boating. This study will need to include consideration of impacts on shipping and navigation associated with the construction/installation, operation and decommissioning phases of the marine aspects of the proposal.

The ES should supply detail on collision risk, navigational safety, visual intrusion and noise, risk management and emergency response, the marking and lighting of the lease area, the effects on small craft navigational and communication equipment, the risk to drifting craft in adverse weather or tidal conditions, and the potential for smaller craft to be squeezed into the routes of larger vessels. Subsea cable routes and their burial depths will need to be determined.

Planning for the marine aspects of the proposal should make use of the recommendations of Marine Guidance Note 371 (MGN371) "O*ffshore Renewable Energy Installations (OREIs) – Guidance on UK Navigational Practice, Safety and Emergency Response Issues*", and the DTI publication "*Guidance on the Assessment of the Impact of Offshore Windfarms*".

20.0 WASTE

20.1 Baseline

The study area is located within the North West Region Waste Management Group (NWRWMG) area. The NWRWMG is one of three waste management groups in Northern Ireland, representing 7 councils in the north west of the Province. These Councils in the NWRWMG include Ballymoney Borough Council, Coleraine Borough Council, Derry City

Council, Limavady Borough Council, Magherafelt District Council, Moyle District Council and Strabane District Council. There are no known significant waste issues within the study area. There are no landfill sites located within the study area, with the closest sites being Craigahulliar landfill outside Portrush, and Crosstagherty landfill, outside Ballymoney. There is one civic amenity site in the study area, located in Ballycastle. There are no material recovery facilities or waste transfer stations within the study area. There are two Pollution Prevention and Control licences granted within the study area, one to a site 2.3km west of Ballycastle for organic chemicals (bio fuels) and the other to a site 4.5km south east of Ballycastle for mineral activities.

There are few industrial areas within the study area and therefore less likelihood of industrial waste contamination and spills. The study area is however predominantly agricultural land which has the potential to have localised agricultural contamination issues such as from pesticides and herbicide spreading, and fuel and oil spills. There is the potential for marine sediments within the study area to have elevated contamination levels. Ports, harbours, slipways and mooring areas all have higher potential for contaminated sediments due to the aggregation of vessels, fuels, lubricants, paints and general marine equipment.

20.2 Potential Impacts

It is not currently anticipated that there will be any significant volumes of waste or hazardous waste materials generated by either the marine or terrestrial components of the proposal. The onshore and offshore construction and installation works however may have the potential to disturb contaminated lands and sediments.

20.3 Recommendations

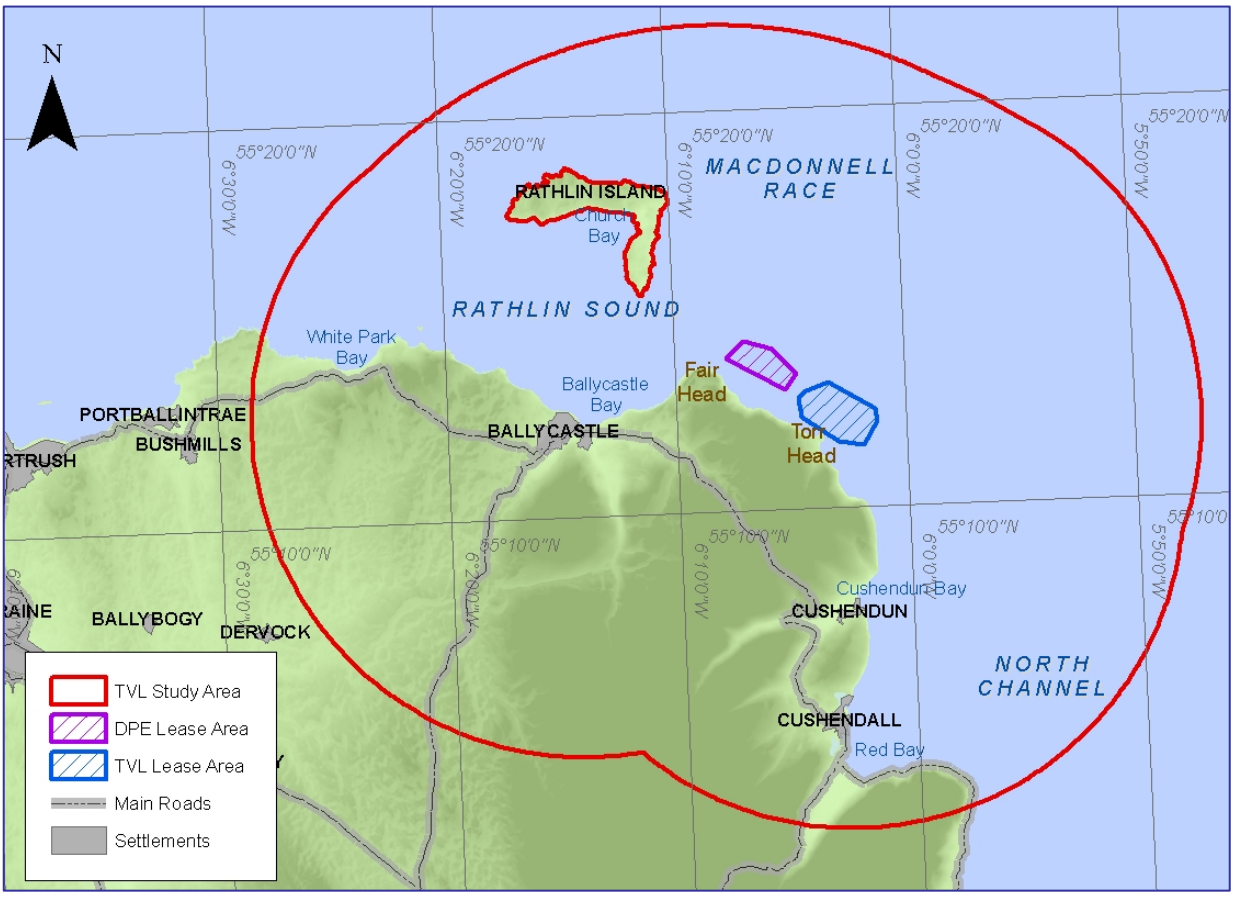
Any development in the study area will be located within the NWRWMG area. If any potential wastes are anticipated at a later stage of planning the Group should be consulted regarding the use of any potential disposal routes. It is recommended to undertake a contamination assessment as part of the onshore and offshore developments to establish if there is a potential to disturb previous contaminated lands or sediments. This may be carried out in conjunction with the soil and geological investigations for the proposed development.

21.0 CUMULATIVE IMPACTS

In October 2012, the Crown Estate leasing round which awarded TVL an AfL, also awarded an AfL to a consortium composed of DP Marine Energy Ltd (DPME) and DEME Blue Energy (DBE) for a second commercial scale 100MW tidal energy array located offshore of Fair Head. This proposed tidal energy array is also located within the Rathlin Island and Torr Head Strategic Area which was offered to developers for delivery of multiple projects and applications for projects for a range of sizes up to 100 MW. The relative locations of the two lease areas are shown in **Figure 21.1**. This figure demonstrates the close proximity of the proposals to one another, being approximately 750m apart at the closest point. The actual tidal turbines however are likely to be located well within the lease area boundaries.

Scottish Natural Heritage (SNH) have commented that potential cumulative and in-combination impacts of the proposal will need to be considered, including the potential cumulative and in-combination impacts with other wave and tidal renewable energy developments within Scottish Territorial Waters as well as other types of industry and activity in the region, both offshore and onshore.

Figure 21.1 Torr Head & Fair Head AfL Areas



Onshore oil and gas investigations are also taking place in the study area, with Petroleum Licence Blocks 3/10 (Rathlin Basin) and 5/10 (Rathlin Island) being those closest to the proposal, and the most likely to have interactions and cumulative impacts associated with the proposal.

In February 2011, Rathlin Energy Limited was awarded an onshore exploration licence PL3/10 by the DETINI. The licence area covers the coal bearing sedimentary basin, the Rathlin Basin, stretching between Ballycastle, Limavady and Ballymoney. The licence was awarded as an extension to previous exploration studies, including an exploration well drilled at Ballinlea, near Ballycastle, in 2008. In February 2012 Rathlin Energy Limited conducted an aero-gravity survey and then acquired seismic survey in June 2012 to identify a suitable site for a new exploratory well.

In February 2011, Providence Resources UK Ltd, the UK subsidiary of Providence Resources P.L.C. was awarded an onshore exploration licence PL5/10 by the DETINI. The licence area covers approximately 16 km², and is essentially the area of Rathlin Island. Providence Resources UK Ltd was also awarded an offshore Frontier Licence P1885 by the DECC in February 2012. The area covers approximately 1,116km² and consists of 6 offshore blocks around Rathlin Island.

In February 2012 the Secretary of State for DECC invited applications for petroleum exploration licences in the 27th Seaward Licensing Round. A licence application for five blocks, extending from an area south of Torr Head, is currently under consideration.

No intrusive exploration activities have yet been undertaken within the PL5/10 licence area, however the licence is granted under a “drill or drop” policy, where a decision has to be made within 3 years to drill an exploration well, or the licence has to be relinquished. If the option to drill is pursued, drilling must take place within 5 years of the licence having been awarded.

In the case of the P1885 offshore licence, the licence term is for six years. At the Year 3 juncture the licence holder is required to relinquish 75% of the acreage. If a well has not been drilled by Year 6, then the licence holder is required to relinquish all acreage.

It is currently unclear exactly where and what onshore and offshore oil and gas investigations are going to take place in the study area in the coming years, however these have the potential to have cumulative impacts on the wider environment if in close proximity to onshore or offshore elements of the proposal and will therefore be considered in the EIA for

the TVL Project. All other proposed and existing developments that have the potential for cumulative impacts will be considered and assessed within the EIA.

22.0 SUMMARY

In summary, the study area consists of the following:

- 6 No. SAC;
- 3 No. SPA;
- 1 No. RAMSAR Site;
- 2 No. AONB;
- 25 No. ASSI;
- 3 No. NNR;
- 75 SLNCIs (Northern Area Plan and Antrim, Ballymena and Larne Plan);
- 3 Historic Parks, Gardens and Demesnes (Northern Area Plan and Antrim, Ballymena and Larne Plan);
- 3 Conservation Areas (Northern Area Plan and Antrim, Ballymena and Larne Plan);
- 1 Area of Village Character (Northern Area Plan and Antrim, Ballymena and Larne Plan);
- 3 Areas of Constraint on Mineral Developments (Northern Area Plan and Antrim, Ballymena and Larne Plan);
- 40 Local Landscape Policy Areas (Northern Area Plan and Antrim, Ballymena and Larne Plan); and
- 5 Countryside Policy Areas (Northern Area Plan and Antrim, Ballymena and Larne Plan).

The main environmental designations that could potentially be affected by the marine elements of the proposal include the Rathlin Island SAC and SPA, the Red Bay SAC and the coastal ASSI at Fair Head, Murlough Bay and Torr Head. Any potential impacts on these designated areas will need to be thoroughly investigated in the EIA.

There is also the potential for significant environmental impacts on Habitats Directive Annex II Species and Northern Ireland Priority Species marine mammals and marine megafauna which are often spotted both in the lease area and all along the north coast. There is the potential for damage to this marine life during the construction phase of the proposed development directly through collisions and indirectly through disruption and disorientation. There is also an increased risk of collision during operation of the tidal energy array, which will need detailed investigation at EIA stage.

Table 22.1 provides a summary of the high level potential impacts of the proposal during both the construction, decommissioning and operational phases of the development.

Table 22.1 Summary of Construction / Decommissioning and Operational Impacts

Environmental Topic	Potential Impacts			
	Construction / Decommissioning Phase		Operational Phase	
	Degree of Potential Impact	Description	Degree of Potential Impact	Description
Air				
Air	- / 0	Potential emissions to air from site plant and increased marine and road construction traffic.	0 / +	Renewable energies can replace the need for fossil fuel burning.
Climate				
Climate	0	No impacts anticipated.	+ / ++	New renewable energy source to be provided for Northern Ireland. Reduction in GHG emissions from energy production.
Climatic Change	0	No impacts anticipated.	- / 0	The operation of the proposal is unlikely to impact climatic change; however has the potential to be negatively impacted upon by climatic change, with increased rainfall intensity, greater weather variability and greater storm frequency. The proposal will need to be prepared for climatic change.
Coastal Processes				
Coastal Processes	- / 0	Potential for sediment plumes to be created during the construction phase of the proposed development which will affect water quality and sediment transport.	- / 0	Potential for a commercial tidal energy array to affect tidal energy in the coastal region, which may influence sediment transport and hence beach recharge at the tourist areas of Ballycastle and Cushendun.
Cultural, Architectural and Archaeological Heritage				
Terrestrial Archaeology	- / +	Potential for discovery of and disturbance of previously unrecorded archaeological artefacts. Can be mitigated for by supervised topsoil	0	No impacts anticipated

Environmental Topic	Potential Impacts			
	Construction / Decommissioning Phase		Operational Phase	
	Degree of Potential Impact	Description	Degree of Potential Impact	Description
		stripping.		
Marine Archaeology	- / +	Potential for discovery of and disturbance of previously unrecorded archaeological artefacts, including shipwrecks. Mitigation can include pre-construction surveys and archaeological monitoring.	- / +	Potential for discovery of and disturbance of previously unrecorded archaeological artefacts, including shipwrecks, due to potential alteration of coastal processes.
Ecology				
Flora – Terrestrial and Marine	-	Loss of habitats within working areas associated with the tidal energy array, transmission lines/cable routes and any proposed substation. Potential for marine habitat loss, outside the device footprint and working areas, due to sedimentation from construction activities.	- / 0	Re-establishment of habitats and flora colonies within the area following construction, however still some small areas of permanent loss under footprints of tidal energy devices and cables.
Fauna – Birds	-	Disturbance to feeding and roosting birds due to construction activities and increased marine / terrestrial traffic. Displacement of birds.	- / 0	Unlikely to be any significant disturbance to birds during the operational phase, due to the subsea nature of the array and the potential for internal housing and insulation of terrestrial equipment. However there is a slight potential for collision risk with diving birds and potential for indirect impacts on seabirds if turbines / cabling causes disturbance to their food source (fish)), i.e. prey availability (to be assessed in combination with impacts of fishing and habitat change/loss). Displacement of birds from land take and direct footprint areas of transmission towers and substation.
Fauna – Marine Mammals	-	Potential for disturbance to and displacement of marine mammals during construction. Timing of construction activities is important to minimise effects on marine mammals, e.g. by taking	- / 0	Operation of the tidal energy array should pose no significant risk to marine mammals, however further study required on impacts from strike and disorientation. There may however be

Environmental Topic	Potential Impacts			
	Construction / Decommissioning Phase		Operational Phase	
	Degree of Potential Impact	Description	Degree of Potential Impact	Description
		account of migratory, breeding cycles, diurnal activities etc.		the potential risk of leakage of oils, lubricants and hydraulic fluids.
Fauna – Benthic and Littoral	-	Potential loss of benthic habitats from working areas during construction activities from direct footprint impacts. Potential localised smothering/ burial of habitats and species from sedimentation.	- / +	Re-establishment of habitats and flora colonies within the area following construction (reef effect). Potential for protection of some communities from fishing activities due to potential exclusion zone.
Fish and Fisheries - Fish	- / 0	Potential for disorientation and disruption to fish passage through the area from construction activities.	- / +	Potential for disorientation and disruption to fish passage through the area from turbine operation, noise, vibration and EMF. Potential for protection of some fish nursery areas from fishing activities due to potential exclusion zone.
Fish and Fisheries - Trawling and Dredging	-	Exclusion of trawling and dredging fishing boats from the construction area.	- / 0	Exclusion of trawling and dredging fishing from the area of the tidal turbine array. Potential loss of small area of fishing grounds.
Fish and Fisheries - Potting	-	Likely exclusion of potting activities from the construction / installation area.	- / +	Potential for lease area to still be used for potting activities. However if this is not viable there is the potential loss of a small area of potting grounds. Potential indirect impacts of a safety zone for lobster being established within exclusion zone, helping population numbers.
EMF				
EMF	0	Unlikely to be any significant EMF impacts created during construction and decommissioning works	- / 0	Potential for EMF impacts on humans, terrestrial fauna, marine mammals and megafauna, fish and other marine fauna in close proximity to transmission lines/cable routes substation and subsea cables.
Landscape and Seascape				
Visual impacts	- / 0	Low level of potential negative impact on landscape and visual, due	- / 0	Low level of potential negative impact on landscape and visual

Environmental Topic	Potential Impacts			
	Construction / Decommissioning Phase		Operational Phase	
	Degree of Potential Impact	Description	Degree of Potential Impact	Description
		to small amount of above ground and above sea construction activities.		from operational activities as the offshore elements of the proposed development will be submerged. Where required, marker buoys will be the only visible sea level indication of the tidal energy array. There will be a requirement for maintenance vessels to visit the lease area during operation; however this is unlikely to cause significant visual impacts. Sensitive development of the terrestrial elements of the proposal should be able to mitigate for potential negative impacts.
Land Use				
Land Use Change	- / 0	Potential for small losses of land within working strip of transmission line/cable route and substation during the construction and decommissioning phases.	0	Likely permanent loss of small areas from land take from transmission towers and substation, however impacts are not anticipated to be significant.
Noise and Vibration				
Noise	-	Potential of noise disturbance during the construction phase of the proposed development through plant activity, and marine and road traffic. There is likely to be low background noise levels in the vicinity due to low levels of development and population in the study area. Noise levels should however not exceed threshold limits if good site practice is maintained.	- / 0	Potential for noise impacts from the tidal energy devices during the operational phase to affect the behaviour of sensitive species within the area, such as marine mammals and fish. Potential for noise impacts associated with the operation and maintenance of transmission lines and substation.
Vibration	-	Potential for vibration from construction activities, e.g. drilling or piling, to impact on sensitive species in the area, such as marine mammals and fish.	- / 0	Potential for vibrations from tidal energy device operation to affect the behaviour of sensitive species within the area, such as marine mammals and fish.
Material Assets				

Environmental Topic	Potential Impacts			
	Construction / Decommissioning Phase		Operational Phase	
	Degree of Potential Impact	Description	Degree of Potential Impact	Description
Roads / Traffic	- / 0	Potential for temporary traffic disturbances due to terrestrial construction activities.	0	No impacts anticipated
Energy / Power	0	No impacts anticipated.	++	New electrical infrastructure to be provided as part of the proposed development. New renewable energy source to be provided for Northern Ireland. Greater security of energy supply for Northern Ireland.
Population and Human Health				
Health and Safety	- / 0	Standard risks associated with marine and terrestrial construction. Good planning, site management and good working practices will help mitigate for potential health and safety risks. Difficult working conditions at Torr Head will need to be addressed.	- / 0	Establishment of good operational management plans, including emergency response procedures and adequate training of site staff can mitigate for potential health and safety risks that are likely to be encountered. Difficult working conditions at Torr Head will need to be addressed.
Shipping and Navigation				
Navigation	- / 0	Potential for loss of navigational area during the construction phase of the proposed development.	- / 0	Unlikely to significantly impact upon navigation due to depth of array at -35m to -75m (LAT), however there is the potential for an exclusion zone to be created over the lease area.
Socio-Economics				
Socio-Economic	- / +	Creation of employment from construction activities, however there is the potential for negative impacts on tourism in the area during the construction phase if the local beaches are affected. Good site management practices will act as mitigation measures. Construction activities have the potential to attract tourist, local and passer by interest. Potential for loss of small area for	- / +	Economic benefits on both a local and regional scale. Benefits all of Northern Ireland in helping to achieve renewable energy targets. Potential for loss of small area for sightseeing/fishing/diving boat visits due to potential exclusion zone.

Environmental Topic	Potential Impacts			
	Construction / Decommissioning Phase		Operational Phase	
	Degree of Potential Impact	Description	Degree of Potential Impact	Description
		sightseeing/fishing/diving boat visits due to potential exclusion zone.		
Soils and Geology				
Geology	- / 0	No impacts anticipated, unless cable landing and transmission line/cable routes pass through areas of geological interest, such as the Torr Head ASSI.	0	No impacts anticipated
Hydrogeology	0	No impacts anticipated, as there are no sensitive groundwater resources in the area that are likely to be impacted upon by the proposed development.	0	No impacts anticipated
Soils	- / 0	Potential for losses of small areas of soil resource from construction activities. No significant impacts anticipated	- / 0	Potential losses of small areas of soil resource from land take and direct footprint. No significant impacts anticipated
Waste				
Waste	- / 0	No impacts anticipated, unless contaminated materials discovered / mobilised in construction / installation phase.	0	No impacts anticipated. No significant wastes to be generated.
Water				
Water Quality	- / 0	Potential for negative impacts to marine and fluvial water quality during the construction and decommissioning phases of the proposed development from increased sediment and hazardous material spills.	- / 0	Potential for negative impacts to marine water quality during the operational phase of the turbines from altered coastal processes and potential hazardous material leaks.
Drainage	- / 0	Potential for impacts at river/stream crossings.	0	No impacts anticipated.

