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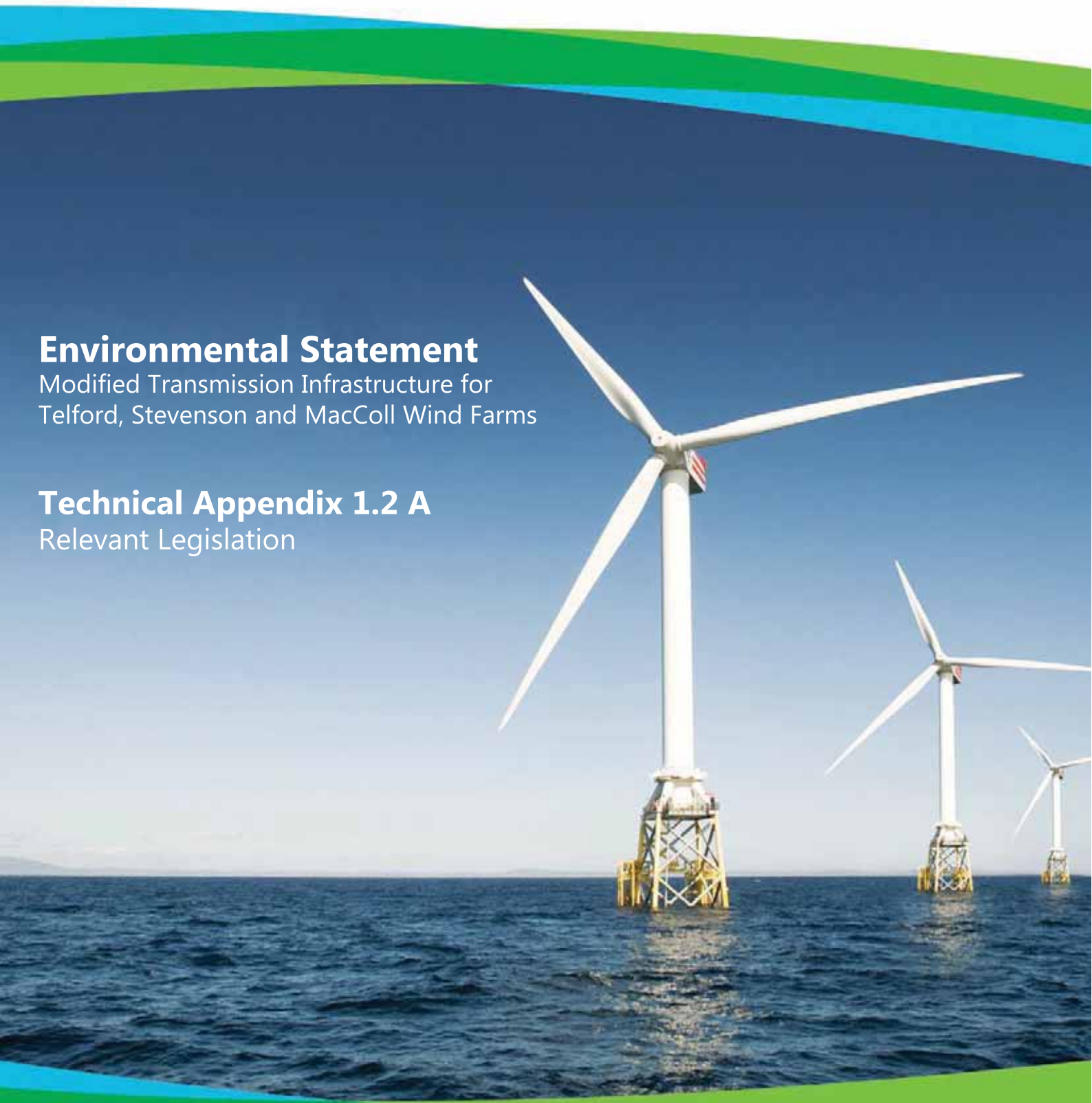
Developing Wind Energy In The Outer Moray Firth



Environmental Statement

Modified Transmission Infrastructure for
Telford, Stevenson and MacColl Wind Farms

Technical Appendix 1.2 A

Relevant Legislation

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1 International Law

Statute	Year	Summary
OSPAR Convention on the conclusion of the Convention for the protection of the marine environment of the North-East Atlantic	1998	Inter-governmental treaty regulating international cooperation on environmental protection in the North-East Atlantic including in respect of dumping waste at sea and marine pollution. Work carried out under the convention is managed by the OSPAR Commission, which is made up of representatives of the Governments of the 15 signatory nations, and representatives of the European Commission, representing the European Community.
Agreement on the Conservation of Small Cetaceans of the Baltic and North Seas	1994	Inter-governmental treaty covering the Conservation of Small Cetaceans of the Baltic and North Seas under the auspices of the Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention).
Convention on Biological Diversity	1992	Inter-governmental treaty with aims related to the conservation of biodiversity, the sustainable use of the components of biological diversity the fair and equitable sharing of the benefits arising out of the utilization of genetic resources.
United Nations Framework Convention on Climate Change	1992	Inter-governmental treaty which sets an overall framework for inter-governmental efforts to tackle the challenge posed by climate change.
International Convention on Oil Pollution Preparedness, Response and Co-operation	1990	Inter-governmental treaty requiring signatories to establish measures for dealing with pollution incidents, either nationally or in co-operation with other countries.
Bonn Convention on the Conservation of Migratory Species of Wild Animals (as amended)	1979	Inter-governmental treaty concerned with the conservation of wildlife and habitats specializing in the conservation of migratory species, their habitats and migration routes.
MARPOL 73/78 International Convention for the Prevention of Pollution From Ships	1973	Inter-governmental treaty covering the prevention of pollution of the marine environment by ships from operational or accidental causes.
Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter	1972	Inter-governmental treaty for the protection of the marine environment from human activities. It is administered by the International Maritime Organisation.
Ramsar Convention on Wetlands of International Importance	1971	Inter-governmental treaty that embodies the commitments of its member countries to maintain the ecological character of their Wetlands of International Importance and to plan for the sustainable use of all of the wetlands in their territories.

2 EU Law

Statute	Year	Summary
Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment	2011	Codifies amendments to the 1985 EIA Directive.
Birds Directive (Directive 2009/147/EC on the conservation of wild birds)	2009	Provides a framework for the conservation and management of, and human interactions with, wild birds in Europe. Parts of the study area qualify for designation under this directive for regularly supporting wildfowl populations of European importance.
Directive 2009/17/EC amending Directive 2002/59/EC establishing a Community vessel traffic monitoring and information system	2009	Amends Directive 2002/59/EC on vessel traffic monitoring. Stipulates that by 2014 all fishing vessels 15 m in length or greater, will be required to carry AIS.
Renewable Energy Directive 2009/28/EC	2009	Implements the 2020 targets and places an obligation on the UK to generate 15% of its total energy requirements from renewable energy by 2020.
Marine Strategy Framework Directive (Directive 2008/56/EC establishing a framework for community action in the field of marine environmental policy)	2008	Outlines a transparent, legislative framework for an ecosystem-based approach to the management of human activities which supports the sustainable use of marine goods and services.
Directive 2003/35/EC providing for public participation in respect of the drawing up of certain plans and programmes relating to the environment and amending with regard to public participation and access to justice	2003	Amends the 1985 EIA Directive and introduces legislation to address the requirements of the Arhus Convention.

Statute	Year	Summary
Water Framework Directive (Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy)	2000	Introduces a framework of water protection in order to deal with the continuous growth in demand for sufficient quantities of good quality water for all purposes. Water quality in rivers flowing through the study area is monitored by SEPA under this directive.
Habitats Directive (Directive 92/43/EEC on the Conservation of natural habitats and of wild fauna and flora)	1992	Requires Member States to take measures to maintain or restore natural habitats and wild species listed on the Annexes to the Directive at a favourable conservation status and introduce robust protection for those habitats and species of European importance.
The Valletta Convention on the Protection of the Archaeological Heritage	1992	Inter-governmental treaty by the European Council. Contains provisions for the identification and protection of archaeological heritage, its integrated conservation, the control of excavations, the use of metal detectors and the prevention of illicit circulation of archaeological objects, as well as for dissemination of information.
EIA Directive Directive 85/337/EEC on the assessment of the effects of certain public and private projects on the environment	1985	Environmental Impact Assessments (EIAs) are required for a wide range of public and private projects under this Directive.

3 UK Law

Statute	Year	Summary
Energy Act	2013	The Energy Act makes provisions to incentivise investment in low carbon electricity generation, ensure security of supply, and help the UK meet its emission reduction and renewables targets. In particular the Energy Act contains provisions from the Department of Energy and Climate Change (DECC) for Electricity Market Reform (EMR).
Energy Act	2011	Updates obligations to reduce carbon emissions.
Conservation of Habitats and Species Regulations	2010	Updates and consolidates the Conservation (Natural Habitats, &c.) Regulations 1994.
Marine and Coastal Access Act 2009	2009	Gave powers to the Scottish Ministers in respect of licensing and enforcement for the Scottish offshore region (from 12-200nm) other than in respect of reserved matters. Makes provision in relation to marine functions and activities; to make provision about migratory and freshwater fish. This Act largely replaces licensing requirements under Part 2 of the Food and Environment Protection Act 1985 and Part 2 of the Coast Protection Act 1949 which required separate licences with a single Marine Licence.
Energy Act	2008	Updates obligations in relation to electricity generated from renewable sources including updates to the renewable obligation scheme and further requirements in respect of the offshore renewables decommissioning regime.
Climate Change Act	2008	Set out UK's targets to improve carbon management to help the transition towards a low- carbon economy.
Offshore Marine Conservation (Natural Habitats, &c.) Regulations	2007	Transposes Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (Habitats Directive) and Directive 79/409/EEC on the conservation of wild birds (Wild Birds Directive) into national law.
Electricity (Offshore Generating Stations) (Safety Zones) (Applications Procedures and Control of Access) Regulations	2007	Details requirements for establishing safety zones around wind farm infrastructure during its construction and operation phases.
Construction (Design and Management) Regulations	2007	Details requirements and obligations relating to risk assessments for construction/decommissioning of the project for on land activities and those within territorial waters.