Key

0 Potentially no impacts

+ Potential positive impacts

- Potential negative impacts

22.1 Next Steps

Following the completion of this EIA Scoping Report it will be submitted to the DoE Marine Division, DoE (NI) Planning Service and DETI for formal scoping opinion. The document will also be made available on the Tidal Ventures Ltd website: www.tidalventures.com

Following receipt of the formal scoping opinion from the three relevant regulators, DoE Planning, DoE Marine Division and DETI, TVL plan to further develop the proposal through outline design. A full EIA will be undertaken to assess the significance of any potential impacts associated with the proposed development upon the environment. The outcome of this EIA will be an ES. It is envisaged that one Environmental Statement will be produced to cover all marine and terrestrial aspects of the proposal and that this one document will be able to satisfy the requirements of all three regulators, being DoE Planning, DoE Marine Division and DETI.

23.0 REFERENCES

CEFAS, 2012. *Spawning and Nursery Grounds of Selected Fish Species in UK Waters.* J. R. Ellis, S.P. Milligan, L. Readdy, N. Taylor and M.J. Brown. CEFAS, 2012.

Coull, K.A., Johnstone, R., and S.I. Rogers. 1998. *Fisheries Sensitivity Maps in British Waters*.

DECC, 2010. Dept of Energy and Climate Change (DECC). (2010). *National renewable energy action plan for the United Kingdom.* Available: http://www.decc.gov.uk/assets/decc/what%20we%20do/uk%20energy%20supply/energy%20mix/renewable%20energy/ored/25-nat-ren-energy-action-plan.p df.

DECC, 2011. Dept of Energy and Climate Change (DECC) (2011). *UK Renewable Energy Roadmap.* Available: http://www.decc.gov.uk/assets/decc/11/meeting-energy-demand/renewable-energy/2167-uk-renewable-energy-roadmap.pdf.

DETI, 2008. Dept of Enterprise, Trade and Investment Northern Ireland (DETINI) (2008). *Northern Ireland Strategic Energy Framework 2009. Pre-consultation paper.*

DETI 2009. *SEA of Offshore Wind and Marine Renewable Energy in Northern Ireland. Environmental Report 1.* Dept. of Enterprise, Trade and Investment, 2009

DETI, 2011. Dept. of Enterprise, Trade and Investment (DETI) (2011) *Draft Onshore Renewable Electricity Action Plan 2011-2020.* http://www.nigridenergysea.co.uk/wp-content/uploads/2011/10/Draft-OREAP-Oct-2011.pdf

DETI, 2011a. *Regional Locational Guidance (RLG) for Offshore Renewable Energy Developments in NI Waters* (DETI, 2011)

EEA, 2008. European Environment Agency (EEA 2008). *Energy and the Environment Report.* Available: http://www.energy.eu/publications/THAL08006ENC_002.pdf.

EHS, 2005. *Giants Causeway and Causeway Coast World Heritage Site. Management Plan Summary*. EHS, Moyle District Council, National Trust. February 2005.

EHS, 2008. *State of the Environment Report for Northern Ireland. 'Our Environment, Our Heritage, Our Future*.' March 2008.

Goodwin et al. 2011. *Sublittoral Survey Northern Ireland 2006 — 2008. A review of the status of Northern Ireland Priority Species of Marine Invertebrates.* Claire Goodwin, Bernard Picton, Joe Breen, Hugh Edwards & Julia Nunn, 2011.

Highways Agency (2010). *Design Manual for Roads and Bridges* (DMRB) June 2010

House of Commons Treasury Committee (2010). *Eight Report of Session 2009-2010. The management of the Crown Estate*. London: Great Britain Parliament House of Commons.

Hydrographic Office (HO) (1992). *Admiralty Tidal Stream Atlas. Firth of Clyde and Approaches.*

Irish Shipwrecks, 2013. http://www.irishshipwrecks.com/

Irish Wrecks, 2013. http://www.irishwrecksonline.net/

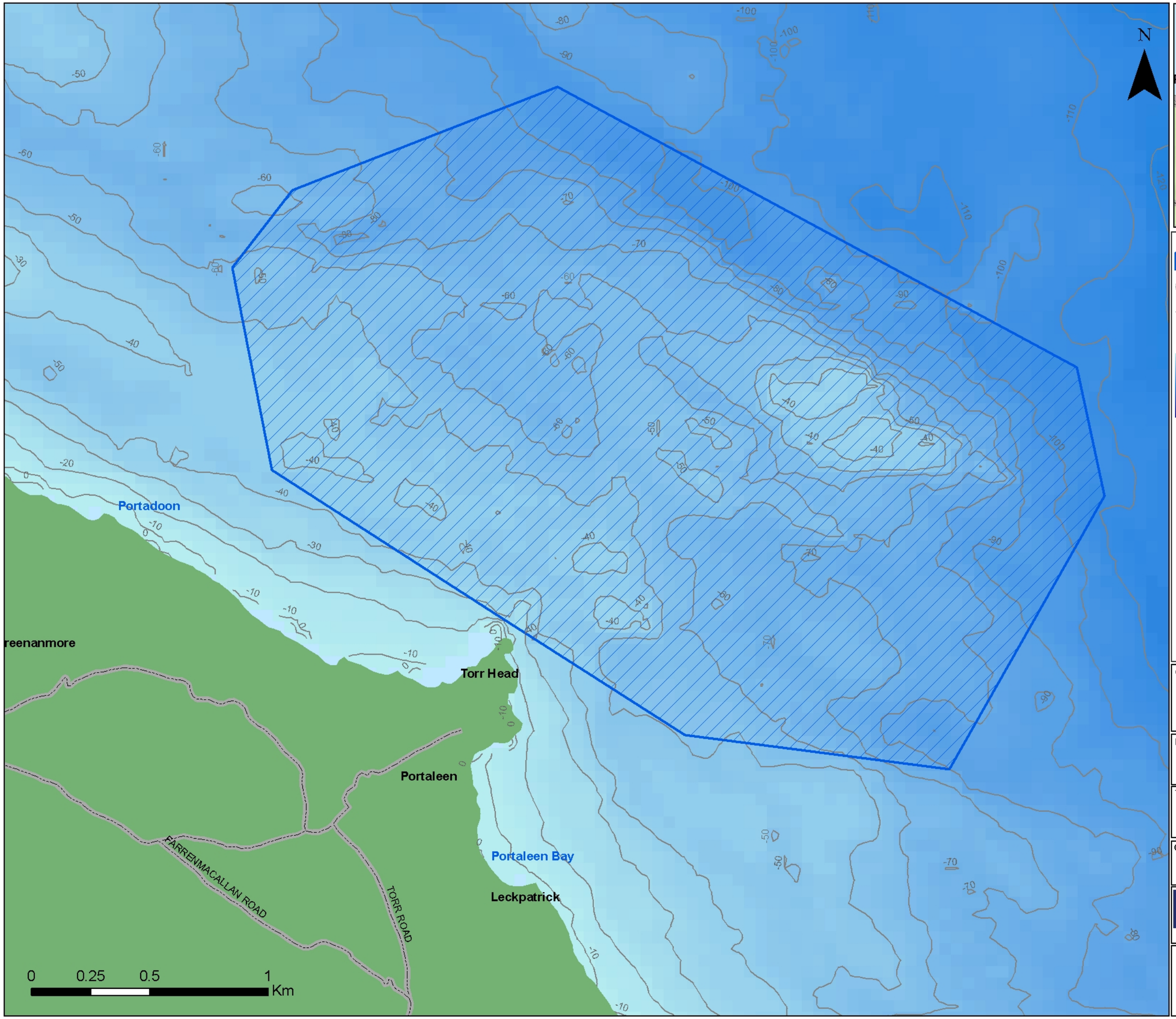
NIEA, 2011
http://www.doeni.gov.uk/niea/land-home/landscape_home/country_landscape.htm

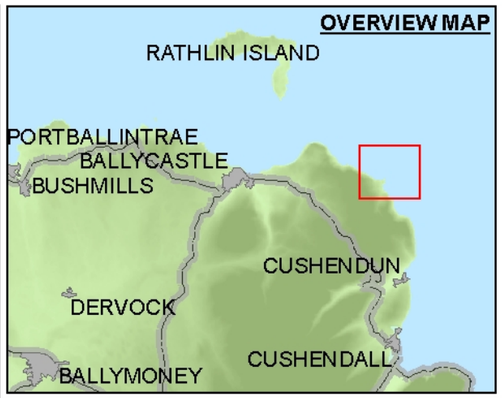
NIEA, 2012
http://www.doeni.gov.uk/niea/

NISRA, 2013. Northern Ireland Statistics and research Agency, Census 2011. http://www.ninis2.nisra.gov.uk/public/Theme.aspx

APPENDIX A

A3 Site Drawings





Tidal Ventures Site (6.8km2)
Roads
Isobaths (10m interval)

Bathymetry (45m cell) [m (LAT)]

High : 10

Low : -275

CLIENT

tidal ventures

PROJECT

Tidal Ventures Ltd -Torr Head

TITLE

Figure 2
Licence Area

Copyright

Copyright NAVTEQ 2013

RPS

Elmwood House
74 Boucher Road
Belfast
BT12 6RZ

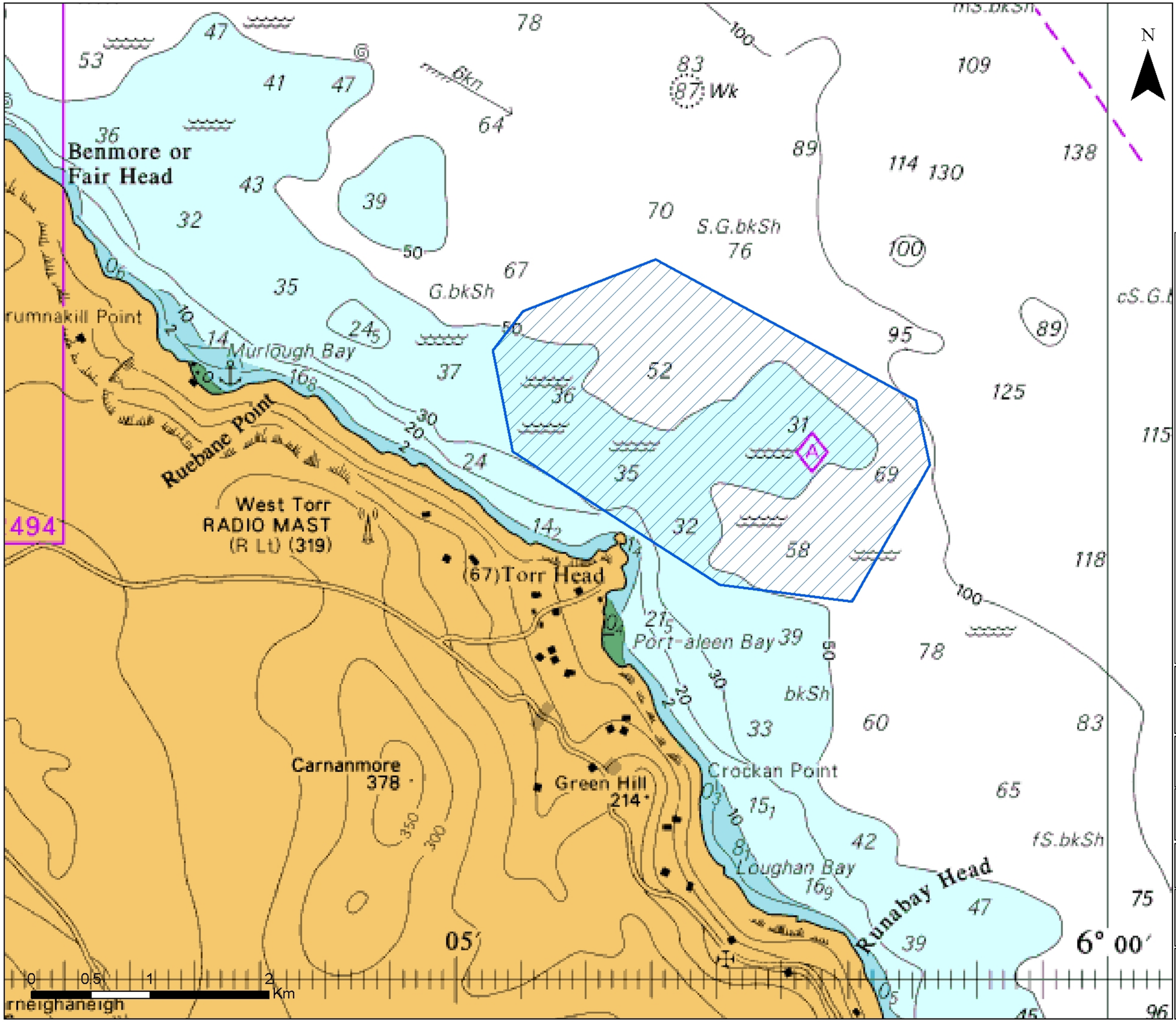
T: 028 9066 7914
F: 028 9066 8286
W: www.rpsgroup.com/Ireland
E: Ireland@rpsgroup.com

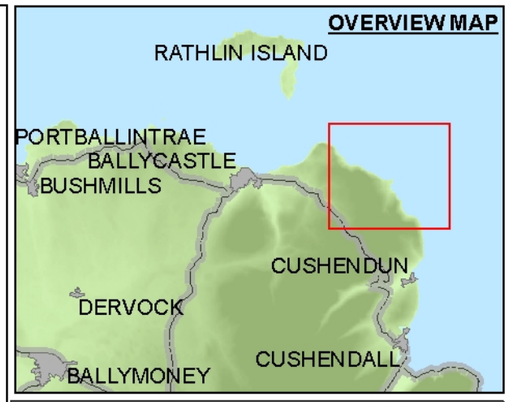
Drawing No. :

TVL/ScopeLtr/01

Drawn By : RB
Checked By : NS
Approved By : AKB
Date : 28/01/13

SCALE : 1:15,000





Tidal Ventures Site (6.8km2)

CLIENT

tidal ventures

PROJECT

Tidal Ventures Ltd -Torr Head

TITLE

Figure 3
Licence Area - Admiralty

Copyright

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RPS

Elmwood House
74 Boucher Road
Belfast
BT12 6RZ

T: 028 9066 7914
F: 028 9066 8286
W: www.rpsgroup.com/Ireland
E: Ireland@rpsgroup.com

Drawing No.:

TVL/ScopeLtr/02

Drawn By: RB
Checked By: NS
Approved By: AKB
Date: 28/01/13

SCALE: 1:30,000

APPENDIX B

Landscape Character Assessment Areas

Landscape Character Assessment - Fair Head

Key Characteristics

- Narrow coastal strip on the northern slopes of the Antrim Plateau.
- Dramatic cliffs with igneous intrusions giving rise to prominent headlands and sheltered bays.
- Small scale rough pastures and rocky moorland cling to the steep coastal edge.
- Degraded round stoned walls and derelict stone farmhouses.
- Historic features are important on Fair Head.
- Coastal road winds precariously along the cliff edge linking, small stone cottages with dramatic seaward views.

Landscape Description

Fair Head comprises a narrow coastal strip between the Antrim Plateau and the sea and includes the lower slopes of Greenanmore, Carnanmore and Carnaneigh. The interesting topography of the area results from its complex underlying geology of schists and basalts with igneous intrusions giving rise to prominent cliffs and headlands. The various geological strata have led to the development of cliffs of striking contrasts in colour and form. Short steep streams drop from the plateau to small secluded bays such as Murlough Bay.

Land use is predominantly small scale rough pasture and moorland on the steep coastal edge, separated by degraded stone walls. Small loughs are attractive features. Vegetation on the exposed cliff-tops is sparse with a few wind sculptured trees. Below the cliffs, attractive deciduous woodland and flowery meadows provide a stark contrast to the rocks and exposed pastures above.

The coastal road winds precariously along the cliff edge linking small white stone cottages and farms with green and red roofs. Attractive fushia hedges enclose the narrow coastal roads and there are dramatic seaward views.

Historic features are important along this coastal fringe; crannogs, cairns and chambered graves are all associated with Fair Head.

Landscape Condition and Sensitivity to Change

The coastal fringe is in natural pristine condition, with its attractive combination of cliffs of varying geological strata, native woodlands, flowery pastures, headlands and secluded bays. It would be very sensitive to change of any sort.

The plateau above the cliffs is more degraded with exposed pastures, broken walls and derelict stone farms. Again the area would be sensitive to change owing to its open, exposed character, and the large number of historic features present.

Principles for Landscape Management

The coastline would benefit from minimal intervention, apart from the control of grazing to ensure the long term preservation of the native woodlands and rich grasslands. The settings to landmarks and historic features should be protected.

On the cliff-top plateau, the restoration of dry stone walls and the removal of untidy wire fences would be beneficial.

Maintenance of the hedgerows on the farmed slopes by replanting and laying will help ensure their preservation. The inclusion of fuchsia in mixes would retain this special feature.

A coastal path along this edge would be beneficial in helping in the appreciation of the landscape.

Principles for Accommodating New Development

The management of tourism related pressure such as the erosion of roadsides and paths, and the demand for car parking is important to ensure that it does not detract from the quality of the area. Local stone or chippings should be used for construction and surfacing and the character of development should be rough and naturalistic rather than suburban.

The widening or lining of local roads would seriously damage the character of the area.

The restoration of stone farmhouses would be preferable to new development. New development would be very out of character and highly visible in this landscape, although there may be some opportunities in more sheltered hollows or within the trees along the winding coastal road so long as the traditional white and grey materials are used.

Landscape Character Assessment – Ballycastle Glens

Key Characteristics

- Scenic river valleys and attractive rocky rivers enclosed by smooth, rounded hills.
- Undulating glen slopes support rough and improved pastures bounded by hedgerows which include gorse.
- Roads follow glen sides linking traditional white farmsteads and newer large farm buildings.
- Coastal town of Ballycastle occupies the mouth of the glens, within a sheltered bay.
- Historic remains including mottes, crosses, raths and standing stones are features.

Landscape Description

The *Ballycastle Glens* are located to the east of the *Causeway Coast*, on the north coast. They comprise an attractive series of steep sided valleys, carved from schists, with rocky rivers in the valley bottoms. The glens are enclosed by smooth, rounded hills. Glentaisie and Glenshesk lie either side of the prominent hill of Knocklayd. The Carey River is set within a more open landscape, and has distinctive terraces associated with its channel at Ballyvoy.

The undulating glen sides support small to medium sized rough and improved pastures bounded by hedgerows which often include gorse and thorn, creating a diversity of textures and colours. Degraded stone walls are characteristic of the upper slopes. The valleys have a well vegetated character as trees and broadleaved woodlands are associated with the river corridors and hedgerows. Forestry plantations, with straight harsh edges are a feature of some of the valley sides and link to the extensive plantations on the moorland above.

Roads follow the glen sides linking traditional white farmsteads and newer farms with large prominent barns, and crossing rivers via attractive stone bridges. Long views are available down the glens to the coastal town of Ballycastle, located around the sheltered Ballycastle Bay.

There are numerous historic remains such as mottes, crosses, raths and standing stones scattered across the valley sides.

Landscape Condition and Sensitivity to Change

The high quality of the landscape is reflected by its status as an Area of Outstanding Natural Beauty. Steep slopes, long views, and attractive wooded river corridors with low lying wetland areas of sedge and alder make the area very vulnerable to change.

New farm buildings are prominent elements in this landscape, and do not integrate well with the traditional small scale farms. On the upper slopes drystone walls are in a poor state of repair. Some forestry plantations have very harsh straight edges which fit poorly with the character of the landscape and, especially where recent felling has occurred, there is evidence of localised degradation. There are views of slopes damaged by peat cutting on the moorlands above.

Principles for Landscape Management

- Forestry plantations in this landscape should be in scale and character with the existing broadleaved woodlands. Irregular edges which include deciduous species, small plantation size and their location on the lower valley sides, avoiding river and stream corridors would be beneficial. Harsh straight edges rising perpendicular to the slopes should be avoided.

- The repair of dry stone walls on the higher valley sides will avoid the need for use of wire fences and help retain an intact landscape structure.

- Hedgerows and woodlands require management for their continual dense and healthy growth. The inclusion of fuchsia in hedgerows around settlements is an attractive characteristic.

- The broader settings to historic features such as standing stones and mottes would benefit from conservation, ensuring that the land use remains open and unforested and that agricultural improvement does not destroy earthworks.

- The attractive landscape mosaics on the valley floors including sedges, alder and flowery meadows, as well as deciduous woodlands, would benefit from conservation.

Principles for Accommodating New Development

- The use of traditional materials and styles in new buildings is recommended: small scale stone or white painted stucco with painted red or slate roofs are characteristic. Visual analysis should be carried out before the construction of large new barns, which should always be sheltered by trees. There is minimal scope for new development without altering the landscape character.

- The restoration of old buildings is preferable to the construction of new. Round gate posts are special distinctive features which should be conserved and reflected in new buildings.

Landscape Character Assessment – Moyle Glens

Key Characteristics

- Dramatic steep glacial valleys within the Antrim Plateau.
- The northern glens (Glendun, Glenaan) have a v-shaped form with undulating sides, whereas those further south (Glenballyemon and Glenariff) have sweeping u-shaped profiles with dramatic basalt cliffs.
- Prominent hedgerows and trees in field boundaries, and ancient broadleaf woodlands give the glens a well wooded appearance.
- Long straight gorse hedgerows and degraded stone walls run perpendicular to the slopes along historic townland boundaries.
- Roads follow the contours along valley sides, linking distinctive white-washed stone cottages; settlement concentrated at bays.
- Extremely scenic and distinctive valleys, with long coastal views and a backdrop of wild moorland.

Landscape Description

The *Moyle Glens*, which include the famous Glenariff, are a series of steep sided valleys carved out of the schists and basalt of the Antrim Plateau by glacial activity. The northern glens (within the *Moyle Moorlands and Forests)* have a v-shaped form with undulating sides, whereas the glens further south, including Glenariff, have sweeping u-shaped profiles with dramatic basalt cliffs. The valleys fall towards the sea, with the rocky mountain streams and waterfalls becoming meandering streams as they reach the flat floodplains near the coast. Distinctive peaks and hills such as Tieverah, Tievebulliagh, and Lurigethan are dominant in this landscape.

Fields with prominent hedges and trees, and broadleaved woodland are concentrated on lower slopes, with gorse hedgerows and stone walls following the former townland boundaries on the higher valley sides. These rise perpendicular to the slopes reflecting the striking historic landscape pattern of the ‘ladder farms’. Roads follow the glen sides linking distinctive scattered white-washed cottages and farms. The flat valley floors and the steep upper slopes typically lack development. Attractive white painted villages are clustered at coastal bays, where there is a concentration of campsites, car parks and other tourist related infrastructure.

The principal settlements of Cushendun and Cushendall have dramatic landscape settings at the coastal gateways to the Glens.

Landscape Condition and Sensitivity to Change

The entire landscape of the Glens is extremely sensitive to change and their scenic quality is recognised in their designation as an Area of Outstanding Natural Beauty. The steep upper slopes have a wild, remote character and any form of landscape change would be prominent against the backdrop of the high, open moorlands. At lower elevations, the landscape structure provided by existing vegetation is more robust, although the long open seaward views would result in any significant change being highly visible.

The landscape is generally in excellent condition, although small plantations on the upper slopes sometimes mask landscape boundaries and stone wall boundaries are suffering degradation. Towards the coast, some new development occupies insensitive sites and lacks continuity with traditional design. Caravan sites (at Cushendun, Cushendall and Waterfoot) are often prominent.

Principles for Landscape Management

- The restoration and repair of stone walls relating to townland boundaries would conserve these valuable historic landscape features.

- Management of hedgerows and trees, through planting and laying, on the lower slopes of the valleys will maintain a robust landscape structure, while also screening any development of buildings or infrastructure.

- The promotion of less intensive land uses along water courses will form a buffer to the run off of agricultural chemicals, and provide corridors of rich visual and ecological interest which run from the mountains to the sea.

- Broadleaf woodlands are of particular importance (many are classified as ‘ancient’) and should be managed by replanting and thinning as required; forestry is only appropriate in small irregular patches in association with deciduous planting.

Principles for Accommodating New Development

- Careful visual analysis is required to ensure that new development in coastal villages does not block dramatic views to the sea. The sensitive use of traditional materials is recommended (white two storey houses with grey roofs are characteristic) and the restoration of derelict houses and farms of traditional stone construction would help retain historic interest.

- The location of campsites and car parks in places where they are not visually prominent, such as behind coastal bluffs and within trees is preferable. Planting of deciduous trees around existing tourist developments may be beneficial.

- Scattered new development in the glens should avoid the floodplains and steep slopes, be in character with the existing white cottages, and be carried out in association with planting. Large scale development would be inappropriate in this scenic and sensitive landscape.

APPENDIX C

Natura 2000 Data Forms

NATURA 2000

STANDARD DATA FORM

FOR SPECIAL PROTECTION AREAS (SPA)
FOR SITES ELIGIBLE FOR IDENTIFICATION AS SITES OF COMMUNITY IMPORTANCE (SCI)
AND
FOR SPECIAL AREAS OF CONSERVATION (SAC)

1. Site identification:

1.1 Type J

1.2 Site code UK9020301

1.3 Compilation date 200603

1.4 Update

1.5 Relationship with other Natura 2000 sites

U	K	0	0	1	6	6	0	6
U	K	0	0	3	0	0	9	7

1.6 Respondent(s) International Designations, JNCC, Peterborough

1.7 Site name **Antrim Hills**

1.8 Site indication and designation classification dates

date site proposed as eligible as SCI	
date confirmed as SCI	
date site classified as SPA	200603
date site designated as SAC	

2. Site location:

2.1 Site centre location

longitude	**latitude**
06 11 54 W	55 03 45 N

2.2 Site area (ha) 27093.12

2.3 Site length (km)

2.5 Administrative region

NUTS code	Region name	% cover
UKB	Northern Ireland	100.00%

2.6 Biogeographic region

Alpine	Atlantic	Boreal	Continental	Macaronesia	Mediterranean
	X				

3. Ecological information:

3.1 Annex I habitats

Habitat types present on the site and the site assessment for them:

Annex I habitat	% cover	Representativity	Relative surface	Conservation status	Global assessment

3.2 Annex I birds and regularly occurring migratory birds not listed on Annex I

		Population				Site assessment			
		Resident	Migratory						
Code	Species name		Breed	Winter	Stage	Population	Conservation	Isolation	Global
A082	*Circus cyaneus*		25 P			B		C	
A098	*Falco columbarius*		8 P			B		C	

4. Site description:

4.1 General site character

Habitat classes	% cover
Marine areas. Sea inlets	
Tidal rivers. Estuaries. Mud flats. Sand flats. Lagoons (including saltwork basins)	
Salt marshes. Salt pastures. Salt steppes	
Coastal sand dunes. Sand beaches. Machair	
Shingle. Sea cliffs. Islets	
Inland water bodies (standing water, running water)	0.5
Bogs. Marshes. Water fringed vegetation. Fens	44.0
Heath. Scrub. Maquis and garrigue. Phygrana	23.0
Dry grassland. Steppes	
Humid grassland. Mesophile grassland	
Alpine and sub-alpine grassland	
Improved grassland	
Other arable land	
Broad-leaved deciduous woodland	0.5
Coniferous woodland	31.0
Evergreen woodland	
Mixed woodland	1.0
Non-forest areas cultivated with woody plants (including orchards, groves, vineyards, dehesas)	
Inland rocks. Screes. Sands. Permanent snow and ice	
Other land (including towns, villages, roads, waste places, mines, industrial sites)	
Total habitat cover	**100%**

4.1 Other site characteristics

Soil & geology:

Acidic, Basalt, Igneous, Metamorphic, Nutrient-poor, Peat

Geomorphology & landscape:

Crags/ledges, Hilly, Slope, Upland, Valley

4.2 Quality and importance

ARTICLE 4.1 QUALIFICATION (79/409/EEC)

During the breeding season the area regularly supports:

Circus cyaneus	13.7% of the all-Ireland breeding population 2004 Census
Falco columbarius	7.3% of the all-Ireland breeding population Various years 2000 - 2005

ARTICLE 4.2 QUALIFICATION (79/409/EEC)

4.3 Vulnerability

Potentially the site could be damaged by peat-cutting, heavy grazing, excessive burning and inappropriate management of forestry plantations. A proportion of hen harriers in this area prefer mature Sitka spruce for nest sites. These threats will be addressed by consultation over management with the Forest Service, offering MOSS management agreements to the agricultural landowners within existing ASSIs and encouraging uptake of the ESA and CMS schemes where appropriate. Conservation Objectives have been prepared for all Special Protection Areas and are being activated.

5. Site protection status and relation with CORINE biotopes:

5.1 Designation types at national and regional level

Code	% cover
UK04 (SSSI/ASSI)	100.0

NATURA 2000

STANDARD DATA FORM

FOR SPECIAL PROTECTION AREAS (SPA)
FOR SITES ELIGIBLE FOR IDENTIFICATION AS SITES OF COMMUNITY IMPORTANCE (SCI)
AND
FOR SPECIAL AREAS OF CONSERVATION (SAC)

1. Site identification:

1.1 Type B

1.2 Site code UK0030097

1.3 Compilation date 200010

1.4 Update 200603

1.5 Relationship with other Natura 2000 sites

U	K	9	0	2	0	3	0	1

1.6 Respondent(s) International Designations, JNCC, Peterborough

1.7 Site name **Breen Wood**

1.8 Site indication and designation classification dates

date site proposed as eligible as SCI	200010
date confirmed as SCI	200412
date site classified as SPA	
date site designated as SAC	200505

2. Site location:

2.1 Site centre location

longitude	**latitude**
06 14 17 W	55 08 16 N

2.2 Site area (ha) 36.01

2.3 Site length (km)

2.5 Administrative region

NUTS code	Region name	% cover
UKB	Northern Ireland	100.00%

2.6 Biogeographic region

Alpine	Atlantic	Boreal	Continental	Macaronesia	Mediterranean
	X				

3. Ecological information:

3.1 Annex I habitats

Habitat types present on the site and the site assessment for them:

Annex I habitat	% cover	Representativity	Relative surface	Conservation status	Global assessment
Northern Atlantic wet heaths with *Erica tetralix*	27.21	D			

Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles	62.2	B	C	B	**B**
Bog woodland	1.39	A	C	B	**C**

3.2 Annex II species

	Population				Site assessment			
	Resident	Migratory						
Species name		**Breed**	**Winter**	**Stage**	**Population**	**Conservation**	**Isolation**	**Global**
Lutra lutra	Present	-	-	-	D			

4. Site description

4.1 General site character

Habitat classes	**% cover**
Marine areas. Sea inlets	
Tidal rivers. Estuaries. Mud flats. Sand flats. Lagoons (including saltwork basins)	
Salt marshes. Salt pastures. Salt steppes	
Coastal sand dunes. Sand beaches. Machair	
Shingle. Sea cliffs. Islets	
Inland water bodies (standing water, running water)	
Bogs. Marshes. Water fringed vegetation. Fens	
Heath. Scrub. Maquis and garrigue. Phygrana	27.0
Dry grassland. Steppes	
Humid grassland. Mesophile grassland	9.0
Alpine and sub-alpine grassland	
Improved grassland	
Other arable land	
Broad-leaved deciduous woodland	64.0
Coniferous woodland	
Evergreen woodland	
Mixed woodland	
Non-forest areas cultivated with woody plants (including orchards, groves, vineyards, dehesas)	
Inland rocks. Screes. Sands. Permanent snow and ice	
Other land (including towns, villages, roads, waste places, mines, industrial sites)	
Total habitat cover	**100%**

4.1 Other site characteristics

Soil & geology:

Acidic, Clay, Metamorphic, Nutrient-poor, Sand

Geomorphology & landscape:

Lowland, Slope

4.2 Quality and importance

Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles

- for which this is considered to be one of the best areas in the United Kingdom.

Bog woodland

- which is considered to be rare as its total extent in the United Kingdom is estimated to be less than 1000 hectares.
- for which the area is considered to support a significant presence.

4.3 Vulnerability

The site is one of the most important semi-natural woodlands in this part of Northern Ireland. The greater proportion of the site is currently managed as National Nature Reserve by EHS and Forest Service (DARDNI). Negotiations are underway to secure the remainder.
The site is comparatively small and is currently surrounded on three sides by commercial forest plantations. EHS and Forest Service are considering options to extend the area of semi-natural woodland cover.
The Conservation Plan for the site is being updated.

5. Site protection status and relation with CORINE biotopes:

5.1 Designation types at national and regional level

Code	% cover
UK01 (NNR)	55.3
UK04 (SSSI/ASSI)	100.0

NATURA 2000

STANDARD DATA FORM

FOR SPECIAL PROTECTION AREAS (SPA)
FOR SITES ELIGIBLE FOR IDENTIFICATION AS SITES OF COMMUNITY IMPORTANCE (SCI)
AND
FOR SPECIAL AREAS OF CONSERVATION (SAC)

1. Site identification:

1.1 Type B

1.2 Site code UK0016606

1.3 Compilation date 199506

1.4 Update 200010

1.5 Relationship with other Natura 2000 sites

U	K	9	0	2	0	3	0	1

1.6 Respondent(s) International Designations, JNCC, Peterborough

1.7 Site name **Garron Plateau**

1.8 Site indication and designation classification dates

date site proposed as eligible as SCI	199506
date confirmed as SCI	200412
date site classified as SPA	
date site designated as SAC	200505

2. Site location:

2.1 Site centre location

longitude	**latitude**
06 03 42 W	55 00 11 N

2.2 Site area (ha) 4650.07

2.3 Site length (km)

2.5 Administrative region

NUTS code	Region name	% cover
UKB	Northern Ireland	100.00%

2.6 Biogeographic region

Alpine	Atlantic	Boreal	Continental	Macaronesia	Mediterranean
	X				

3. Ecological information:

3.1 Annex I habitats

Habitat types present on the site and the site assessment for them:

Annex I habitat	% cover	Representativity	Relative surface	Conservation status	Global assessment
Oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and/or of the *Isoëto-Nanojuncetea*	0.88	C	C	B	**C**
Natural dystrophic lakes and ponds	0.33	C	C	B	**C**
Northern Atlantic wet heaths with *Erica tetralix*	8	C	C	C	**C**
European dry heaths	1.6	D			
Blanket bogs	70.4	A	C	B	**B**
Transition mires and quaking bogs	0.49	C	C	B	**C**
Alkaline fens	0.11	B	C	B	**B**

3.2 Annex II species

	Population				Site assessment			
	Resident	Migratory						
Species name		Breed	Winter	Stage	Population	Conservation	Isolation	Global
Saxifraga hirculus	Present	-	-	-	C	B	A	**B**

4. Site description

4.1 General site character

Habitat classes	% cover
Marine areas. Sea inlets	
Tidal rivers. Estuaries. Mud flats. Sand flats. Lagoons (including saltwork basins)	
Salt marshes. Salt pastures. Salt steppes	
Coastal sand dunes. Sand beaches. Machair	
Shingle. Sea cliffs. Islets	
Inland water bodies (standing water, running water)	1.0
Bogs. Marshes. Water fringed vegetation. Fens	70.0
Heath. Scrub. Maquis and garrigue. Phygrana	20.0
Dry grassland. Steppes	
Humid grassland. Mesophile grassland	9.0
Alpine and sub-alpine grassland	
Improved grassland	
Other arable land	
Broad-leaved deciduous woodland	
Coniferous woodland	
Evergreen woodland	
Mixed woodland	
Non-forest areas cultivated with woody plants (including orchards, groves, vineyards, dehesas)	
Inland rocks. Screes. Sands. Permanent snow and ice	
Other land (including towns, villages, roads, waste places, mines, industrial sites)	
Total habitat cover	**100%**

4.1 Other site characteristics

Soil & geology:

Acidic, Basalt, Basic, Igneous, Nutrient-poor, Peat

Geomorphology & landscape:

Hilly, Slope, Upland

4.2 Quality and importance

Oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and/or of the *Isoëto-Nanojuncetea*

- for which the area is considered to support a significant presence.

Natural dystrophic lakes and ponds

- for which the area is considered to support a significant presence.

Northern Atlantic wet heaths with *Erica tetralix*

- for which the area is considered to support a significant presence.

Blanket bogs

- for which this is considered to be one of the best areas in the United Kingdom.

Transition mires and quaking bogs

- for which the area is considered to support a significant presence.

Alkaline fens

- for which this is considered to be one of the best areas in the United Kingdom.

Saxifraga hirculus

- which is known from 15 or fewer 10 x 10 km squares in the United Kingdom.
- for which this is considered to be one of the best areas in the United Kingdom.

4.3 Vulnerability

Garron Plateau represents the largest area of intact blanket bog in Northern Ireland. Additional habitats in the rich and varied upland environment include lakes, alkaline fens, transition mires and heathland. In addition it is the only site in Northern Ireland for the Annex II species *Saxifraga hirculus*. The blanket bog vegetation and associated habitats are dependent on a low level of grazing by sheep.

Parts of the site are heavily grazed by sheep and subject to moor gripping which has resulted in some damage to the *Sphagnum* cover. These problems are being partly addressed through a management plan over the largest ownership block. In addition the uptake of both management agreements and agri-environment schemes to reduce grazing pressure will be encouraged on other parts of the site. The effect of grazing pressure on blanket bog vegetation will be monitored. Action to enhance the populations of *Saxifraga hirculus* on the site has been initiated.

Potentially the site could be damaged by the extension of water supply facilities, peat-cutting, excessive burning and continued over-grazing. These threats will be monitored. Where damaging practices are recorded, they will be addressed by management agreements with owners.

An existing Conservation Plan for Garron Plateau is under review. This review will update existing management prescriptions and refine existing conservation objectives.

5. Site protection status and relation with CORINE biotopes:

5.1 Designation types at national and regional level

Code	% cover
UK04 (SSSI/ASSI)	100.0

NATURA 2000

STANDARD DATA FORM

FOR SPECIAL PROTECTION AREAS (SPA)
FOR SITES ELIGIBLE FOR IDENTIFICATION AS SITES OF COMMUNITY IMPORTANCE (SCI)
AND
FOR SPECIAL AREAS OF CONSERVATION (SAC)

1. Site identification:

1.1 Type B

1.2 Site code UK0030224

1.3 Compilation date 200010

1.4 Update 200603

1.5 Relationship with other Natura 2000 sites

1.6 Respondent(s) International Designations, JNCC, Peterborough

1.7 Site name **North Antrim Coast**

1.8 Site indication and designation classification dates

date site proposed as eligible as SCI	200010
date confirmed as SCI	200412
date site classified as SPA	
date site designated as SAC	200505

2. Site location:

2.1 Site centre location

longitude	**latitude**
06 23 36 W	55 13 57 N

2.2 Site area (ha) 314.59

2.3 Site length (km)

2.5 Administrative region

NUTS code	Region name	% cover
UKB	Northern Ireland	100.00%

2.6 Biogeographic region

Alpine	Atlantic	Boreal	Continental	Macaronesia	Mediterranean
	X				

3. Ecological information:

3.1 Annex I habitats

Habitat types present on the site and the site assessment for them:

Annex I habitat	% cover	Representativity	Relative surface	Conservation status	Global assessment
Annual vegetation of drift lines	0.3	C	C	B	**C**
Vegetated sea cliffs of the Atlantic and Baltic coasts	14.3	A	C	A	**B**

Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)	0.32	C	C	C	**C**
Shifting dunes along the shoreline with *Ammophila arenaria* (“white dunes”)	0.25	C	C	B	**C**
Fixed dunes with herbaceous vegetation (“grey dunes”)	5.7	C	C	B	**C**
Humid dune slacks	0.06	D			
European dry heaths	1.9	D			
Species-rich *Nardus* grassland, on siliceous substrates in mountain areas (and submountain areas in continental Europe)	1.1	B	C	C	**C**
Molinia meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*)	2.1	D			
Alkaline fens	0.1	D			

3.2 Annex II species

	Population				Site assessment			
	Resident	Migratory						
Species name		**Breed**	**Winter**	**Stage**	**Population**	**Conservation**	**Isolation**	**Global**
Vertigo angustior	Present	-	-	-	B	B	B	**B**

4. Site description

4.1 General site character

Habitat classes	**% cover**
Marine areas. Sea inlets	
Tidal rivers. Estuaries. Mud flats. Sand flats. Lagoons (including saltwork basins)	
Salt marshes. Salt pastures. Salt steppes	2.0
Coastal sand dunes. Sand beaches. Machair	10.0
Shingle. Sea cliffs. Islets	21.0
Inland water bodies (standing water, running water)	
Bogs. Marshes. Water fringed vegetation. Fens	
Heath. Scrub. Maquis and garrigue. Phygrana	15.0
Dry grassland. Steppes	4.0
Humid grassland. Mesophile grassland	48.0
Alpine and sub-alpine grassland	
Improved grassland	
Other arable land	
Broad-leaved deciduous woodland	
Coniferous woodland	
Evergreen woodland	
Mixed woodland	
Non-forest areas cultivated with woody plants (including orchards, groves, vineyards, dehesas)	
Inland rocks. Screes. Sands. Permanent snow and ice	
Other land (including towns, villages, roads, waste places, mines, industrial sites)	
Total habitat cover	**100%**

4.1 Other site characteristics

Soil & geology:

Acidic, Basalt, Basic, Boulder, Clay, Cobble, Gravel, Igneous, Limestone, Limestone/chalk, Neutral, Nutrient-poor, Nutrient-rich, Peat, Sand, Sedimentary, Shingle

Geomorphology & landscape:

Cave/tunnel, Cliffs, Coastal, Crags/ledges, Escarpment, Geos (rocky inlets), Intertidal rock, Intertidal sediments (including sandflat/mudflat), Islands, Lowland, Pools, Slope, Surge gullies

4.2 Quality and importance

Annual vegetation of drift lines

- which is considered to be rare as its total extent in the United Kingdom is estimated to be less than 100 hectares.
- for which the area is considered to support a significant presence.