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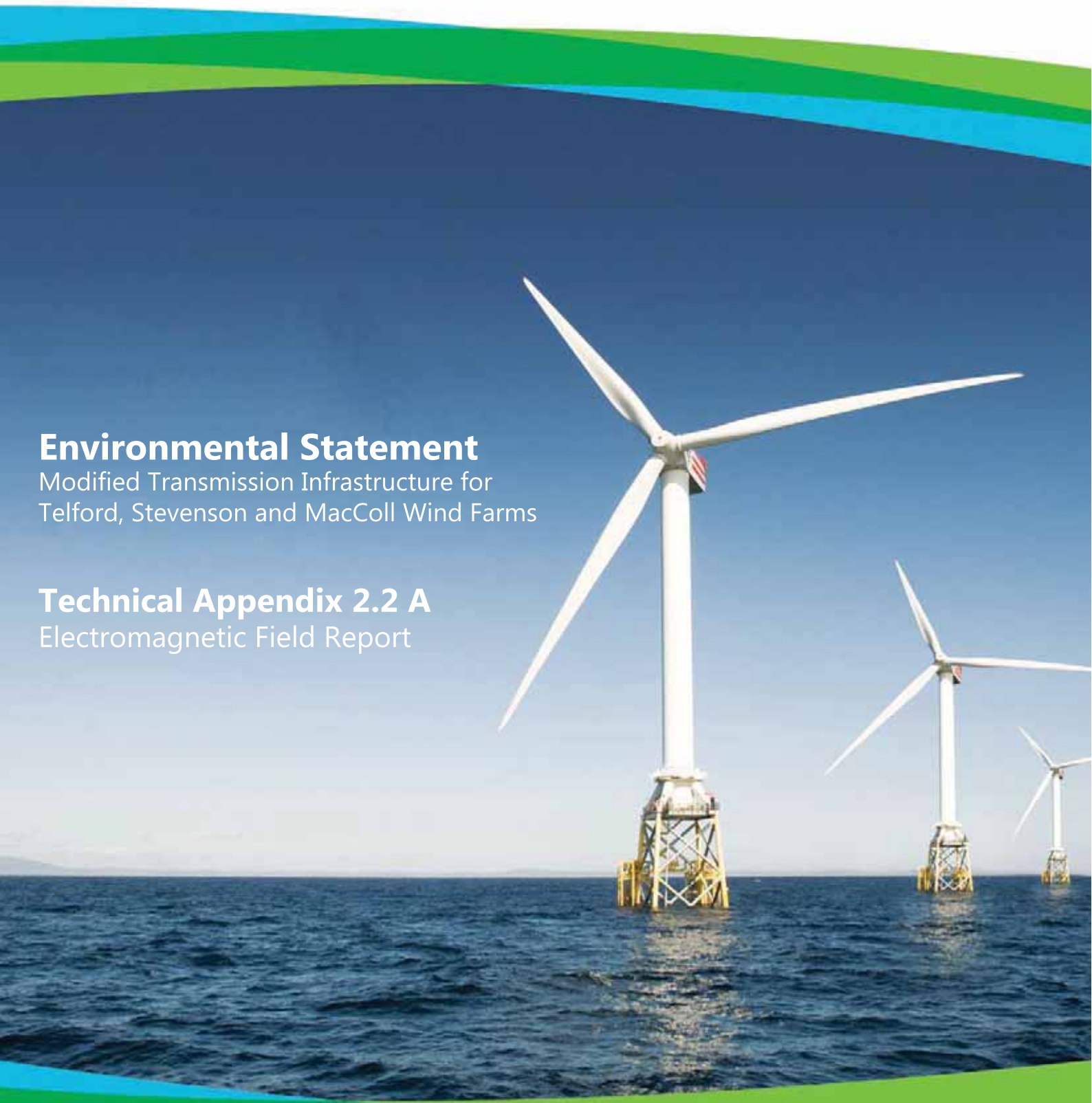

Environmental Statement

Modified Transmission Infrastructure for
Telford, Stevenson and MacColl Wind Farms

Technical Appendix 2.2 A

Electromagnetic Field Report

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This document was produced by RPS Planning and Development on behalf of Moray Offshore Renewables Ltd

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Abbreviations and Acronyms

µT	Microtesla
CoP	Code of Practice
DECC	Department of Energy and Climate Change
EC	European Commission
ELF	Extremely low frequency
EMFs	Electric and magnetic fields
EU	European Union
HPA	Health Protection Agency (former)
HVAC	High voltage alternating current
Hz	Hertz
IARC	International Agency for Research on Cancer
ICNIRP	International Commission on Non-Ionizing Radiation
kV	Kilovolts
mA	Milliamps
mm	Millimeters
NRPB	National Radiological Protection Board (former)
OnTI	Onshore transmission infrastructure
PHE	Public Health England
RMS	Root mean squared
SAGE	Stakeholder Advisory Group on ELF EMFs
SCENIHR	Scientific Committee on Emerging and Newly Identified Health Risks
WHO	World Health Organisation

1 Introduction

1. The modified onshore transmission infrastructure (OnTI) for the Telford, Stevenson and MacColl offshore wind farms will comprise onshore underground electricity cables running from the landfall point near Banff to two new onshore substations that provide a connection to the existing electricity grid southwest of New Deer. The underground cables and substations will use high-voltage alternating current (HVAC) technology at 50 Hz and will generate electric and magnetic fields (EMFs). The EMFs generated by this type of electricity transmission are often referred to as power frequency or extremely low frequency (ELF) EMFs.

2. ELF EMFs are produced wherever electricity is generated, transmitted or used. Public exposure to ELF EMFs therefore comes from a wide range of sources in the human environment, alongside static electric and magnetic fields from the natural environment. High-voltage electricity transmission infrastructure can continuously generate comparatively strong ELF EMFs in close proximity to the infrastructure, and for this reason, an assessment has been undertaken of the maximum ELF EMFs strengths that would be generated by the modified OnTI, to show compliance with guidelines for public exposure to EMFs.

2 Approach

3. This technical appendix seeks to provide information regarding ELF EMFs, the scientific evidence base and the guideline exposure limits in place to protect health, in order to address any public perception of risk. In the following sections, the technical appendix sets out:

    - Section 3 – an introduction to EMFs;
    - Section 4 – a summary of the health evidence base and view of health protection bodies;
    - Section 5 – the guideline exposure standards set to protect health, with discussion of how these have been adopted in the UK and how they are applied;
    - Section 6 – a conservative assessment of the maximum ELF EMFs that could be produced by the modified OnTI, showing compliance with the guideline exposure standards; and
    - Section 7 – a conclusion, bringing together the assessment's findings.

3 Electric and Magnetic Fields

4. Electromagnetic fields and the electromagnetic forces they represent are a fundamental part of the physical world. Electromagnetic forces are partly responsible for the cohesion of material substances and they mediate processes of chemistry, including those in human cells. EMFs occur naturally within the human body (through nerve and muscle activity) and also exist in the form of the magnetic field created by the earth and electric fields in the atmosphere.

5. ELF EMFs are part of the electromagnetic spectrum, which also encompasses radio waves, visible light, x-rays and gamma rays. At higher frequencies, electric and magnetic fields are coupled together and referred to as electromagnetic fields; as the frequency decreases, the coupling decreases, and at the 50 Hz frequency used for HVAC electricity transmission, it is appropriate to think in terms of separate electric and magnetic fields.

6. Unlike ionizing radiation found in the upper part of the electromagnetic spectrum (such as gamma rays given off by radioactive materials or x-rays), ELF EMFs cannot break the bonds that hold molecules in cells together and therefore cannot directly produce ionisation that could be directly damaging to cellular material. This is why ELF EMFs are categorised as 'non-ionising radiation'.

7. EMFs are strongest close to the point at which they are generated (e.g. a current-carrying conductor) and decrease rapidly in strength with distance from the source. As a general rule, the strength of radiated energy measured at a given point is inversely proportional to the square of distance from its source. EMFs strengths and electrical currents throughout this document are given as root mean square figures (RMS, an averaging calculation), due to the sinusoidal nature of current, voltage and EMFs in the context of HVAC transmission, which is the conventional scientific way of expressing these quantities.

Electric fields

8. Electric fields are created in spaces between points at different voltages. Voltage (potential difference) can be described as the pressure behind the flow of electricity, analogous to the pressure of water in a hose.

9. The static atmospheric electric field at ground level is normally about 100 volts per metre ($V.m^{-1}$) in fine weather and may rise to many thousands of volts per metre during thunderstorms. Electricity in homes is at a voltage of 230 V but outside homes it is transmitted at higher voltages, from 11 kV up to 400 kV.

10. Generally, the higher the voltage, the greater the electric field. However, electric fields are readily screened by metals, most building materials and a degree of screening is offered by trees, hedges, and other earthed objects.