Vegetated sea cliffs of the Atlantic and Baltic coasts

- for which this is considered to be one of the best areas in the United Kingdom.

Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)

- for which the area is considered to support a significant presence.

Shifting dunes along the shoreline with *Ammophila arenaria* (“white dunes”)

- for which the area is considered to support a significant presence.

Fixed dunes with herbaceous vegetation (“grey dunes”)

- for which the area is considered to support a significant presence.

Species-rich *Nardus* grassland, on siliceous substrates in mountain areas (and submountain areas in continental Europe)

- for which the area is considered to support a significant presence.

Vertigo angustior

- for which this is considered to be one of the best areas in the United Kingdom.

4.3 Vulnerability

Historical overgrazing of the dunes and associated grasslands have been addressed by the modification of the grazing regime.
Management issues at Giant's Causeway are dealt with in the context of the National Trust's site management plan. Notable issues include maintenance and restoration of heath. Steeper-face grasslands are undergrazed; the impact of increased rankness will be monitored. The long-term management of these mesophile grasslands may require use of specialist 'old breed' livestock. Visitor impact at this very popular natural attraction is well managed, with maintenance of defined paths preventing site damage.
Potentially the dune element of the site could be detrimentally affected by changes to the supply of sand to the dunes although this is not a problem at present. However the dynamic nature of the coastline here means that dune erosion and regrowth are a natural component of the site.
Conservation objectives for the site have recently been reviewed.

5. Site protection status and relation with CORINE biotopes:

5.1 Designation types at national and regional level

Code	% cover
UK01 (NNR)	21.1
UK04 (SSSI/ASSI)	100.0

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STANDARD DATA FORM

FOR SPECIAL PROTECTION AREAS (SPA)
FOR SITES ELIGIBLE FOR IDENTIFICATION AS SITES OF COMMUNITY IMPORTANCE (SCI)
AND
FOR SPECIAL AREAS OF CONSERVATION (SAC)

1. Site identification:

1.1 Type G

1.2 Site code UK0030055

1.3 Compilation date 199803

1.4 Update 200106

1.5 Relationship with other Natura 2000 sites

U	K	9	0	2	0	0	1	1

1.6 Respondent(s) International Designations, JNCC, Peterborough

1.7 Site name **Rathlin Island**

1.8 Site indication and designation classification dates

date site proposed as eligible as SCI	199803
date confirmed as SCI	200412
date site classified as SPA	
date site designated as SAC	200505

2. Site location:

2.1 Site centre location

longitude	**latitude**
06 13 00 W	55 18 00 N

2.2 Site area (ha) 3344.62

2.3 Site length (km)

2.5 Administrative region

NUTS code	Region name	% cover
UKB	Northern Ireland	100.00%

2.6 Biogeographic region

Alpine	Atlantic	Boreal	Continental	Macaronesia	Mediterranean
	X				

3. Ecological information:

3.1 Annex I habitats

Habitat types present on the site and the site assessment for them:

Annex I habitat	% cover	Representativity	Relative surface	Conservation status	Global assessment
Sandbanks which are slightly covered by sea water all the time	14.95	C	C	C	**C**

Reefs	29.9	A	C	B	**A**
Annual vegetation of drift lines	0.01	C	C	C	**C**
Vegetated sea cliffs of the Atlantic and Baltic coasts	3.89	B	C	B	**B**
Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)	0	D			
Submerged or partially submerged sea caves	4.48	A	C	B	**B**

3.2 Annex II species

	Population				Site assessment			
	Resident	Migratory						
Species name		**Breed**	**Winter**	**Stage**	**Population**	**Conservation**	**Isolation**	**Global**
Halichoerus grypus	Present	-	-	-	D			
Phoca vitulina	Present	-	-	-	D			

4. Site description

4.1 General site character

Habitat classes	**% cover**
Marine areas. Sea inlets	93.0
Tidal rivers. Estuaries. Mud flats. Sand flats. Lagoons (including saltwork basins)	
Salt marshes. Salt pastures. Salt steppes	
Coastal sand dunes. Sand beaches. Machair	
Shingle. Sea cliffs. Islets	7.0
Inland water bodies (standing water, running water)	
Bogs. Marshes. Water fringed vegetation. Fens	
Heath. Scrub. Maquis and garrigue. Phygrana	
Dry grassland. Steppes	
Humid grassland. Mesophile grassland	
Alpine and sub-alpine grassland	
Improved grassland	
Other arable land	
Broad-leaved deciduous woodland	
Coniferous woodland	
Evergreen woodland	
Mixed woodland	
Non-forest areas cultivated with woody plants (including orchards, groves, vineyards, dehesas)	
Inland rocks. Screes. Sands. Permanent snow and ice	
Other land (including towns, villages, roads, waste places, mines, industrial sites)	
Total habitat cover	**100%**

4.1 Other site characteristics

Soil & geology:

Basalt, Basic, Boulder, Igneous, Limestone, Limestone/chalk, Neutral, Nutrient-rich, Pebble, Sand, Sedimentary

Geomorphology & landscape:

Cave/tunnel, Caves, Cliffs, Coastal, Crags/ledges, Intertidal rock, Islands, Subtidal rock (including rocky reefs), Subtidal sediments (including sandbank/mudbank), Surge gullies

4.2 Quality and importance

Sandbanks which are slightly covered by sea water all the time

- for which the area is considered to support a significant presence.

Reefs

- for which this is considered to be one of the best areas in the United Kingdom.

Annual vegetation of drift lines
- which is considered to be rare as its total extent in the United Kingdom is estimated to be less than 100 hectares.
- for which the area is considered to support a significant presence.

Vegetated sea cliffs of the Atlantic and Baltic coasts
- for which this is considered to be one of the best areas in the United Kingdom.

Submerged or partially submerged sea caves
- for which this is considered to be one of the best areas in the United Kingdom.

4.3 Vulnerability

Some commercial fishing such as pot fishing occurs within the site. The effect of the current fishing activities on the sea cave habitat is probably minimal. Habitat loss/damage caused by man-made structures and recreational use is also thought to be minimal.
An existing Conservation Plan for this pSAC is now under review. This will update management prescriptions and refine conservation objectives.

5. Site protection status and relation with CORINE biotopes:

5.1 Designation types at national and regional level

Code	% cover
UK01 (NNR)	1.2
UK04 (SSSI/ASSI)	100.0

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STANDARD DATA FORM

FOR SPECIAL PROTECTION AREAS (SPA)
FOR SITES ELIGIBLE FOR IDENTIFICATION AS SITES OF COMMUNITY IMPORTANCE (SCI)
AND
FOR SPECIAL AREAS OF CONSERVATION (SAC)

1. Site identification:

1.1 Type H

1.2 Site code UK9020011

1.3 Compilation date 199902

1.4 Update 199902

1.5 Relationship with other Natura 2000 sites

U	K	0	0	3	0	0	5	5

1.6 Respondent(s) International Designations, JNCC, Peterborough

1.7 Site name **Rathlin Island**

1.8 Site indication and designation classification dates

date site proposed as eligible as SCI	
date confirmed as SCI	
date site classified as SPA	199902
date site designated as SAC	

2. Site location:

2.1 Site centre location

longitude	**latitude**
06 13 30 W	55 17 30 N

2.2 Site area (ha) 3344.62

2.3 Site length (km)

2.5 Administrative region

NUTS code	Region name	% cover
UKB	Northern Ireland	100.0%

2.6 Biogeographic region

Alpine	Atlantic	Boreal	Continental	Macaronesia	Mediterranean
	X				

3. Ecological information:

3.1 Annex I habitats

Habitat types present on the site and the site assessment for them:

Annex I habitat	% cover	Representativity	Relative surface	Conservation status	Global assessment

3.2 Annex I birds and regularly occurring migratory birds not listed on Annex I

		Population				Site assessment			
		Resident	Migratory						
Code	Species name		Breed	Winter	Stage	Population	Conservation	Isolation	Global
A200	*Alca torda*		8922 I			A		C	
A103	*Falco peregrinus*		6 P			C		C	
A188	*Rissa tridactyla*		6822 P			C		C	
A199	*Uria aalge*		41887 I			A		C	

4. Site description:

4.1 General site character

Habitat classes	% cover
Marine areas. Sea inlets	93.0
Tidal rivers. Estuaries. Mud flats. Sand flats. Lagoons (including saltwork basins)	
Salt marshes. Salt pastures. Salt steppes	
Coastal sand dunes. Sand beaches. Machair	
Shingle. Sea cliffs. Islets	7.0
Inland water bodies (standing water, running water)	
Bogs. Marshes. Water fringed vegetation. Fens	
Heath. Scrub. Maquis and garrigue. Phygrana	
Dry grassland. Steppes	
Humid grassland. Mesophile grassland	
Alpine and sub-alpine grassland	
Improved grassland	
Other arable land	
Broad-leaved deciduous woodland	
Coniferous woodland	
Evergreen woodland	
Mixed woodland	
Non-forest areas cultivated with woody plants (including orchards, groves, vineyards, dehesas)	
Inland rocks. Screes. Sands. Permanent snow and ice	
Other land (including towns, villages, roads, waste places, mines, industrial sites)	
Total habitat cover	**100%**

4.1 Other site characteristics

Soil & geology:

Basic, Boulder, Igneous, Limestone, Limestone/chalk, Shingle

Geomorphology & landscape:

Cave/tunnel, Caves, Cliffs, Coastal, Intertidal rock, Island, Subtidal rock (including rocky reefs), Surge gullies

4.2 Quality and importance

ARTICLE 4.1 QUALIFICATION (79/409/EEC)

During the breeding season the area regularly supports:

Falco peregrinus	1.6% of the all-Ireland breeding population 5 year mean, 1992-1996

ARTICLE 4.2 QUALIFICATION (79/409/EEC)

During the breeding season the area regularly supports:

Alca torda	1% of the breeding population Count, as at 1985
Rissa tridactyla (Eastern Atlantic - Breeding)	0.2% of the breeding population Count, as at 1985
Uria aalge (East Atlantic)	12.5% of the breeding population Count, as at 1985

ARTICLE 4.2 QUALIFICATION (79/409/EEC): AN INTERNATIONALLY IMPORTANT ASSEMBLAGE OF BIRDS

4.3 Vulnerability

While no significant threats can be identified at present, the seabird colony could be at risk from a potential lack of available food and the risk of oil pollution/oil spills.
Similarily, no significant threats can be identified for the Peregrine Falcons though they could potentially be at at risk from persecution.
A Conservation Plan for Rathlin Island is now being prepared. This Plan will determine conservation objectives and management prescriptions for the site

5. Site protection status and relation with CORINE biotopes:

5.1 Designation types at national and regional level

Code	% cover
UK01 (NNR)	1.3
UK00 (N/A)	92.9
UK04 (SSSI/ASSI)	7.1

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STANDARD DATA FORM

FOR SPECIAL PROTECTION AREAS (SPA)
FOR SITES ELIGIBLE FOR IDENTIFICATION AS SITES OF COMMUNITY IMPORTANCE (SCI)
AND
FOR SPECIAL AREAS OF CONSERVATION (SAC)

1. Site identification:

1.1 Type B

1.2 Site code UK0030365

1.3 Compilation date 201008

1.4 Update

1.5 Relationship with other Natura 2000 sites

1.6 Respondent(s) International Designations, JNCC, Peterborough

1.7 Site name **Red Bay**

1.8 Site indication and designation classification dates

date site proposed as eligible as SCI	201008
date confirmed as SCI	
date site classified as SPA	
date site designated as SAC	

2. Site location:

2.1 Site centre location

longitude	**latitude**
06 01 25 W	55 06 52 N

2.2 Site area (ha) 965.54

2.3 Site length (km)

2.5 Administrative region

NUTS code	Region name	% cover
0	Marine	100.00%

2.6 Biogeographic region

Alpine	Atlantic	Boreal	Continental	Macaronesia	Mediterranean
	X				

3. Ecological information:

3.1 Annex I habitats

Habitat types present on the site and the site assessment for them:

Annex I habitat	% cover	Representativity	Relative surface	Conservation status	Global assessment
Sandbanks which are slightly covered by sea water all the time	33.79	A	C	A	**A**

3.2 Annex II species

	Population				Site assessment			
	Resident	Migratory						
Species name		Breed	Winter	Stage	Population	Conservation	Isolation	Global

4. Site description

4.1 General site character

Habitat classes	% cover
Marine areas. Sea inlets	100.0
Tidal rivers. Estuaries. Mud flats. Sand flats. Lagoons (including saltwork basins)	
Salt marshes. Salt pastures. Salt steppes	
Coastal sand dunes. Sand beaches. Machair	
Shingle. Sea cliffs. Islets	
Inland water bodies (standing water, running water)	
Bogs. Marshes. Water fringed vegetation. Fens	
Heath. Scrub. Maquis and garrigue. Phygrana	
Dry grassland. Steppes	
Humid grassland. Mesophile grassland	
Alpine and sub-alpine grassland	
Improved grassland	
Other arable land	
Broad-leaved deciduous woodland	
Coniferous woodland	
Evergreen woodland	
Mixed woodland	
Non-forest areas cultivated with woody plants (including orchards, groves, vineyards, dehesas)	
Inland rocks. Screes. Sands. Permanent snow and ice	
Other land (including towns, villages, roads, waste places, mines, industrial sites)	
Total habitat cover	**100%**

4.1 Other site characteristics

Soil & geology:

Geomorphology & landscape:

4.2 Quality and importance

Sandbanks which are slightly covered by sea water all the time

- for which this is considered to be one of the best areas in the United Kingdom.

4.3 Vulnerability

The Red Bay County Antrim marine SAC contains a relatively large area of the rare biotope Phymatolithon calcarium maerl beds with red seaweeds in shallow infralittoral clean gravel or coarse sand". Phymatolithon calcarium is listed under Annex Vb of the Habitats Directive as a species of community interest whose taking in the wild and exploitation may be subject to management measures.
As with many marine systems, this particular site will require effective management of activities and pressures such as towed mobile gear fishing and water quality emanating from both point and diffuse sources. Other potentially damaging activities not yet known to occur within the site are detailed within the detailed Conservation Objectives and Advice on Operations.

5. Site protection status and relation with CORINE biotopes:

5.1 Designation types at national and regional level

Code	% cover
UK00 (N/A)	100.0

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STANDARD DATA FORM

FOR SPECIAL PROTECTION AREAS (SPA)
FOR SITES ELIGIBLE FOR IDENTIFICATION AS SITES OF COMMUNITY IMPORTANCE (SCI)
AND
FOR SPECIAL AREAS OF CONSERVATION (SAC)

1. Site identification:

1.1 Type A

1.2 Site code UK9020021

1.3 Compilation date 199212

1.4 Update 199902

1.5 Relationship with other Natura 2000 sites

1.6 Respondent(s) International Designations, JNCC, Peterborough

1.7 Site name **Sheep Island**

1.8 Site indication and designation classification dates

date site proposed as eligible as SCI	
date confirmed as SCI	
date site classified as SPA	199212
date site designated as SAC	

2. Site location:

2.1 Site centre location

longitude	**latitude**
06 21 00 W	55 14 56 N

2.2 Site area (ha) 3.5

2.3 Site length (km)

2.5 Administrative region

NUTS code	Region name	% cover
UKB	Northern Ireland	100.00%

2.6 Biogeographic region

Alpine	Atlantic	Boreal	Continental	Macaronesia	Mediterranean
	X				

3. Ecological information:

3.1 Annex I habitats

Habitat types present on the site and the site assessment for them:

Annex I habitat	% cover	Representativity	Relative surface	Conservation status	Global assessment

3.2 Annex I birds and regularly occurring migratory birds not listed on Annex I

		Population				Site assessment			
		Resident	Migratory						
Code	Species name		Breed	Winter	Stage	Population	Conservation	Isolation	Global
A017	*Phalacrocorax carbo*		249 P			B		C	

4. Site description:

4.1 General site character

Habitat classes	% cover
Marine areas. Sea inlets	
Tidal rivers. Estuaries. Mud flats. Sand flats. Lagoons (including saltwork basins)	
Salt marshes. Salt pastures. Salt steppes	
Coastal sand dunes. Sand beaches. Machair	
Shingle. Sea cliffs. Islets	100.0
Inland water bodies (standing water, running water)	
Bogs. Marshes. Water fringed vegetation. Fens	
Heath. Scrub. Maquis and garrigue. Phygrana	
Dry grassland. Steppes	
Humid grassland. Mesophile grassland	
Alpine and sub-alpine grassland	
Improved grassland	
Other arable land	
Broad-leaved deciduous woodland	
Coniferous woodland	
Evergreen woodland	
Mixed woodland	
Non-forest areas cultivated with woody plants (including orchards, groves, vineyards, dehesas)	
Inland rocks. Screes. Sands. Permanent snow and ice	
Other land (including towns, villages, roads, waste places, mines, industrial sites)	
Total habitat cover	**100%**

4.1 Other site characteristics

Soil & geology:

Igneous

Geomorphology & landscape:

Cliffs, Intertidal rock, Island

4.2 Quality and importance

ARTICLE 4.2 QUALIFICATION (79/409/EEC)

During the breeding season the area regularly supports:

Phalacrocorax carbo	5% of the population in Ireland
(North-western Europe)	5 year mean, 1992-1996

4.3 Vulnerability

While no significant threats can be identified at present, the Cormorant colony could be at risk from a potential lack of available food. Although a coastal site, this colony feeds primarily on inland rivers and large lakes.
An existing Conservation Plan for Sheep Island is now under review. This review will up-date existing management prescriptions and refine existing conservsation objectives.

5. Site protection status and relation with CORINE biotopes:

5.1 Designation types at national and regional level

Code	% cover
UK04 (SSSI/ASSI)	100.0

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STANDARD DATA FORM

FOR SPECIAL PROTECTION AREAS (SPA)
FOR SITES ELIGIBLE FOR IDENTIFICATION AS SITES OF COMMUNITY IMPORTANCE (SCI)
AND
FOR SPECIAL AREAS OF CONSERVATION (SAC)

1. Site identification:

1.1 Type B

1.2 Site code UK0030383

1.3 Compilation date 201208

1.4 Update

1.5 Relationship with other Natura 2000 sites

1.6 Respondent(s) International Designations, JNCC, Peterborough

1.7 Site name **Skerries and Causeway**

1.8 Site indication and designation classification dates

date site proposed as eligible as SCI	201208
date confirmed as SCI	
date site classified as SPA	
date site designated as SAC	

2. Site location:

2.1 Site centre location

longitude	**latitude**
06 35 48 W	55 14 33 N

2.2 Site area (ha) 10862

2.3 Site length (km)

2.5 Administrative region

NUTS code	Region name	% cover
0	Marine	100.00%

2.6 Biogeographic region

Alpine	Atlantic	Boreal	Continental	Macaronesia	Mediterranean
	X				

3. Ecological information:

3.1 Annex I habitats

Habitat types present on the site and the site assessment for them:

Annex I habitat	% cover	Representativity	Relative surface	Conservation status	Global assessment
Sandbanks which are slightly covered by sea water all the time	14.8	B	C	B	**B**

Reefs	16.7	A	C	B	**B**
Submerged or partially submerged sea caves		B		B	**B**

3.2 Annex II species

	Population				Site assessment			
	Resident	**Migratory**						
Species name		**Breed**	**Winter**	**Stage**	**Population**	**Conservation**	**Isolation**	**Global**
Tursiops truncatus	P	-	-	-	D			
Phocoena phocoena	P	-	-	-	C	B	C	**C**
Halichoerus grypus	P	-	-	-	D			
Phoca vitulina	P	-	-	-	D			

4. Site description

4.1 General site character

Habitat classes	**% cover**
Marine areas. Sea inlets	100.0
Tidal rivers. Estuaries. Mud flats. Sand flats. Lagoons (including saltwork basins)	
Salt marshes. Salt pastures. Salt steppes	
Coastal sand dunes. Sand beaches. Machair	
Shingle. Sea cliffs. Islets	
Inland water bodies (standing water, running water)	
Bogs. Marshes. Water fringed vegetation. Fens	
Heath. Scrub. Maquis and garrigue. Phygrana	
Dry grassland. Steppes	
Humid grassland. Mesophile grassland	
Alpine and sub-alpine grassland	
Improved grassland	
Other arable land	
Broad-leaved deciduous woodland	
Coniferous woodland	
Evergreen woodland	
Mixed woodland	
Non-forest areas cultivated with woody plants (including orchards, groves, vineyards, dehesas)	
Inland rocks. Screes. Sands. Permanent snow and ice	
Other land (including towns, villages, roads, waste places, mines, industrial sites)	
Total habitat cover	**100%**

4.1 Other site characteristics

Physical site characteristics:

Soil & geology: Basalt, Ulster White Limestone, Waterloo Mudstone
Geomorphology & landscape: Islands, coastal cliffs and bays, bedrock and stony reef, sandbanks, subtidal seagrass, sandwaves, sea caves.

4.2 Quality and importance

Sandbanks which are slightly covered by sea water all the time
- for which this is considered to be one of the best areas in the United Kingdom.

Reefs
- for which this is considered to be one of the best areas in the United Kingdom.

Submerged or partially submerged sea caves
- for which this is considered to be one of the best areas in the United Kingdom.

Phocoena phocoena

- for which the area is considered to support a significant presence.

4.3 Vulnerability

This area has been fished in the past with the resultant loss of a *Modiolus modiolus* biogenic reef (last surveyed intact in 1979) and a rare Atrina fragilis bed. Appropriate management will be necessary especially to protect low lying reef areas, the *Zostera marina* bed and stable sediments from threats such as mobile fishing gear; caves from threats such as diffuse pollution through river outflow; and harbour porpoise from threats such as the loss of feeding grounds or seismic and sonar disturbance.

5. Site protection status and relation with CORINE biotopes:

5.1 Designation types at national and regional level

Code	% cover
UK00 (N/A)	99.0
UK04 (SSSI/ASSI)	1.0

APPENDIX D

Consultation Responses

From: Doherty, Jeremy [Jeremy.Doherty@doeni.gov.uk]
Sent: 01 February 2013 14:13
To: Richard Bingham
Subject: Tidal Ventures Ltd - Torr Head - EIA Scoping - Request for Information

Richard,

NIEA's Industrial Pollution & Radiochemical Inspectorate have received your request for information regarding the 100MW tidal energy array in the waters off Torr Head. IPRI will have no comment to make as any such site wouldn't be regulated by us. We would however, be grateful if you could confirm that the request for information has also been sent to the DOE Marine Division based in Millennium House, Great Victoria, Street Belfast?

Regards

Jeremy Doherty
Industrial Pollution & Radiochemical Inspectorate
Klondyke Building
Cromac Avenue
Gasworks Business Park
Malone Lower
Belfast
BT7 2JA

From: Greer, Gareth (DARD) [Gareth.Greer@dardni.gov.uk]
Sent: 04 February 2013 14:11
To: Richard Bingham
Subject: Tidal Ventures Ltd - Torr Head - REF Ltr 0086

Richard,

Thank you for your correspondence regarding the above venture. The Rivers Agency have no comments to make regarding the environmental aspects of this scheme.

The position of the onshore substation should however be subject to a flood risk assessment, which looks at the likelihood of flooding from both watercourses and the sea.

Regards,

Gareth

Dr. Gareth Greer
Conservation Officer (Western Region),
Rivers Agency,
Hydebank,
4 Hospital Road,
Belfast.
BT8 8JP
Office: 028902 Ext53195
Mobile: 07901858375

24 Glendun Road,
Cushendun,
Co. Antrim.
BT 44 0PX.

5th February 2013.

P.S.
nwood House.
4 Bangor Road.
Belfast.

Dear Sir/Madam,

Thank you for your letter Ref NI 0098, 30th January 2013. As a property owner and one of the Salmon rights at Torr Head I have concerns regarding the proposed development of the offshore tidal array in this area.

Firstly the construction and presence of this array may effect the salmon run as it is in the direct path of migratory salmon to the local rivers and to my fishery. This presence will also greatly restrict my small, seasonal angling business as this area is one of the best for sea angling.

The connection of the offshore array and the connection to the shore also causes me concern as the magnetic field produced by these currents can effect salmon behaviour and divert them from their natural path.

The onshore electrical substation may also cause me concern if it were to be positioned close to my fishery or buildings as this may cause both interference to the natural salmon run and also be a health hazard to myself and family.

I hope, during your consultation exercise that my concerns will be taken seriously, and can be addressed, as they could have a major impact on my families future.

Yours Sincerely,

Patrick McNeill.

From: Westley, Kieran [kl.westley@ulster.ac.uk]
Sent: 06 February 2013 16:58
To: Richard Bingham
Cc: Robinson, Rhonda
Subject: Torr Head EIA Scoping

Dear Richard,

Many thanks for sending through the Torr Head Tidal EIA Scoping request.

From my point of view it is gratifying to see that you've already identified 'Cultural, Architectural and Archaeological Heritage' for inclusion within the EIA.

Re. comments on the proposed Scoping document, from my (maritime archaeology) perspective the key things are:

- to confirm that the maritime archaeological heritage includes both shipwrecks and submerged prehistoric landscapes
- to confirm that the EIA will assess the impact on maritime archaeology both within the proposed offshore tidal array area and along the proposed sub-sea cable route
- to confirm that the EIA will assess the impact on maritime archaeology both through extant data and through the new geophysical and geotechnical data which will be collected as part of the pre-development surveys.

On a more general note, for the EIA, it's generally best to involve the archaeological contractor prior to the pre-development surveys. This way allows for archaeological input into the survey design thus ensuring the resulting data is suitable for an accurate archaeological assessment.

Let me know if you need any more information

All the best

Kieran

Dr. Kieran Westley
Research Associate
Centre for Maritime Archaeology
University of Ulster
Coleraine BT52 1SA
Northern Ireland
Tel: +44-28701-24211

From: Harry McClenahan [harry.mcclenahan@cil.ie]
Sent: 07 February 2013 08:38
To: Richard Bingham
Subject: 2013-02-07 Tidal Development at Torr Head

Dear Richard,

I refer to your letter Ref Ltr 0018 of 30th January 2013 on the tidal development at Torr Head. CIL are specifically concerned with surface marine navigation and I note that the devices will be in relatively deep water. However I would imagine that during the construction phase there may be significant activity within the site and this in itself may be a hazard to navigation. Similarly when the devices are operational you would need to consider how they will be protected from fishing vessels towing their gear. (Or very deep draft vessels)

We recognise that you are at the early stages of the development and the design of the devices (and therefore their height above the sea bed) may have an effect on the outcome of the navigational risk analysis you must conduct.

There are options to mark the sites with aids to navigation either temporarily or for the life of the project and there is a statutory sanction process to be followed before aids to navigation are established.

Please call me on the numbers below if you require any clarification of the above.

Kind Regards,

Capt Harry McClenahan
Navigation Services Manager
Irish Lights Office
Harbour Road
Dun Laoghaire
Co Dublin
Ireland
Phone 00 353 (0)1 271 5542
Mobile 00 353 (0) 86 8201435
Fax 00 353 (0)1 271 5566
Email h.mcclenahan@cil.ie
Web www.cil.ie

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****

ROADS Service

Business Support Team
County Hall
Castlerock Road
Coleraine
BT51 3HS

Telephone: (028) 7034 1300
Fax: (028) 7034 1430

Mr Richard Bingham
RPS
Elmwood House
74 Boucher Road
Belfast
BT12 6RZ

Ref:	53392
Date:	04/02/2013
Direct Line:	87121

Dear Mr Bingham

Re: Tidal Venture Ltd - Torr Head - EIA Scoping - Request for information

Thank you for your correspondence received on 4 February 2013 regarding the above.

This is receiving attention and we hope to issue our reply by 25 February 2013.

Yours sincerely,

Deirdre Tosh

Deirdre Tosh
Business Support Team

Northern Ireland Environment Agency
www.ni-environment.gov.uk

Northern Ireland Environment Agency
Natural Heritage
Klondyke Building
Cromac Avenue
Gasworks Business Park
Lower Ormeau Road
Belfast BT7 2JA

Mr. R. Bingham
RPS
Elmwood House
74 Boucher Road
Belfast BT12 6RZ

Your Ref: Ltr 0065
Our Ref: IBE 0657
Telephone: 028 9056 9598
eric.mcauley@doeni.gov.uk

Dear Mr. Bingham,

RE: Tidal Ventures Ltd – Torr Head
Environmental Impact Assessment (EIA) Scoping – Request for Information.

Thank you for your letter of 30/1/2013 which was received in this office on 4/2/2013.

The content of your correspondence has been noted and any follow up action which may be required will be carried out as soon as possible.

Yours sincerely

E. McAuley

Eric McAuley
Countryside and Coast

Northern Ireland Environment Agency
www.doeni.gov.uk/niea/

Klondyke Building
Cromac Avenue
Gasworks Business Park
Malone Lower
Belfast BT7 2JA

Mr Richard Bingham
RPS
Elmwood House
74 Boucher Road
Belfast
BT12 6RZ

Direct Dial: 028 9056 9524

Our Ref: DEC 233/3/1

Your Ref: Ltr 0069

4 February 2013

Dear Mr Bingham

ENVIRONMENTAL IMPACT ASSESSMENT (EIA) SCOPING – Request for information.

I refer to your consultation received in this office on 1 February 2013 regarding the above correspondence.

I would like to advise you that your consultation is being considered by the Department and a response shall be issued to you as soon as possible.

Yours sincerely

Martin Keenan
Conservation Designations & Protection

RECEIVED
7 FEB 2013
BELFAST P.D.

Northern Ireland Environment Agency
www.ni-environment.gov.uk

17 Antrim Road
Tonagh
Lisburn
BT28 3AL

Mr Richard Bingham
RPS
Elmwood House
74 Boucher Road
Belfast
BT12 6RZ

7 February 2013

Your Ref: Ltr 0067
Our Ref: WR33/23013

Dear Mr Richard Bingham

RE: Environmental Impact Assessment (EIA) Scoping - Request for Information

Given the size and nature of the project it is imperative that all potential impacts are adequately identified, assessed and appropriately mitigated.

Potential impacts on the water environment can specifically be defined as:

- Impacts on Groundwater;
- Impacts on Surface water;
- Impacts on Hydromorphology.

More information on these potential impacts is given below, however this list should not be considered as exhaustive or applicable to every project. Each project should be scoped on a case by case basis.

Impacts on Groundwater

The EIA should address the following potential groundwater impacts:

- The impact of dewatering on any groundwater dependent receptors, i.e. domestic/industrial/ commercial abstractions, waterways, boreholes, wetlands etc, within or outside of the proposed site;

- The potential mobilisation of contaminated groundwater within the site or onto the site as a result of dewatering, thereby creating a contaminated discharge;

- The potential remobilisation of contaminants within the unsaturated zone due to artificial groundwater recharge activities causing natural groundwater levels to rise;

- How will dewatered water be treated prior to discharge and where will it be discharged;

- The impact of earthworks on a contaminated site;

- The impact of any piling/tunnelling/excavations/earthworks or boreholes on the creation of preferential pathways for pollutants into groundwater;

- In coastal and estuarine areas saline ingress as a result of dewatering is a potential impact;

- The use of non inert infill material;

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- The potential impact from the spillage of oils/fuels/cement/chemicals or other pollutants entering groundwater;

- The impact of soil sealing on groundwater recharge.

It should be noted that if your proposed scheme involves an abstraction an abstraction/impoundment licence issued under the Water Abstraction and Impoundment (Licensing) Regulations (Northern Ireland) 2006 may be required.

The discharge of water from a dewatering operation will require consent to discharge, under the Water (Northern Ireland) Order 1999.

Groundwater/Hydrogeology
Regional information on groundwater aquifer classification and/or groundwater vulnerability is now available directly from the Geoindex on the British Geological Survey (BGS) website: http://maps.bgs.ac.uk/gsni_geoindex/ . **Please see attached Groundwater Guidance Note**. (Important: Please change the current theme on the top right-hand side to "hydrogeology". Click on the "+" sign in front of the layer name for a legend. For supporting information and background on the layer being queried and to note limitations on its use, click on the layer name.)

Impacts on Surface Water

The EIA should address the following potential surface water impacts:

- The mobilisation of sediments due to storm water runoff from excavated/cleared areas or soil stockpiles;

- Spillages of oils/fuels/cement/chemicals or other pollutants;

- Landslide/bog burst due to works on steep slopes;

- Discharge of contaminated groundwater into surface waters;

- Discharge of effluent containing potentially polluting substances or at an inappropriate temperature;

- Unregulated surface water abstractions or discharges;

- Any works within water;

- The disposal of sewage from the site both during the construction and operational phases;

- The disposal of storm water from the site both during the construction and operational phases;

A discharge consent, issued under the Water (Northern Ireland) Order 1999 may be required for the discharge of stormwater during the construction phase of this development.

Impacts on Hydromorphology

The EIA should address the following potential hydromorphological impacts:

- The permanent or temporary diversion of watercourses;
- New, or alterations to existing, crossing structures such as culverts and bridges;
- New or altered structures impacting on a waterway .e.g. Jetties, piers, outfall structures, bank reinforcments;
- Loss of river continuity;
- Dredging or any physical modifications of a waterway;
- Marine construction works.

A Marine Licence will be required for the construction/deposition or removal of materials below the Mean High Water Spring tide mark, under Part 4 (Marine Licensing) of the Marine and Coastal Access Act 2009. DOE Marine Division should be consulted on the scoping stage of this application.

Summary

Once all impacts have been identified they should be assessed for significance and appropriate mitigation proposed for any likely significant impacts.

Attached is a weblink to WMUs guidance on the carrying out of Environmental Impact Assessments for developments likely to impact on the water environment. Such developments should also be assessed against the Water Framework Directives objectives and guidance on this is also available from the weblink below:

http://www.doeni.gov.uk/niea/water-home/development_management.htm

D. S.

David Smyth
Water Management Unit
Northern Ireland Environment Agency

From: McMullan [trostan75@btinternet.com]
Sent: 08 February 2013 16:26
To: Richard Bingham
Subject: North Coast Turbines

Follow Up Flag: Follow up
Flag Status: Red

Northern Coast Lobster Fishermen's Association

Chairman	Secretary	Treasurer
Robert Cardwell	**Bob Mc Mullan**	**David Galbraith**
106 Coleraine Road	**195a Garron Road**	**13 Mullaghboy Road**
Portrush	**Glenariffe**	**Islandmagee**
BT 56 8HN	**BT 44 0RA**	**BT 40 3TT**
TEL:028 70822359	**Tel: 028 21771282**	**Tel: 028 93382539**

7th. February, 2013.

Dear Mr Bingham,

I have received the attached correspondence addressed to my previous address. As you may see, I am Hon. Secretary to the above lobster organisation which looks after the interests of forty plus fishermen interspersed from Carrickfergus to Portstewart.
Alan Mc Culla , the Harbour Kilkeel, heads the ANIFPO. Hard to get a grip with all these fishing chaps!!!
For your information the fishermen most likely to be affected have already attended a presentation by TVL but the Association as a whole also like to be kept abreast.

Regards,

Bob McMullan.

ROADS Service

Your ref: Ltr 0025 – IBE0657
Our ref: PRE/02/13/E
Being Dealt With By: Mr Adam Quigley
Direct Line: 028 7035 9990
Date: 8th February 2013

Northern Division
Divisional Headquarters
County Hall
Castlerock Road
Coleraine BT51 3HS
Telephone: 028 7034 1300
Fax: 028 7032 5738
Textphone: 028 9054 0022
Email: roads.northern@drdni.gov.uk
www.roadsni.gov.uk

RPS
Elmwood House
74 Boucher Road
Belfast
BT12 6RZ

RPS RECEIVED 12 FEB 2013 BELFAST P.D. BD
F.A.O. RECEIPT F.A.O. RECEIPT
P.M.
Job No.
COH

Dear Sir

Re: Tidal Ventures Ltd. – Torr Head
Environmental Impact Assessment (EIA) Scoping – Request for Information

I refer to your letter dated 30th January 2013 regarding the above.

We note your proposal and would suggest that the EIA should include a Transport Assessment (TA) detailing the haul routes to/from the proposed dockside facility. The TA should include details of the number and size of HGV's involved during construction.

As most of the work will be offshore, the traffic impact should be restricted to the movements to/from the dockside facility. We will await a planning application and TA in due course, but if you require any further information please contact me at the above address/telephone number.

Yours faithfully

Adam Quigley
Development Control Engineer

From: David Carlisle [David.Carlisle@mcga.gov.uk]
Sent: 13 February 2013 12:52
To: Richard Bingham
Cc: phil.elliott@doeni.gov.uk; Maree Zatriqi
Subject: Tidal Ventures Ltd - Torr Head.

Follow Up Flag: Follow up
Flag Status: Red

Dear Richard,

REF: Tidal Ventures Ltd - Torr Head EIA Scoping Request for Information

I have just been handed the letter and attachments (dated 30/1/13) regarding the above captioned proposal that was sent to my coastguard colleague in Coleraine.

I note from the Project Description that areas in which this agency has an interest are included, ie: Shipping & Navigation, Commercial Fisheries and the maritime aspects of Recreation and Tourism.

I am sure you are aware that the primary guidance documents in the assessment of Navigational Safety Risks for Offshore Renewable Energy projects are Marine Guidance Note (MGN) 371 and the DTI publication "Guidance on the Assessment of the Impact of Offshore Windfarms". I have attached both of these documents for your information.

Can I ask that you direct any future correspondence regarding this matter to this office (unless requested otherwise) and we will liaise with HMCG as necessary.

Phil Elliott of DOENI Marine Planning has been copied inot this email.

If you have any queries on the navigational issues associated with this project, please do not hesitate to contact this office:- MCA, Marine Office, Bregenz House, Quay Street, Bangor BT20 5ED.

Regards,

David.

David Carlisle
Consultant Surveyor (Nautical)
S & NI Region
MO Belfast
02891 475310 (T)
02891 475321 (F)
david.carlisle@mcga.gov.uk

Geological Survey of
Northern Ireland

Department of
Enterprise, Trade
and Investment
www.detini.gov.uk

Colby House
Stranmillis Court
Stranmillis Road
Belfast BT9 5BF
Telephone: 028 90388462
Textphone: 028 90529304
Fax: 028 90388461

Our Ref: E1/13/060
Your Ref: LTR0036

Mr Richard Bingham
RPS Ireland Ltd
Elmwood House
74 Boucher Road
Belfast
BT12 6RZ

12 February 2013

Dear Mr Bingham

RE: PROPOSED TIDAL ENERGY SCHEME AT TORR HEAD, CO ANTRIM, TIDAL VENTURES LTD 4: ENVIRONMENTAL IMPACT ASSESSMENT SCOPING

Your letter dated 02 January 2013 refers.

Geological Survey of Northern Ireland has no specific requirements for the Environmental Impact Assessment for this development. However, the Northern Ireland Environment Agency (Natural Heritage) has designated Torr Head as an Area of Special Scientific Interest (ASSI) on the basis of Earth Science Interest. Site geology may therefore be a significant factor in relation to the onshore development and will require detailed consideration in the Environmental Statement.

If you wish to discuss the range of onshore geological data available in the GSNI archive or any other matters arising please contact my colleague Mr William Smith or myself at the above address.

Yours Sincerely

Terence P Johnston C. Geol.

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P.M.