Magnetic fields

11. Magnetic fields are produced by current, which is the flow of electricity. Current can be likened to the volume of water flowing in a hose when the nozzle is open. Anything that uses or carries mains electricity is potentially a source of power-frequency magnetic fields. The time-varying magnetic field from alternating current (AC) mains electricity is separate to the Earth's natural (static) magnetic field, which varies between about 30 µT (microteslas) at the equator and 60 µT in high latitudes, being approximately 50 µT in Scotland (British Geological Survey, n.d.).

12. The strength of magnetic field from electrical equipment depends on the current carried by it, where generally, the greater the current, the greater the magnetic field. As such, magnetic fields come from a wide range of sources and vary significantly within households, workplaces and the built and natural environment.

13. Typical residential exposure to ELF magnetic fields is in the range of 0.01 µT to 0.2 µT (Energy Networks Association, 2013). Low-voltage distribution circuits, household wiring and electrical appliances are typically the main source of residential exposure, although in some cases nearby high-voltage transmission can contribute to higher-than-average residential exposure (Maslanyj, et al., 2005). Electrical appliances can sometimes generate significant ELF magnetic fields (shown in Table 3.1), albeit in close proximity and with exposure therefore typically of a short duration.

Table 3.1: Example magnetic fields from household appliances

Appliance	Magnetic field (µT)	Distance (cm)
Hair dryer	6 – 2,000	3
Vacuum cleaner	2 – 20	30
Microwave	4 – 8	30
Dishwasher	0.6 – 3	30
Television	0.01 – 0.15	100

Sources: (World Health Organisation, n.d.) (citing German Federal Office for Radiation Safety)

4 Health Evidence Base

14. Electricity transmission and use are ubiquitous in the developed world, meaning that the entire population of a developed country such as Scotland experiences ELF EMFs exposure in daily life. Strong ELF EMFs are known to interact with the human body, with detectible physiological effects. For these reasons, extensive scientific research has been undertaken, particularly over the last 40 years, into the potential for ELF EMFs exposure to cause adverse health effects. This research has formed the basis for health protection guidelines discussed in section 5.

15. Scientific knowledge in this field is substantial, being based on a large number of epidemiological, animal and in-vitro studies. Reviews of this evidence base have been undertaken by a number of national and international health protection bodies over the course of the last decade, to summarise the findings of published research, form conclusions and give health protection advice (where applicable) based on the weight of evidence.

16. These health protection bodies include: the World Health Organisation (WHO); the International Agency for Research on Cancer (IARC); the International Commission on Non-

Ionizing Radiation (ICNIRP); the European Commission's Scientific Committee on Emerging and Newly Identified Health Risks (SCENIHR); and in the UK the former National Radiological Protection Board (NRPB), later the Radiation Protection Division of the former Health Protection Agency (HPA), which in 2013 became part of the Centre for Radiation, Chemical and Environmental Hazards in Public Health England (PHE).

17. Possible health outcomes ranging from reproductive defects to cardiovascular and neurodegenerative diseases have been examined but have not been substantiated (McKinlay, et al., 2004) (McKinlay, et al., 2004) (ICNIRP, 1998) (ICNIRP, 2010) (Scientific Committee on Emerging and Newly Identified Health Risks (SCENIHR), 2009) (SCENIHR, 2013).

Reproductive, cardiovascular, and neurodegenerative disease and genotoxic effects

18. Research examining reproductive defects and exposure to ELF EMFs during pregnancy has focused mainly on the use of electric blankets and electrically heated beds. IARC concluded (WHO International Agency for Research on Cancer, 2002) that there is little evidence to support an association of exposure to ELF EMFs with adverse reproductive outcomes.

19. WHO, ICNIRP and SCENHIR report (WHO, 2007) (ICNIRP, 2010) (Scientific Committee on Emerging and Newly Identified Health Risks (SCENIHR), 2009) some evidence suggesting a possible link between ELF EMFs and certain neurodegenerative diseases, but consider the evidence at present inadequate to demonstrate this association and note that no biological mechanism for ELF EMFs exposure (at levels below guideline limits for public exposure) to cause neurodegenerative disease has been established.

20. A literature review article (Consales, et al., 2012) published in 2012 regarding ELF EMFs and neurodegenerative disorders provides a good summary of the emerging evidence, particularly in relation to Alzheimer's disease, Parkinson's disease, Amyotrophic Lateral Sclerosis (ALS) and Huntingdon's disease. The review notes that this is a relatively novel area of research, and that fewer studies have been undertaken (mainly of occupational exposure), compared to studies of EMFs and cancer.

21. The evidence regarding whether ELF EMF exposure is linked to, and a cause of, neurodegenerative disease is mixed. Epidemiological evidence correlates ELF EMF exposure with Alzheimer's and ALS disease incidence. However, the evidence does not show a link with Parkinson's disease and Huntingdon's disease. The review notes that the epidemiological evidence in this area is limited by the fact that neurodegenerative diseases are not recorded in registries in the same way as cancers (making disease records less reliable) and that studies have generally not measured exposure but estimated it by occupation (e.g. power sector workers) or from interviews about daily activity.

22. Although possible causal mechanisms for neurodegenerative disease have been put forward, only limited experimentation in animals has been undertaken and the results have not

supported these hypotheses. Animal brain studies have shown convincing evidence of a neuroprotective effect in the case of Huntingdon's disease.

23. A 2009 study in Switzerland (Huss, et al., 2009) found an association between close residential proximity (<50 m) to high-voltage transmission infrastructure and risk of Alzheimer's disease based on death certificate data; however, a more recent study in Denmark using more robust data (based on Alzheimer's case diagnosis rather than death records) did not find an association (Frei, et al., 2013). SCENIHR's most recent (preliminary) opinion is that the evidence since 2009 does not support a conclusion that ELF EMFs exposure increases Alzheimer's disease risk (SCENIHR, 2013).

24. Both IARC and WHO consider the potential for an association between cardiovascular disease and ELF EMFs exposure to be speculative and weak, given the evidence (WHO International Agency for Research on Cancer, 2002) (WHO, 2007). ICNIRP notes that heart muscle cells are less sensitive to direct stimulation than nerve tissue, and its public health protection guidelines are set on the basis of established effects that occur below the threshold at which direct nerve tissue or muscle tissue stimulation is possible. SCENIHR concluded in 2007 that "*An effect of heart rate variability seen in laboratory studies was the basis for a hypothesis that ELF [EMFs] exposure might affect the risk of cardiovascular disease and some initial epidemiologic results supported this. However, later well controlled studies have dismissed this hypothesis.*" (Scientific Committee on Emerging and Newly Identified Health Risks, 2007), page 36, and in its 2009 opinion does not find any evidence sufficient to change that conclusion, stating that an association between cardiovascular disease and ELF EMF is "*considered unlikely*" (Scientific Committee on Emerging and Newly Identified Health Risks (SCENIHR), 2009), page 43. This conclusion is supported by further heart disease studies from McNamee *et al* (McNamee, et al., 2010) (McNamee, et al., 2011).

25. ELF EMF is part of the non-ionising spectrum and as such does not have enough energy to cause direct cell damage to macromolecules leading to genotoxic effects through ionisation. Although there is little evidence of mutation directly caused by ELF magnetic fields, additional research has been recommended by WHO (WHO, 2007).

Cancer

26. Potential for ELF EMFs to cause cancer has been extensively studied. No causal link with cancers, such as adult leukaemia, brain tumours and breast cancer, has been established. Analysis has included studies of electricity workers with occupational exposure to ELF EMFs and adults and children with residential exposure. Pooled analyses (combining the results of multiple studies) and weight-of-evidence reviews have not found consistent epidemiological evidence of an association between ELF EMFs and adult leukaemia or child or adult brain tumours or a plausible biological mechanism for causation (WHO International Agency for Research on Cancer, 2002) (WHO, 2007) (Kheifets, et al., 2010) (Sorahan, 2012).

27. A further common concern is the potential for ELF EMFs exposure to indirectly increase breast cancer incidence through affecting melatonin production in the body. Melatonin may offer some protection against breast cancer development. A 2006 review of scientific studies by the former HPA (Health Protection Agency, 2006) concluded that the evidence does not show that exposure to ELF EMFs affects melatonin levels or the risk of breast cancer. WHO goes further in concluding that the evidence is sufficient to give confidence that ELF magnetic fields do not cause breast cancer (WHO, 2007).

28. However, in 2002 IARC classified ELF magnetic fields as 'possibly carcinogenic to humans' on the basis of a possible link to childhood leukaemia at field strengths below the ICNIRP guideline public exposure limits. 'Possibly carcinogenic' is the lowest of three carcinogenicity classifications used by IARC ('carcinogenic', 'probably carcinogenic', and 'possibly carcinogenic'). To put this in context, this category presently has 271 other agents, including coffee, which may increase the risk of bladder cancer, while at the same time be protective against bowel cancer.

29. This classification is based on evidence that a **correlation** has been found between chronic exposure to weak ELF magnetic fields (at around 0.3–0.4 microtesla or greater) and an increased risk of childhood leukaemia. WHO and ICNIRP conclude that the results of pooled analyses (Ahlbom, et al., 2000) (Greenland, et al., 2000) for a number of international studies reduce the possibility that this correlation is due to chance, but do not rule out potential bias or confounding variables. The evidence base for a **causal** link between ELF EMF and childhood leukaemia remains inconclusive, as despite extensive research, no plausible mechanism for a weak magnetic field to cause the disease has been established.