INVESTORS IN PEOPLE | Bronze

From: Peoples, Lynne [Lynne.Peoples@rspb.org.uk]
Sent: 15 February 2013 11:23
To: Richard Bingham
Subject: RSPB scoping response to Tidal Ventures Ltd EIA scoping (Ltr0089;IBE0657)

Hello Richard

Please find attached the RSPB formal scoping response to the Tidal Ventures Ltd EIA scoping request.

We had a meeting with Tidal Ventures Ltd in December 2012 and were presented with an introduction to the tidal energy project, as a joint venture between Bord Gais Energy and OpenHydro Technology Ltd.

If you have any related queries regarding our response then please get in contact.

Kind regards

Lynne

Lynne Peoples
Assistant Conservation Officer

Tel: 028 9049 1547
Tel: 028 9069 9098 (direct)

f_log ipg https si0

Stepping up for Nature

RSPB, Northern Ireland Headquarters, Belvoir Park Forest, Belfast, BT8 7QT
www.rspb.org.uk/northernireland

The RSPB speaks out for birds and wildlife, tackling the problems that threaten our environment. Nature is amazing - help us keep it that way.
Click here to join today: www.rspb.org.uk/join.

The Royal Society for the Protection of Birds (RSPB) is a registered charity: England and Wales no. 207076, Scotland no. SC037654

Belvoir Park Forest
Belfast
BT8 7QT

RSPB NORTHERN IRELAND

Mr Richard Bingham
RPS
Elmwood House
74 Boucher Road
Belfast
BT12 6RZ

15 February 2013

Dear Mr Bingham

RE: proposed 100MW tidal energy array at Torr Head, County Antrim by Tidal Ventures Limited (Bord Gaise Energy & OpenHydro Technology Limited) (your reference ltr0089/IBE0657)

The RSPB is a nature conservation charity with over 13,000 members in Northern Ireland (NI). As such we thank you for sending the details of a proposed 100MW tidal energy array at Torr Head off the coast of County Antrim, through to us for comment. Please find below our recommendations as to what the Environmental Impact Assessment (EIA) should contain as well as advice on data collection.

We recommend RSPB data searches are requested as early as possible using the link provided[1] and that the Northern Ireland Raptor Study Group (NIRSG)[2] and the Northern Ireland Environment Agency (NIEA)[3] are also contacted for the most recent data on breeding Annex 1 listed species under the EU Birds Directive 2009 (codified version)[4], such as peregrine falcon, merlin and hen harrier. Other species of conservation concern in Ireland[5] will be present due to the coastal location of the proposal including chough[6] which currently nest on Rathlin Island but can appear on the cliffs near Fair Head. We also recommend the British Trust for Ornithology (BTO) is contacted[7]. Many datasets are now available through the National Biodiversity Network Gateway (NBN)[8], a link to which is also provided on our own data request web page (linked to at footnote one).

We expect the Environmental Statement (ES) to provide sufficient information to allow assessment of the impacts of the proposed development on the environment, in accordance with The Planning (Environmental

[1] http://www.rspb.org.uk/ourwork/gis/datarequests.aspx
[2] marcruddock@hotmail.com
[3] http://www.doeni.gov.uk/niea/
[4] http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2010:020:0007:0025:EN:PDF
[5] RSPB & BirdWatch Ireland (2008): Birds of Conservation Concern in Ireland 2008-2013
[6] Annex 1 listed under EU Birds Directive 2009 (codified version)
[7] http://www.bto.org/
[8] http://data.nbn.org.uk/

Northern Ireland Headquarters
Belvoir Park Forest
Belfast
BT8 7QT

Tel 028 9049 1547
Fax 028 9049 1669

www.rspb.org.uk

BirdLife INTERNATIONAL

Chairman of Council: Ian Darling, FRICS President: Kate Humble
Chairman, Committee for Northern Ireland: Dr Julian Greenwood Director, RSPB Northern Ireland: Dr James Robinson
The Royal Society for the Protection of Birds (RSPB) is a registered charity: England and Wales no. 207076, Scotland no. SC037654

Impact Assessment) Regulations (Northern Ireland) 2012 (the EIA Regulations)[9]. Specific matters to be dealt with are listed below. Sections one and two detail the survey work and analysis the RSPB feels are necessary to satisfy the requirements of the EIA Regulations, while section three considers the mitigation and enhancement options which could be provided.

1. Survey/desktop study recommendations

Site Designations

We advise the Marine Division within the Department of the Environment (DoE) are contacted[10] regarding both statutory and non-statutory nature conservation designations, relevant Area Plans and to ensure correct procedures are followed regarding the timing of applications and licences. The NI Marine Bill is currently at the consideration stage with the Government and we recommend that information on potential marine conservation zones (MCZs) should be sought from the Marine Division.

Based upon information currently available to us, the nearest designated (and non-designated) sites are Rathlin Island Special Protection Area (SPA)[11] and Special Area of Conservation[12], Antrim Hills SPA[13], Fair Head and Murlough Bay Area of Special Scientific Interest (ASSI)[14], Torr Head ASSI[15], Carey Valley ASSI[16], Rathlin Island Coast ASSI[17] and RSPB Reserves (Rathlin Island)[18]. In addition ASSIs within the interior of Rathlin Island are designated and should also be considered. Also to note is the location of the Antrim Coast and Glens Area of Outstanding Natural Beauty (AONB)[19] which encompasses land across the north of County Antrim to the coast edge and includes Rathlin Island.

Some bird species have extensive foraging ranges and can have a high level of connectivity between an SPA where they nest, and a proposed development site where they forage. Legal protection of SPAs and SACs is transposed into Northern Irish legislation through The Conservation (Natural Habitats, etc.) Regulations NI (as amended)[20]. Any proposal with the potential to significantly impact upon an SPA/SAC must undergo an appropriate assessment (AA), where by each site selection feature is considered. It will probably be necessary to demonstrate that the proposed development will not adversely affect the site integrity of any SPAs that are found to be connected to the proposed development area through such ecological connectivity.

Habitats

A full habitat survey should be carried out as part of the ES, at least to JNCC Phase 1 level. The identification of priority biodiversity habitats is particularly important[21] and we therefore recommend the Coastal and

---

[9] http://www.legislation.gov.uk/nisr/2012/59/made
[10] Telephone contact for the Marine Division, Department of Environment (028) 9025 6058
[11] http://www.doeni.gov.uk/niea/protected_areas_home/spec_protect/spec_protect_rathlin.htm
[12] http://jncc.defra.gov.uk/ProtectedSites/SACselection/sac.asp?EUCode=UK0030055
[13] http://www.doeni.gov.uk/niea/protected_areas_home/spec_protect/antrim_hills_spa.htm
[14] http://www.doeni.gov.uk/niea/protected_areas_home/new_assi_landing_page/county_antrim-2/fairhead_and_murlough_bay_assi.htm
[15] http://www.doeni.gov.uk/niea/protected_areas_home/new_assi_landing_page/county_antrim-2/torr_head_assi.htm
[16] http://www.doeni.gov.uk/niea/protected_areas_home/new_assi_landing_page/county_antrim-2/carey_valley_assi.htm
[17] http://www.doeni.gov.uk/niea/protected_areas_home/new_assi_landing_page/county_antrim-2/rathlin_island_-_coast_assi.htm
[18] http://www.rspb.org.uk/ourwork/gis/
[19] http://www.doeni.gov.uk/niea/protected_areas_home/aonb/aonb_antrimglen.htm
[20] http://www.legislation.gov.uk/nisr/1995/380/part/IV/crossheading/general-provisions-for-protection-of-european-sites/made
[21] http://www.doeni.gov.uk/niea/biodiversity/habitats-2.htm

Northern Ireland Headquarters
Belvoir Park Forest
Belfast
BT8 7QT

Tel 028 9049 1547
Fax 028 9049 1669

www.rspb.org.uk

BirdLife INTERNATIONAL

Chairman of Council: Ian Darling, FRICS President: Kate Humble
Chairman, Committee for Northern Ireland: Dr Julian Greenwood Director, RSPB Northern Ireland: Dr James Robinson
The Royal Society for the Protection of Birds (RSPB) is a registered charity: England and Wales no. 207076, Scotland no. SC037654

Marine Biodiversity Delivery Group[22] are contacted for information on Local Biodiversity Action Plans (LBAPs).

Data is also available for parts of the seabed around the coast of Northern Ireland from a sub-littoral survey which was funded by NIEA in partnership with the Ulster Museum. Both the Marine Division and the National Museums contact[23] can provide information on this survey.

Methodologies

A focused survey approach is required to inform the EIA and Habitats Regulations Appraisal (HRA) and there will be a requirement to survey beyond the development site boundaries to account for any potential direct or indirect effects.

Given the distance from the coastline of the proposed development site there will be a requirement for both land based vantage-points and boat based surveys. Dialogue with NIEA should ensure the most appropriate survey methodologies are implemented and be agreed as part of the environmental assessment (EA). Further advice is available from the COWRIE website[24] which contains a variety of information and downloadable reports on offshore EA.

We recommend that boat based surveys are developed following European Seabirds at Sea (ESAS) methods that are described in detail on JNCC's website[25], [26] and that they are undertaken by suitably qualified surveyors. The JNCC site provides best practice guidance on everything from seabed habitat mapping to seabird surveys[27] as well as information from previous surveys[28], [29]. The survey period should be for 2 years as inter-annual variation may be considerable. As part of the boat surveys, it is also advised that marine mammal surveys are also undertaken[30], [31].

In addition, we encourage consideration of the recent review prepared by RSPB on birds and wave and tidal stream energy projects when designing the survey work and undertaking assessments:

'Birds and wave & tidal stream energy: an ecological review' Research Report No. 42 (Mc Cluskie, A.E., Langston R.H.W. & Wilkinson N.I. (2012) Published in: RSPB research report no. 42) http://www.rspb.org.uk/Images/mccluskie_langston_wilkinson_2012_tcm9-307966.pdf

For terrestrial elements of the proposal the following surveys are recommended:

- Vantage points[32] during migratory periods and breeding seasons with a focus on whooper swans and raptors such as peregrine falcon

[22] http://www.doeni.gov.uk/niea/biodiversity/biodiversity_delivery_groups/coastal_and_marine_biodiversity_delivery_group.htm
[23] claire.goodwin@nmni.com
[24] http://www.offshorewindfarms.co.uk/Pages/COWRIE/
[25] http://jncc.defra.gov.uk/page-4514
[26] http://www.jncc.gov.uk/page-1551
[27] http://www.jncc.gov.uk/page-3
[28] http://jncc.defra.gov.uk/page-2726
[29] http://jncc.defra.gov.uk/page-2407
[30] http://www.jncc.gov.uk/page-1554; http://jncc.defra.gov.uk/page-2713
[31] http://www.ulsterwildlifetrust.org/
[32] http://www.snh.gov.uk/docs/C278917.pdf

Northern Ireland Headquarters
Belvoir Park Forest
Belfast
BT8 7QT

Tel 028 9049 1547
Fax 028 9049 1669

www.rspb.org.uk

BirdLife INTERNATIONAL

Chairman of Council: Ian Darling, FRICS President: Kate Humble
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- Walkovers during the breeding and wintering seasons for land based aspects of the proposal; further detail on species specific survey methodologies can be found at Gibert *et al*[33]

2. Analysis

The ES must provide an assessment of the possible impacts of the development on the interests described by the surveys. These possible impacts should include *inter alia* direct impacts, effects due to disturbance and indirect impacts.

The direct, physical impacts on the development should be addressed, including:

- collision risk with the array
- displacement effects
- direct land-take by structures in the marine environment and on land including power lines, and
- works associated with the construction, operation and maintenance of the development

Disturbance effects could arise in each phase of the development – construction, operation and decommissioning. Possible causes of disturbance are noise, vibration, dust, and the physical presence of construction equipment and the presence of personnel associated with construction. The RSPB's concern centres on whether disturbance factors would result in birds being forced to relocate to sub-optimal habitats.

Indirect impacts may include:

- increased public disturbance due to the presence of the array and increased accessibility to the area

The cumulative impacts of the proposal with any nearby plans or projects should also be assessed and discussed within the ES. This will require consideration of other offshore renewable energy projects such as the adjacent Fair Head proposed tidal array but also projects located within Scottish, English and Welsh seas.

3. Mitigation, enhancement and monitoring

Once sufficient information is available to conclude whether the development will have impacts on the site, adverse or otherwise, the ES should outline mitigation measures as appropriate.

The broad headings under which the RSPB would be keen to discuss mitigation (without prejudice) would be:

- habitat management and habitat creation (where feasible)
- time-related restrictions on construction, and
- precise location and orientation of development within the proposed array development site

The RSPB advocates *no loss of biodiversity* to development, through appropriate mitigation and compensation where necessary. Finally, we would encourage suggestions on enhancing the biodiversity of the development

[33] Gilbert, G. *et al* (1998): *Bird Monitoring Methods: A Manual of Techniques for Key Species* RSPB, BTO, WWT, JNCC, ITE, the Seabird Group, Sandy

site and its vicinity where feasible and would welcome the opportunity to discuss such concepts with the developer. Both mitigation and enhancement may happen on or off-site.

Monitoring should take place for all relevant species found on site (informed by the surveys). The "Before After Control Impact" approach should be used to add rigour to the process. The RSPB is of the opinion that survey and monitoring results should be published in order to enhance understanding of the relationships between development and biodiversity.

Please do not hesitate to contact the Assistant Conservation Officer with any related queries. The RSPB reserves the right to make further representations in relation to this matter.

Yours sincerely,

Conservation Team (Planning)

Northern Ireland Headquarters
Belvoir Park Forest
Belfast
BT8 7QT

Tel 028 9049 1547
Fax 028 9049 1669

www.rspb.org.uk

Chairman of Council: Ian Darling, FRICS **President:** Kate Humble
Chairman, Committee for Northern Ireland: Dr Julian Greenwood **Director, RSPB Northern Ireland:** Dr James Robinson
The Royal Society for the Protection of Birds (RSPB) is a registered charity: England and Wales no. 207076, Scotland no. SC037654

From: Arbuthnot, Angela [Angela.Arbuthnot@dardni.gov.uk]
Sent: 20 February 2013 11:40
To: Richard Bingham
Subject: Tidal Ventures Ltd Torr Head

Richard,

Please find responses

In relation to – **EIA 1017-13 Tidal Ventures Ltd Torr Head**

Vet Service

We have considered this proposal and, on the basis of the information available to us, do not know of any other animal health or welfare implications that would affect this proposal provided;

1. The boundary fences with surrounding fields, which contain livestock, remain stock proof during construction
2. Livestock do not have access to the material being stored and processed
3. Materials for processing are not stored where vermin could have access to them, and there is adequate vermin control on site
4. The construction and operation of these premises does not result in contamination of surrounding agricultural land and/or waterways by building materials, their by-products, or leachate from the site
5. Livestock do not have access to electricity cables or other live components
6. The proposal does not compromise any of the five essential welfare freedoms of livestock in the vicinity i.e. freedom from hunger, thirst or malnutrition, provision of shelter, freedom from injury or disease, freedom from fear, and freedom to express their normal behaviour.

If any further comments are received, they will be forwarded to yourself.

Regards

Angela Arbuthnot
CMU Development Branch
Lindesay Hall
Loughry Campus
76 Dungannon Rd
Cookstown
BT80 9AA

028 867 57546
Network
36546

From: Pat Hughes [hughesp@larne.gov.uk]
Sent: 20 February 2013 10:05
To: Richard Bingham
Subject: Tidal Ventures - Torr Head - EIA scoping

Dear Richard

Your correspondence dated 30 January 2013 in relation to the above was discussed at a meeting of Larne Borough Council's Environment Committee on Monday 18 February where it was agreed to comment as follows:-

> "Larne Borough Council welcomes the early engagement and would encourage that similar engagement takes place with the various representatives of environmental organisations, sea anglers and fishing industry. As an initial step there is clearly a need for detailed flora and fauna surveys of the region coupled with a review of existing information about wildlife. Of particular importance are the utilisation of the area by seabirds and cetaceans (whales, dolphins and porpoises) which are increasingly being seen along the Antrim Coast and also a study of seafloor (benthic) communities. The impact of both proposed development works and the impact of operation need to be assessed including a range of options for the location of the onshore facilities".

Kind Regards

Philip Thompson
Director of Environmental Services

Patricia Hughes
PA to Director of Environmental Services
Environment Services
Larne Borough Council
Smiley Buildings
Victoria Road
Larne
BT40 1RU
Tel: (028) 2827 2313 Ext. 202
Fax: (028) 2826 0660
E-Mail: hughesp@larne.gov.uk

From: AQUAHOLICS [dive@aquaholics.org]
Sent: 21 February 2013 21:44
To: Richard Bingham
Subject: RE: Tidal Ventures Ltd - Torr Head EIA Scoping - Request for Information

hi Richard
thanks for email,
yes our concerns would be that various areas around Fair Head, Murlough Bay and Torr would be used by us to take clients diving.

We also run sightseeing boat trips in this area

if you need futher information please do ask

regards
richard lafferty
AQUAHOLICS 5 STAR PADI DIVE CENTRE
14 PORTMORE ROAD
PORTSTEWART
N.IRELAND BT55 7BE
t 02870832584
mobile 07968164748
e- dive@aquaholics.org
w - www.aquaholics.org

-----Original Message-----
From: Richard Bingham [mailto:Richard.Bingham@rpsgroup.com]
Sent: 21 February 2013 14:38
To: dive@aquaholics.org
Subject: Tidal Ventures Ltd - Torr Head EIA Scoping - Request for Information

Dear Sir / Madam,

I have been sending out requests for information letters to various consultees for the Tidal Ventures Ltd (TVL) proposal to develop a commercial scale tidal energy array off Torr head on the north east Antrim coast of Northern Ireland.

In case you have not received this information, or there is any problems with the information you have received, please see attached a digital version of the letter and information on the proposal.

Please feel free to contact me if you have any queries.

I look forward to hearing from you.

Thanks

Richard.

From: Andrew Bratton [Andrew@ccght.org]
Sent: 22 February 2013 15:03
To: Richard Bingham
Subject: Presentation for Antrim Coast and Glens Area of Outstanding Natural Beauty Management Group

Hi Richard,

Further to our telephone conversation, it would be great if you could pass the following request on to the developers, Tidal Venture re: Torr Head Turbines.

Causeway Coast and Glens Heritage Trust (CCGHT) is a partnership organisation involving public, private and voluntary sector representatives from five local authorities, the community sector, and the environment sector together with representatives from the farming and tourism industries. The overall aim of the Causeway Coast and Glens Heritage Trust is to 'promote environmental management and sustainable tourism which aims to protect and enhance the unique heritage of the Causeway Coast and Glens area'

The next meeting of the Antrim Coast and Glens Area of Outstanding Natural Beauty (AONB) Management Group, will be held at Moyle District Council Offices, Sheskburn House, on the 21st March 2013 at 10.30 am.

CCGHT would like to invite Tidal Ventures to this meeting to provide a short 15 -20 minute presentation about the proposed Tidal Energy Scheme off Torr Head. The group will be particularly interested in the visual impact of the scheme on land, as I understand there will be little impact on the seascape of the area. Many members will also be interested in the environmental impacts of the scheme. This might provide some useful thoughts and comments when planning the EIA.

Many Thanks,

Andrew Bratton
AONB & WHS Manager

T: 028 207 52100 M: 07850937870 E: Andrew@ccght.org

cid:image002.
png@01CC9F00.6291A3F

From: Arbuthnot, Angela [Angela.Arbuthnot@dardni.gov.uk]
Sent: 22 February 2013 09:53
To: Richard Bingham
Subject: FW: Tidal Ventures Ltd Torr Head
Richard ,
Further response in relation to **EIA 1017-13 Tidal Ventures Ltd Torr Head.**

Quality Assurance Branch
Nil Return.

If any further comments are received, they will be forwarded to yourself.

Regards

Angela Arbuthnot
Countryside Mnagement Branch
Lindesay Hall
Loughry Campus
76 Dungannon Rd
Cookstown
BT80 9AA

028 867 57507
Network
36546

From: Arbuthnot, Angela
Sent: 20 February 2013 11:40
To: 'richard.bingham@rpsgroup.com'
Subject: Tidal Ventures Ltd Torr Head

Richard,
Please find responses
In relation to – **EIA 1017-13 Tidal Ventures Ltd Torr Head**

Vet Service
We have considered this proposal and, on the basis of the information available to us, do not know of any other animal health or welfare implications that would affect this proposal provided;

1. The boundary fences with surrounding fields, which contain livestock, remain stock proof during

construction
2. Livestock do not have access to the material being stored and processed
3. Materials for processing are not stored where vermin could have access to them, and there is adequate vermin control on site
4. The construction and operation of these premises does not result in contamination of surrounding agricultural land and/or waterways by building materials, their by-products, or leachate from the site
5. Livestock do not have access to electricity cables or other live components
6. The proposal does not compromise any of the five essential welfare freedoms of livestock in the vicinity i.e. freedom from hunger, thirst or malnutrition, provision of shelter, freedom from injury or disease, freedom from fear, and freedom to express their normal behaviour.