30. Additional research in the period since the 2007 WHO review has been carried out to further investigate the possibility of a causal link between ELF EMF and childhood leukaemia. However, the evidence examined remains inconclusive: some evidence of a possible increase in childhood leukaemia risk at long-term magnetic field exposure in the order of 0.3–0.4 μT continues to support the IARC classification of ELF EMF as a possible carcinogen (e.g. (Kheifets, 2010) (Schüz, 2011) (Sermage-Faure, et al., 2013) (Zhao, et al., 2014)), but again evidence of a causal relationship or a mechanism to explain causation has not been established. It is probable that this uncertainty will not be fully resolved in the near future, as even large epidemiological studies (of the type already conducted) lack the statistical power to identify weak effects on a small affected population with a high degree of confidence, in particular given study limitations in the area of estimating long-term exposure and linking this to particular ELF EMFs sources.

31. The largest series of studies of childhood cancer and ELF EMFs exposure has been undertaken by the Childhood Cancer Research Group at the University of Oxford, published in 2005, 2010 and 2014. The original study is sometimes referred to as the Draper study after the 2005 publication's lead author. The study in 2005 (Draper, et al., 2005) initially found an association between childhood leukaemia and ELF EMFs exposure, based on residential

distance from high-voltage power lines. However, a re-analysis in 2010 (Kroll, et al., 2010) to improve the study to use calculated magnetic field strength (rather than distance as a proxy for exposure) indicated that the initial distance-based finding of risk was implausible as it extended to a distance at which magnetic field strength would be negligible and below typical household background. The study was extended again in 2014 (Bunch, et al., 2014) to add evidence from Scotland and for 132 kV overhead lines and to present trend in risk over time. This showed that the apparent elevated risk is greatest in earlier decades of the time period considered in the study (1962-2008), which suggests that a factor that changes over time (such as population characteristics) is more likely to be the explanation than a physical effect from power lines. A study in Denmark (Pedersen, et al., 2014) designed using a comparable approach, to provide independent verification of these findings, did not find an excess leukaemia risk for children living within 200 m or 600 m of high-voltage power lines. A third comparable study (Kheifets, et al., 2013) to further extend this evidence is underway in California.

32. This illustrates the difficulties of reliance on epidemiological evidence for a very small disease risk, and the need to consider the overall weight of evidence including animal and human cell studies.

33. Key questions when considering mixed evidence regarding a possible health risk are whether there is a statistically significant and strong relationship between exposure and health effect; whether there is a dose-response relationship (greater effect with greater exposure); whether different types of evidence are consistent (epidemiological studies, studies in animals, studies in human cells); and whether it is biologically plausible that exposure could create the health effect (Repacholi, 2012).

34. In the case of EMF and childhood leukaemia, the statistical evidence of epidemiological studies is mixed; and although taken together does suggest a risk, does not show a clear dose-response relationship across studies; very extensive studies in animals and human cells have not established a mechanism for low-strength magnetic fields to cause cancer; and the existence of such a mechanism is considered biologically implausible.

35. As some evidence suggests that there is a possible increase in risk of childhood leukaemia at long-term exposure to magnetic field strengths in the order of >0.3–0.4 μT, it could be argued that it may be appropriate to apply the precautionary principle and consider further intervention to reduce potential risk. A full discussion of this issue, which is a matter of national policy, is outside the scope of this document. A paper published by Maslanyj *et al*, (Maslanyj, et al., 2010) gives a useful treatment of the position. The authors conclude that although there is "*no clear indication of harm at field levels implicated … the aetiology of childhood leukaemia is poorly understood. Taking a precautionary approach suggests that low-cost intervention to reduce exposure is appropriate. This assumes that if the risk is real, its impact is likely to be small. It also recognises the consequential cost of any major intervention. The recommendation is controversial in that other interpretations of the data are possible, and low-cost intervention may not fully alleviate the risk*." (page 8). The paper

notes in particular that due to uncertainties in the evidence and the fact that they may not be resolved in the near future, "*despite the need for evidence-based policy making, many of the decisions remain value driven and therefore subjective*" (*ibid*).

36. The recommendation of a precautionary stance echoes WHO's 2007 view, which suggested that the use of "*suitable precautionary measures to reduce exposure is reasonable and warranted*" ((WHO, 2007), page 13) in view of uncertainties about the effects of chronic magnetic field exposure, but that due to the weakness of the evidence of a link between exposure to ELF magnetic fields and childhood leukaemia, the benefits of exposure reduction on health are unclear. WHO emphasised that any precautionary measures should not compromise the benefits of electric power and that the costs of any precautionary measures to further reduce exposure would only be justified where they are very low or have no cost. The view of ICNIRP, expressed in the most recent guidelines for public exposure to low frequency time-varying fields, is that "*the currently existing evidence that prolonged exposure to low frequency magnetic fields is causally related with an increased risk of childhood leukaemia is too weak to form the basis of exposure guidelines*" ((ICNIRP, 2010), page 2).

37. The process that has been followed at a national level, to review the health evidence base and international guidance, consider with public and expert stakeholders whether additional precautionary measures are warranted, and set public health protection guidelines into policy, is summarised in the following section (5).