If any further comments are received, they will be forwarded to yourself.

Regards

Angela Arbuthnot
CMU Development Branch
Lindesay Hall
Loughry Campus
76 Dungannon Rd
Cookstown
BT80 9AA

028 867 57546
Network
36546

From: Stephen Hemphill [stephen.hemphill@mutual-energy.com]
Sent: 22 February 2013 19:02
To: Richard Bingham
Subject: Torr Head EIA Scoping

Follow Up Flag: Follow up
Flag Status: Red
Richard

Thank you for your letter 0054 of 21st February regarding the EIA for Torr Head. We appreciate being kept informed and happily advise that we have no comments or observations at this stage.

Regards
Stephen

Stephen Hemphill
Group Operations Manager
Mutual Energy

tel: 02890 437583
mob: 07779 724645

http://www.mutual-energy.com/

Mutual Energy Ltd; First Floor The Arena Building; 85 Ormeau Road; Belfast BT7 1SH
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From:	Kieran Doherty
To:	Richard Bingham;
CC:	Jackie Barr;
Subject:	FW: Tidal Ventures Ltd - Torr Head EIA Scoping - Request for Information
Date:	Monday, February 25, 2013 9:42:58 AM
Attachments:	image001.jpg Ltr0015_TVL Torr Head CBC_130221.pdf

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Good morning Richard

I am not sure if Mrs Jackie Barr has spoken to you on this issue already apologies if she has.
It would be something of an understatement to say that this is an exciting proposal for the north coast and surrounding area, certainly when the Department were carrying out their initial strategic environmental assessment some years ago Coleraine B Council were very supportive of the concept. The decision was made to keep council informed fully at every stage so that it was in an informed position to take a view on the proposals rather than be influenced by what might be termed 'a reactionary approach'.
You will be aware that under the terms of the new council structure Coleraine and Moyle will be part of a single larger council hence the direct interest in this matter. To this end I would appreciate the chance of a conversation to update myself on the proposals and consider with you if there is merit in making a brief presentation to council perhaps in April once again to keep the politicians informed and involved.

I look forward to hearing from you.

Regards

Kieran Doherty.

From: Ciara Toner
Sent: 21 February 2013 15:30
To: Roger Wilson
Subject: FW: Tidal Ventures Ltd - Torr Head EIA Scoping - Request for Information

COLERAINE BOROUGH COUNCIL

Roger Wilson
Town Clerk & Chief Executive

Our ref: HHBE/JB/RMCG
Your ref: Ltr 0015 – IBE0657
Being dealt with by: Jackie Barr

21 February 2013

Mr Richard Bingham
RPS
Elmwood House
74 Boucher Road
BELFAST
BT12 6RZ

Dear Sir

Re: <u>Tidal Venture Ltd – Torr Head</u>
<u>Environmental Impact Assessment (EIA) Scoping</u>

I refer to your recent letter to our Chief Executive, Mr Wilson, in relation to the proposed joint venture by Bord Gais Energy and Open Hydro Technology Ltd to investigate the feasibility of developing a commercial scale 100 MW tidal energy array in waters offshore of Torr Head on the north east coast of County Antrim.

For your information, Torr Head lies within the boundary of Moyle District Council, and I would suggest that you forward a copy of this correspondence to that authority for their comments.

We as a local authority are merging with Moyle, Ballymoney and Limavady council areas, to create the Causeway Coast and Glens council area in 2015, hence we are interested in your proposal post the future merger.

The proposal is very innovative and an interesting method of renewable technology and sustainable development, and I commend you on this proposal.

I would like to see the following items included in a future environment impact statement for the proposed development:-

- A detailed assessment of noise and vibration impact both during the construction phase, and when the development becomes operational on the locality is required.
- Details of the landfall location, and the impact this may have on the amenity of neighbouring residential units, the natural environment, and tourism/ecology.

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Website **www.colerainebc.gov.uk**

- An assessment of the potential impact the development may have on marine fish, shellfish, and salmonoid fisheries, and sea mammals in the vicinity.

- The potential impact the development may have on marine vessels and submarines in these coastal waters, needs to be explored and considered.

- It is also suggested that the possibility of unexploded munitions in these waters should be explored to ensure no persons are exposed to serious risk during the construction or operation phases of this proposed development.

I trust the above mentioned matters will be considered and incorporated into the EIA scoping study so that all consultees will be able to make an informed consultation response to the proposal.

Yours faithfully

J. Barr

Jackie Barr
Head of Health and Built Environment

This correspondence has been produced having regard to this Department's **Enforcement Policy**. If you are unhappy with any of the matters raised the Council operates a **Corporate Complaints Procedure** to allow you to register your concerns. **Complaints Number: 028 7034 7134**. Copies of both documents may be obtained from this office or by logging on to www.colerainebc.gov.uk.

From: McIlveen, David [david.mcilveen@mla.niassembly.gov.uk]
Sent: 26 February 2013 18:11
To: Richard Bingham
Subject: RE: Tidal Ventures Ltd - Torr Head EIA Scoping - Request for Information

Richard

Thank you for the information.

I am looking through it this week and will come back to you if I have any further queries.

Kind regards,
David

From: Richard Bingham [mailto:Richard.Bingham@rpsgroup.com]
Sent: 22 February 2013 16:42
To: McIlveen, David
Subject: Tidal Ventures Ltd - Torr Head EIA Scoping - Request for Information

Dear Mr McIlveen,

I have been sending out requests for information letters to various consultees for the Tidal Ventures Ltd (TVL) proposal to develop a commercial scale tidal energy array off Torr Head on the north east Antrim coast of Northern Ireland.

In case you have not received this information, or there are any problems with the information you have received, please see attached a digital version of the letter and information on the proposal.

Please feel free to contact me if you have any queries.

I look forward to hearing from you.

Thanks

Richard.

Richard Bingham BSc MSc CSci MCIWEM C.WEM
Senior Engineer/Scientist - RPS
Consulting Engineers, Elmwood House, 74 Boucher Rd,
Belfast, BT12 6RZ.
Northern Ireland
Tel: +44 (0) 28 9066 7914
Fax: +44 (0) 28 9066 8286
Email: Richard.Bingham@rpsgroup.com
www: www.rpsgroup.com/ireland

From: Carol Kelly [Carol@nienvironmentlink.org]
Sent: 27 February 2013 14:13
To: Richard Bingham
Subject: RE: Tidal Ventures Ltd - Torr Head EIA Scoping - Request for Information

Hello Richard,

Thank you for your email below.

As you may know, Northern Ireland Environment Link is the networking and forum body for the environment NGO sector in Northern Ireland. We represent a broad range of members across Northern Ireland, many of which have a great interest in marine, renewable energy resource here.

I know a number of our members would be very interested to hear more about the proposal to develop a commercial scale tidal energy array off Torr Head by Tidal Ventures.

I was wondering if a representative from Tidal Ventures would be willing to come by our office to give a presentation/talk to our members on the proposal, possible future tidal energy projects in Northern Ireland, tidal energy technology etc....

This would be very beneficial for our members and could provide good PR and useful feedback for your client....

Please give me a call to discuss at your convenience.

Kind regards,

……

Carol Kelly
Operations Manager
Northern Ireland Environment Link
89 Loopland Drive
BELFAST
BT6 9DW

NIEL logo_official small

Tel: 028 9045 5770
Direct Dial: 028 9094 2142
Fax: 028 9094 2151

From: Colette Stewart [colette.stewart@foe.co.uk]
Sent: 04 March 2013 09:15
To: Richard Bingham
Subject: RE: Tidal Ventures Ltd - Torr Head EIA Scoping - Request for Information

Dear Richard

Thank you for your recent correspondence.

While we support renewable energy in principle we don't have any specific technical or environmental information to be able to make comments on the proposed development.

Therefore we are unable to contribute at this time.

Kind Regards

Colette Stewart

From: Richard Bingham [mailto:Richard.Bingham@rpsgroup.com]
Sent: 22 February 2013 10:41
To: foe-ni
Subject: Tidal Ventures Ltd - Torr Head EIA Scoping - Request for Information

Dear Sir / Madam,

I have been sending out requests for information letters to various consultees for the Tidal Ventures Ltd (TVL) proposal to develop a commercial scale tidal energy array off Torr Head on the north east Antrim coast of Northern Ireland.

In case you have not received this information, or there are any problems with the information you have received, please see attached a digital version of the letter and information on the proposal.

Please feel free to contact me if you have any queries.

I look forward to hearing from you.

Thanks

Richard.

Richard Bingham BSc MSc CSci MCIWEM C.WEM
Senior Engineer/Scientist - RPS
Consulting Engineers, Elmwood House, 74 Boucher Rd,
Belfast, BT12 6RZ.
Northern Ireland
Tel: +44 (0) 28 9066 7914
Fax: +44 (0) 28 9066 8286
Email: Richard.Bingham@rpsgroup.com
www: www.rpsgroup.com/ireland

From: Kerr, Richard [Richard.Kerr@argyll-bute.gov.uk]
Sent: 05 March 2013 12:02
To: Richard Bingham
Subject: Torr Head tidal energy array

Hello there. Thank you for consulting the Council on this project. In view of its nature and location we do not consider that it has any implications for the Council as Planning Authority. If you have not already done so, I would suggest that you consult with Scottish Natural Heritage whose interests extend out further into the marine waters than our own.

Richard Kerr
Team Leader – Major Applications
Development Management
Planning Services
Argyll & Bute Council

Tel: 01546 604845
e-mail richard.kerr@argyll-bute.gov.uk
web address : http://www.argyll-bute.gov.uk

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This email has been scanned for viruses, vandals and malicious content.

From: Marine Conservation Northern Ireland [mcni@hotmail.co.uk]
Sent: 05 March 2013 13:59
To: Richard Bingham
Subject: RE: Tidal Ventures Ltd - Torr Head EIA Scoping - Request for Information
Dear Richard

We welcome your contact and invitation to comment, the 22nd March 2013 deadline however is a very short time indeed for such an extensive and extremely large sea bed area consultation for a unique untested venture on this open coastline!

We need much more information on issues such as any exclusion zones or limitations for access for the likes of recreational sea angling from both boat and shore?

Please advise when your website is up and any other information you are free to share.

Kind Regards

Garry Gregg

www.marineconservationnorthernireland.co.uk
Email; mcni@hotmail.co.uk
mob: 07505101166

From: Richard.Bingham@rpsgroup.com
To: mcni@hotmail.co.uk
CC: clwalsh@bordgais.ie
Subject: Tidal Ventures Ltd - Torr Head EIA Scoping - Request for Information
Date: Mon, 4 Mar 2013 13:13:34 +0000

Dear Sir / Madam,

I have been sending out requests for information letters to various consultees for the Tidal Ventures Ltd (TVL) proposal to develop a commercial scale tidal energy array off Torr Head on the north east Antrim coast of Northern Ireland.

Please see attached a digital version of the letter and information on the proposal.

Please feel free to contact me if you have any queries.

I look forward to hearing from you.

Thanks

Richard.

Sammy Wilson MP MLA
Member of Parliament for East Antrim

HOUSE OF COMMONS
LONDON SW1A 0AA

Please Reply to:
East Antrim DUP
116 Main Street
LARNE
BT40 1RG

☎ (028) 2826 7722

smytha@parliament.uk
www.sammywilson.org

06 March 2013

Ref: SW/SL/L/13/4370

Mr Richard Bingham
RPS Consulting Engineers
Elwood House
74 Boucher Road
Belfast
BT12 6RZ

Dear Mr Bingham

Thank you very much for the information which you have sent to me regarding the scheme which you are developing at Torr Head.

I appreciate the information which of course enables me to answer queries should they be raised by constituents.

Yours sincerely

Sammy Wilson MP MLA

Please quote our reference on all correspondence

I will treat as confidential all personal information you give me or my staff. I may need to pass on this information to others so they can help you. I undertake to handle the information you give me in line with the Data Protection Act 1998.

Maritime & Coastguard Agency

Navigation Safety Branch
Bay 2/04
Spring Place
105 Commercial Road
Southampton
SO15 1EG

Richard Bingham
RPS
Elmwood House
74 Boucher Road
Belfast
BT12 6RZ

Tel: **+44 (0)23 8032 9100**
Fax: **+44 (0)23 8032 9252**
E-mail: **navigationsafety@mcga.gov.uk**

Your ref: **Ltr 0038**
Our ref:

8 March 2013

Dear Mr Bingham

Scoping Opinion for the proposed Tidal Energy Array, Offshore of Tor Head, County Antrim

We have now had an opportunity to review the Scoping Opinion provided by RPS for the above proposed Tidal Energy Array and would comment as follows:

The Environmental Statement should supply detail on the possible impact on navigational issues for both Commercial and Recreational craft, viz.

Collision Risk
Navigational Safety
Visual intrusion and noise
Risk Management and Emergency response
Marking and lighting of site and information to mariners
Effect on small craft navigational and communication equipment
The risk to drifting craft in adverse weather or tidal conditions
The likely squeeze of small craft into the routes of larger commercial vessels.

A Navigational Risk Assessment will need to be submitted in accordance with MGN 371 (and 372) and the DTI/DfT/MCA Methodology for Assessing Wind farms.

Particular attention should be paid to cabling routes and burial depth for which a Burial Protection Index study should be completed and, subject to the traffic volumes, an anchor penetration study may be necessary.

The potential cumulative and in combination effects require careful consideration.

Casualty information from the MAIB and RNLI would also be good data sources, in establishing the risk profile for the area.

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Given that the layout or locations of the individual tidal generators within the farm have not been decided the principles of the Rochdale envelope should be used in the EIA.

The shipping and navigation study should include radar and manual observations in addition to AIS data to ensure vessels of less than 300gt are captured.

The offshore human environment should also include recreational and other sport activities. Any application for safety zones will need to be carefully assessed and additionally supported by experience from the development and construction stages.

Particular consideration will need to be given to the implications of the site size and location on SAR resources and Emergency Response & Co-operation Plans (ERCOP) and Guard Vessel provisions.

Particular consideration will need to be given to third party approval of the devices and associated mooring arrangements.

Incorporating comments on these issues will allow shipping and navigation to be addressed within the ES and NRA. Document review will be in accordance with guidance and methodology detailed above.

Yours sincerely

Graeme Proctor
Offshore Renewables Lead

From: Wickens, Willie [Willie.Wickens@niwater.com]
Sent: 11 March 2013 17:52
To: Richard Bingham
Cc: Team DG7, AS Complaints; Moore, Alan; McShane, Bertie
Subject: FW: Tidal Ventures Ltd - Torr Head EIA Scoping - Request for Information

Importance: High

Richard,

I have looked at your proposal, and I can't think of any concerns that NI Water would have.
I'm copying this to a couple of my colleagues, in case they can think of something I can't.

Regards,

William Wickens
IS Telemetry
northern ireland water
Bretland House
115 - 121 Duncrue St.
BELFAST BT3 9JS
Web: www.niwater.com

DDI 028 9035 7593 (or Ext. 25166)

Description: Email signature

From: Team DG7, AS Complaints
Sent: 08 March 2013 09:18
To: Wickens, Willie
Subject: FW: Tidal Ventures Ltd - Torr Head EIA Scoping - Request for Information
Importance: High

Good morning Willie

I have been advised that you may be the best person to contact re: the below email and attachment from Richard Bingham of RPS Consulting Engineers.

Mr Bingham has contacted us about a proposed tidal energy array off the North Antrim Coast, and asked if there is anything that NIW would like them to consider in the preliminary study.

Can you review this email and attachment, and contact the customer if necessary please?

Thanks very much

Ian Jamison
DG7
02890 168142

Please reply to: **ASComplaints.TeamDG7@niwater.com**

Complaints Team | Account Services
northern ireland water
5th Floor, Capital House
3 Upper Queen Street
Belfast BT1 6PU

www.niwater.com

From: Richard Bingham [Richard.Bingham@rpsgroup.com]
Sent: 22 February 2013 12:49
To: waterline
Subject: Tidal Ventures Ltd - Torr Head EIA Scoping - Request for Information

Dear Sir / Madam,

I have been sending out requests for information letters to various consultees for the Tidal Ventures Ltd (TVL) proposal to develop a commercial scale tidal energy array off Torr Head on the north east Antrim coast of Northern Ireland.

In case you have not received this information, or there are any problems with the information you have received, please see attached a digital version of the letter and information on the proposal.

Please feel free to contact me if you have any queries.

I look forward to hearing from you.

Thanks

Richard.

From:	Haughan, Anthony
To:	shane.quill@openhydro.com;
CC:	Richard Bingham; Burns, Chris; Armstrong, Liz; Beer, Charmaine;
Subject:	Tidal Ventures Ltd - Environmental Impact Assessment
Date:	Tuesday, March 12, 2013 9:05:19 AM
Attachments:	

Dear Mr Quill

I refer to a letter from RPS dated 30 January 2013 on behalf of Tidal Ventures Ltd. It requested advice on the scope of the Environmental statement in relation to a 100MW tidal energy array in waters off Torr Head, County Antrim.

I understand Tidal Ventures Ltd have been informed by the Department of Environment's Marine Division that, under the Marine Works (Environmental Impact Assessment) Regulations 2007, this project requires an environmental impact assessment (EIA)

It is the Department's (DETI) view that the project constitutes a development described by Schedule 2 of the Offshore Electricity Development (Environmental Impact Assessment) Regulations (Northern Ireland) 2008 which is likely to have a significant effect on the environment due to its size and location.

In accordance with Regulation 5(1)a, 5(4) and 5(7) of The Offshore Electricity Development (Environmental Impact Assessment) Regulations (Northern Ireland) 2008, the Department (DETI) has, taking into account the criteria listed in Schedule of these Regulations, determined that the project, by reason if its size, location and the potential impact on local species and habitats, is an EIA development and will therefore require an environmental statement to be provided before the Department can consider granting consent for the development.

Having given this determination, DETI will give an opinion as to the scope of the environmental statement within 6 weeks, starting today or, provided Tidal Ventures Ltd give written agreement, some longer period as may be necessary in accordance with Regulation 5(8).

Grateful if you would confirm Tidal Ventures is content with this timescale.

Thanks

Anthony Haughan
Energy Markets - External
Department of Enterprise, Trade & Investment
Netherleigh
Massey Avenue
Belfast, BT4 2JP
Tel: 028 9052 9233 (ext: 29233)
Mob: 07900 578 302
Textphone: 028 9052 9304
Web: www.detini.gov.uk

www.cityofculture2013.com www.2013wpfg.com

Please consider the environment - do you really need to print this e-mail?

From:	McIlveen, David
To:	Richard Bingham;
CC:	
Subject:	RE: Tidal Ventures Ltd - Torr Head EIA Scoping - Request for Information
Date:	Wednesday, March 13, 2013 3:06:26 PM
Attachments:	

Richard,

I've had a look through your papers and the scheme looks very interesting.

I am meeting with representative from Tidal Ventures on Friday and look forward to hearing more about the joint venture.

Best wishes,
David

From: Richard Bingham [Richard.Bingham@rpsgroup.com]
Sent: 22 February 2013 16:42
To: McIlveen, David
Subject: Tidal Ventures Ltd - Torr Head EIA Scoping - Request for Information

Dear Mr McIlveen,

I have been sending out requests for information letters to various consultees for the Tidal Ventures Ltd (TVL) proposal to develop a commercial scale tidal energy array off Torr Head on the north east Antrim coast of Northern Ireland.

In case you have not received this information, or there are any problems with the information you have received, please see attached a digital version of the letter and information on the proposal.

Please feel free to contact me if you have any queries.

I look forward to hearing from you.

Thanks

Richard.

mail: seamus.kennedy@afbini.gov.uk

Mr Richard Bingham
RPS
Elmwood House
74 Boucher Road
Belfast
BT12 6RZ

15 March 2013

Dear Mr Bingham

TIDAL VENTURES LTD – TORR HEAD ENVIRONMENTAL IMPACT ASSESSMENT – REQUEST FOR INFORMATION

Thank you for your letter of 30 January 2013 inviting comments or observations on the above proposed development.

AFBI has been aware of the proposed development for some time and you will be aware that, staff of our Fisheries and Aquatic Ecosystems Branch (FAEB) have had discussions with both RPS and the developers, on the provision of environmental and fisheries data for the area.

Pot fisheries are operational in the area and staff of AFBI's FAEB will be involved in providing DARD Fisheries Division and DOE Marine Division with scientific advice on the potential impact of this development on the industry. AFBI has a developing inshore fisheries programme aimed at providing the necessary science base for management of this fishery and, you may find it helpful to contact Dr Carrie McMinn in FAEB for more information.

It is AFBI's opinion that the scope and content of the Environmental Impact Assessment (EIA) appears reasonable and, as mentioned above, we have already begun the process of sharing data and information. However determination of the suitability of an EIA would obviously be a decision for the planning authorities.

Yours sincerely

PROFESSOR SEAMUS KENNEDY
Chief Executive

mail: seamus.kennedy@afbini.gov.uk

cc Dr W Crozier
Dr M Service

The Northern Ireland Marine Task Force (NIMTF) is a coalition of non-government environmental organisations –it includes RSPB, Ulster Wildlife Trust, Wildfowl and Wetlands Trust, WWF Northern Ireland, National Trust, Friends of the Earth, Irish Whale and Dolphin Group, and Northern Ireland Environment Link. The NIMTF has the support of approximately 100,000 local people. We are working towards healthy, productive and resilient seas for Northern Ireland.

General comments

The NIMTF is pleased to be offered the opportunity to comment on the Tidal Ventures project. We have the following key points to make about the project as currently described.

The NIMTF would have liked more detailed information on the chosen technology, and clarification on whether the technology choice of Open Hydro's Open Centre technology is likely to change, as the introductory letter states that: 'The exact design of the turbines to be deployed at the site will be determined following detailed site analysis. It is anticipated at this stage that the turbine technology deployed at the site will be fully submerged, reducing the visual impact and navigational and collision risks associated with the proposed development'. In November 2012 however, the NIMTF received a letter from Tidal Ventures which appeared more certain of the technology choice and provided more detailed information on the proposed technology. We believe this is important information to know before an Environmental Scoping report is produced. If the Open Centre technology is selected the NIMTF believes it may be appropriate to include 'lessons learnt' from the existing Open Hydro installation in Paimpol-Bréhat, France.

We note that there are existing Environmental Scoping Reports for tidal projects within this area, including Thetis Energy's proposed Tidal project in Torr Head which examines similar issues to those proposed in this current document. We believe that this is a useful report to start any subsequent Scoping Report on.
http://www.thetisenergy.com/uploads/documents/Scoping%20Report.pdf

Specific comments on baseline study areas

In relation to each of the baseline studies the NIMTF emphasises the need for the EIA to consider the wider marine environment within the context of both the Torr Head and Fair Head tidal projects and other energy developments, such as petroleum exploration off Rathlin Island. This includes the cumulative impacts of these projects operating within a relatively small area. Consideration should also be given to a joined up approach to land-fall of cables and power stations for both tidal projects.

The NIMTF would like confirmation that the baseline study for marine mammals will consider spatial habitat usage of the area, the potential impacts of marine mammals passing through the open centre technology (if this is still the proposed technology), impacts of noise from deployment, operation and maintenance of the technology.

We would like further clarification that the EIA and Scoping Report will examine highly migratory fish species (such as basking shark), as well as commercially important and/or threatened species.

The NIMTF would also like to clarify that the baseline study on 'Coastal Geomorphology & Processes' will include the sedimentary regime and that this study area will also consider the impacts of climate change in project design.

The NIMTF would also like to see stratified benthic sampling to understand what life is present off the coast in the potential location for the tidal turbines and the surrounding area as this is a relatively under surveyed area. This will assist with micro positioning of the turbines and also the potential impacts of creating new hard substrata which could have an impact on the connectivity between populations of benthic fauna and lead to a shift in habitat types. The potential to speed up the spread of marine invasive species should also be considered through providing stepping stones of hard substrate for flora and fauna to attach on to.

The NIMTF would urge that the Scoping Report and that the EIA takes explicit note of the Marine Bill and the introduction of the NI Marine Plan and Marine Conservation Zones. The EIA should consider the potential for new Marine Conservation Zones located nearby the project and develop the project design accordingly.
The EIA and Scoping Report should also consider EU legislation in the form of the Marine Strategy Framework Directive (and its eleven descriptors for good environmental status, including hydrographic conditions, noise, biodiversity etc). The EIA should consider whether the project is likely to affect the achievement of GES for any of the descriptors. It should also consider the proposed Marine Planning Directive which is currently being drafted by Europe.
http://ec.europa.eu/maritimeaffairs/policy/maritime_spatial_planning/index_en.htm

The NIMTF looks forward to following the progress of this project. Please do not hesitate to contact Marguerite Tarzia if you have any questions about our response.

For further details please contact the NIMTF
Email: marguerite@nimtf.org
Marguerite Tarzia- Marine Technical Officer: 0773 069 1391
Richard Devlin- Marine Campaign Co-ordinator: 0772 557 3692

From:	Jade Berman
To:	Richard Bingham;
CC:	
Subject:	Torr Head
Date:	Friday, March 15, 2013 4:50:46 PM
Attachments:	image007.jpg image008.jpg image009.jpg

Dear Richard,

As one of the lead members of the Northern Ireland Marine Task force we have fed into that response for scoping information for the Torr Head area. Please keep us in the loop in relation to the production of the new scoping report as we may wish to feed back at other stages in the process.

Kind regards,

Jade

Dr. Jade Berman
Living Seas Manager
Ulster Wildlife Trust
Direct Line: 028 4483 3954 Mobile:07720970613
Tel: 028 4483 0282 Fax: 028 4483 0888
Address: 3 New Line, Crossgar, Co Down, BT30 9EP
Join me on LinkedIn http://www.linkedin.com/pub/jade-berman/33/78/40
The Ulster Wildlife Trust is Northern Ireland's largest local nature conservation charity working for a natural environment, rich in native wildlife, valued by everyone.
The Ulster Wildlife Trust is a charity recognised by HM Revenue & Customs No. XN45269 and a company limited by guarantee No. 12711.

From:	Gorman, Colin
To:	Steele, Ann; Richard Bingham;
CC:	Burns, Chris;
Subject:	RE: EIA Scoping Request for Torr Head Tidal Farm, North Antrim Coast - File Ref WR 205/2012
Date:	Tuesday, March 19, 2013 11:21:39 AM
Attachments:	Torr head reply.docx

Dear Ann and Richard.

EIA Scoping Request for Torr Head Tidal Farm, North Antrim Coast - File Ref WR 205/2012

Regarding the above scoping request – DARD Fisheries Division has consulted with fisheries representatives and have received no replies. However for information input purposes, DARD Fisheries wish to submit the attached Torr Head and region commercial fishing overview for consideration. Please see attached document.

Kind regards,

Colin Gorman.
Marine Planning
DARD Fisheries Division.

From: Steele, Ann
Sent: 12 March 2013 14:50
To: Gorman, Colin; Cowan, Tom; 'david_carlisle@mcga.gov.uk'; harry.mcclenahan@cil.ie; Enlander, Ian; toby.gethin@thecrownestate.co.uk; Service, Matt; Boyd, Adele; Symington, Conor; Robinson, Rhonda; kl.westley@ulster.ac.uk; Breen, Joe; Moorehead, Peter; amcpeake@moyle-council.org
Cc: Burns, Chris; Dawson, Anne; Adams, Feargal; Burrows, Gary; Mackie, Tim; Beer, Charmaine
Subject: EIA Scoping Request for Torr Head Tidal Farm, North Antrim Coast - File Ref WR 205/2012

<< File: Signed letter re EIA Scoping for Torr Head - TVL 0 12.3.13.pdf >> << File: Tidal Ventures_RPS_ scoping request for Torr Head site.pdf >>

Dear Consultee,

Please find attached a letter from DOE Marine Division, also representing DETI. This letter is requesting your input into an EIA Scoping consultation for a tidal proposal on the North Antrim Coast.

Also attached is a copy of the formal scoping request from RPS Consulting on behalf of Tidal Ventures Limited for your information.

Please forward your comments to Mr Chris Burns by email as per attached letter.

Kind Regards

Ann Steele
DOE Marine Division

Torr Head Tidal Array Overview

Commercial Fisheries

Around 10 N. Ireland registered vessels fish in the region. The majority of vessels are under 10 metre potting boats fishing for crab and lobster using static pot gear. An overview of crab and lobster catch weights in the general area (inclusive of Tidal Array site) is given in table 1.

Table 1. Crab and Lobster catch weights (tonnes) – ICES rectangle 39 E3, landings into N.I. only.

Species	2010	2011	2012
Crabs	116.35	73.94	56.61
Lobsters	18.85	18.12	13.45

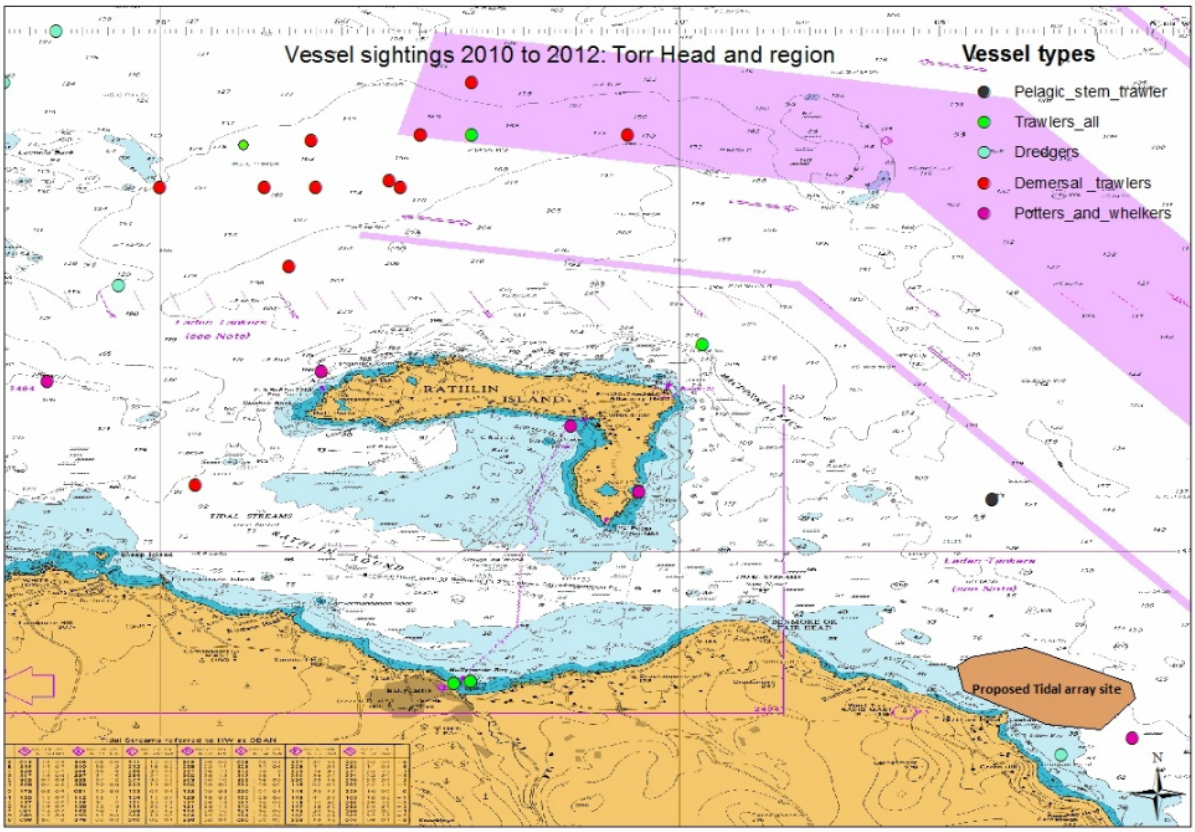
One over 10 metre vessel also fishes to a small extent for scallops in the region. Scallop fishing however largely concentrates on areas west and north of Rathlin Island.

That aside, there is also a wild salmon fixed net in use at Torr Head offshore from Portaleen harbour.

For further consideration, migratory paths of salmon and cod returning to spawning grounds (at the mouth of the Clyde) can run through the proposed tidal array site area.

Vessel sightings in Figure 1 indicate fishing activity in the area.

Figure 1. Sightings of vessel actively fishing 2010 to 2012: Torr Head and region.



VMS positional data

Subject to Freedom of Information, it should be noted that VMS (Vessel Monitoring System) position figures show further activity by over 15 metre UK vessels fishing in the proposed region. Some UK under 15 metres vessels are also fitted with VMS but have no requirement to transmit in the region of Torr Head, Area 6a.
Therefore, sightings positions by their nature are only an indication of activity and do not reflect the full extent of fishing activity in the region.

It should further be noted that the proposed site is frequently transited by fishing vessels moving from ICES Area 6a to 7a and vice versa.

From:	Arbuthnot, Angela
To:	Richard Bingham;
CC:	
Subject:	Tidal Ventures Ltd Torr Head
Date:	Wednesday, March 27, 2013 12:03:22 PM
Attachments:	Fisheries reply EIA 1017 13.docx

Richard,
Please find response
In relation to – **EIA 1017-13 Tidal Ventures Ltd Torr Head**

Fisheries Division

Regarding the above scoping request – DARD Fisheries Division has consulted with Fisheries Representatives and have received no replies. However for information purposes, DARD Fisheries wish to submit the attached Torr Head and region commercial fishing overview for consideration. Please see attached document.

–

If any further comments are received, they will be forwarded to yourself.

Regards

Angela Arbuthnot
CMU Development Branch
Lindesay Hall
Loughry Campus
76 Dungannon Rd
Cookstown
BT80 9AA

028 867 57546
Network
36546

Torr Head Tidal Array Overview

Commercial Fisheries

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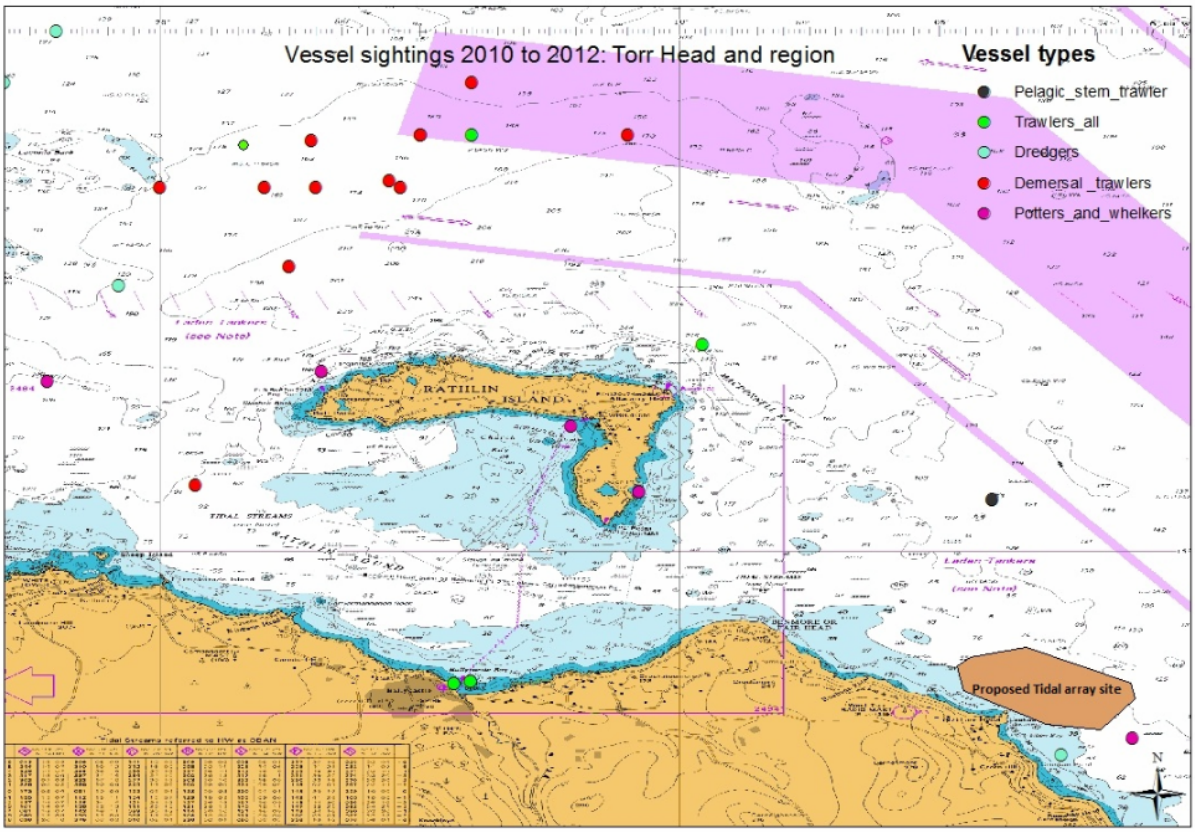

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Therefore, sightings positions by their nature are only an indication of activity and do not reflect the full extent of fishing activity in the region.

It should further be noted that the proposed site is frequently transited by fishing vessels moving from ICES Area 6a to 7a and vice versa.

Your Ref: Ltr 0053
Our Ref: E2013/0025
File Ref: IBE0657

29 March 2013

MOYLE DISTRICT COUNCIL

Richard Bingham
RPS
Elmwood House
74 Boucher Road
Belfast
BT12 6RZ

Dear Mr Bingham

Re: Tidal Ventures Ltd – Torr Head

Firstly, thank you for the opportunity to provide comment with respect to the forthcoming application for a commercial scale 100MW tidal energy array in the waters offshore of Torr Head. Moyle District Council's Environmental Health Department (MDCEHD) recognise that a development of this scale will require a detailed study with respect to various environmental impacts. Given the statutory powers available to MDCEHD, it is envisaged that the only material impact of interest would be both operational and construction noise.

Operational Noise

Given the unique nature of the proposed development, MDCEHD have no previous experience with the potential noise output from the installed tidal turbines. The forwarded information suggests that the tidal turbines will be fully submerged and therefore it is assumed that the potential for noise emissions impacting upon local residents is minimal. MDCEHD are aware that complaints of low frequency noise have arisen and are currently being investigated with respect to the tidal turbine installed at the mouth of Strangford Lough. MDCEHD would wish that the pending environmental impact assessment take both potential noise and vibration from the operational tidal turbines into consideration.

Construction Noise

British Standard BS5228:2009-1 'Code of practice for noise and vibration control on construction and open sites. Noise' provides a method to determine the significance of construction noise levels.

The table below is replicated from BS5228:2009-1 and shows the threshold of significant effect at dwellings when the total noise level, rounded to the nearest decibel, exceeds the listed value. The table can be used as follows: for the appropriate period (night, evening/weekends or day), the ambient noise level is determined and rounded to the nearest 5 dB. This is then compared with the total noise level, including construction. If the total noise level exceeds the appropriate category value, then a significant effect is deemed to occur.

R. G. Lewis, B.Sc. (Econ), C.P.F.A.
Clerk and Chief Executive

Sheskburn House,
7 Mary Street, Ballycastle,
Co. Antrim, BT54 6QH.
Tel: (028) 2076 2225
Fax: (028)2076 2515
Email: info@moyle-council.org
www.moyle-council.org

Assessment category and threshold value period			
(*L*Aeq)	**Threshold value, in decibels (dB)**		
	Category A	**Category B**	**Category C**
Night-time (23.00–07.00)	45	50	55
Evenings and weekends [D)]	55	60	65
Daytime (07.00–19.00) and Saturdays (07.00–13.00)	65	70	75
NOTE 1 A significant effect has been deemed to occur if the total LAeq noise level, including construction, exceeds the threshold level for the Category appropriate to the ambient noise level.			
NOTE 2 If the ambient noise level exceeds the threshold values given in the table (i.e. the ambient noise level is higher than the above values), then a significant effect is deemed to occur if the total LAeq noise level for the period increases by more than 3 dB due to construction activity.			
NOTE 3 Applied to residential receptors only.			
A) Category A: threshold values to use when ambient noise levels (when rounded to the nearest 5 dB) are less than these values.			
B) Category B: threshold values to use when ambient noise levels (when rounded to the nearest 5 dB) are the same as category A values.			
C) Category C: threshold values to use when ambient noise levels (when rounded to the nearest 5 dB) are higher than category A values.			
D) 19.00–23.00 weekdays, 13.00–23.00 Saturdays and 07.00–23.00 Sundays.			

MDCEHD would request that the construction noise impact assessment forming part of the pending environmental impact assessment utilise the above methodology.

Yours sincerely

Charlotte Dunlop

Charlotte Dunlop
Environmental Health Officer