5 Public Exposure Guidelines

38. Health protection guidelines for public and occupational exposure to ELF EMFs have been published by the International Commission on Non-Ionizing Radiation Protection (ICNIRP) in 1998 (ICNIRP, 1998) and 2010 (ICNIRP, 2010). These guidelines have been reviewed and used in a number of sources of recommendations and advice on exposure to EMFs, including EC Recommendation 1999/519/EC (European Council, 1999) for the adoption of ICNIRP's 1998 guidelines by member states of the EU.

39. In the UK, the former HPA's Radiation Protection Division has recommended that the UK adopts the 1998 ICNIRP guidelines under the terms of the EC Recommendation. The Radiation Protection Division was formed in 2005 from the former National Radiological Protection Board (NRPB), which was the independent statutory body established to give advice on EMFs, including advice on safe levels of occupational and public EMFs exposure. In 2013 it became part of the Centre for Radiation, Chemical and Environmental Hazards in Public Health England (PHE). This recommendation is based on advice on limiting exposure to EMFs published by NRPB in 2004, following a review of the relevant scientific data (McKinlay, et al., 2004) (McKinlay, et al., 2004).

40. In 2004, following the NRPB's review of the scientific evidence, a Stakeholder Advisory Group on ELF EMFs (SAGE) was set up to consider whether any further precautionary measures, in

addition to use of the ICNIRP guidelines, were warranted. SAGE was funded by the UK Government, electricity industry and a leukaemia charity and explicitly sought views from a wide range of stakeholders in an inclusive process. In 2007, SAGE's first interim assessment (Stakeholder Advisory Group on ELF EMFs (SAGE), 2007) made a series of recommendations for precautionary measures to further reduce public ELF EMFs exposure from high-voltage electricity transmission. These included optimal phasing for overhead power lines and implementing 'no-build corridors' around power lines.

41. The UK Government's response, published in 2009 (Department of Health; Department for Communities and Local Government; Department of Energy and Climate Change, 2009), adopted the recommendation for optimal phasing for overhead lines but did not consider that no-build corridors were a proportionate precautionary measure, given the evidence base. This was based on the views of its scientific advisors and is in line with the WHO's 2007 recommendation that precautionary measures are only warranted where they are very low-cost or have no cost. SAGE has subsequently made further recommendations regarding household wiring and appliances.

42. Building on the outcomes of the SAGE process, in 2011 the Department of Energy and Climate Change (DECC) published a voluntary code of practice (CoP) detailing the recommended approach for demonstrating compliance with adopted ELF EMFs exposure guidelines, subsequently updated in March 2012 (DECC, 2012). The CoP "*has been developed following publication of the Government response to the Stakeholder Advisory Group on extremely low frequency electric and magnetic fields (ELF EMFs) (SAGE) First Interim Assessment…* [and] *agreed by the Department of Energy and Climate Change with the Department of Health*, *the Energy Networks Association*, *the Welsh Assembly*, *the Scottish Executive*, *the Northern Ireland Executive and the Health and Safety Executive*" (page 2). It implements the ICNIRP guidance for AC fields under the terms of the 1999 EC Recommendation, in the UK context.

43. Use of the CoP to show compliance with guideline public exposure limits set out within it for Nationally Significant Infrastructure Projects (NSIPs) forms part of the National Policy Statement for Electricity Networks Infrastructure (NPS EN-5), in section 2.10. Although this planning policy is applicable to England and Wales, not Scotland, the position of the Scottish Executive and Parliament regarding ELF EMFs from electricity transmission infrastructure has been to follow the advice of the UK HPA (now PHE): see (Public Petitions Committee, 2011) and the history of public petition PE00812, available at (Public Petitions Committee, n.d.). It is therefore considered that the CoP is the most appropriate guidance to follow in the context of the OnTI for this Project.

44. The CoP states that the public exposure limit guideline values are for uniform, unperturbed fields near ground level, such as would be experienced from an overhead line. Although higher (less stringent) levels could be established on a case-by-case basis, the CoP states that the guideline levels would never be lower. As such, the guideline levels specified in the CoP are used as a conservative basis for the assessment in this technical appendix. The CoP

specifies on page five that compliance of infrastructure at voltages of >132 kV (the onshore underground cables will be at 220 kV) should be shown by "*a calculation or measurement of the maximum fields (i.e. directly under the line, or directly above the cable)*". It goes on to state on page six that calculations will usually be the preferred method of demonstrating compliance for underground cables. On pages five and six, the CoP details the operating conditions under which compliance should be assessed and the acceptable methods of calculation.

45. The CoP specifies that, given the terms of the 1999 EC Recommendation, assessment of EMF exposure against the general public exposure guidelines is only required in general for residential exposure or certain other cases of long-term exposure of potentially vulnerable groups (e.g. schools). The CoP states that "*In other environments, where exposure can be deemed not to be for a significant period of time, the ICNIRP occupational guidelines, rather that the ICNIRP general public guidelines, shall be deemed to apply*" ((DECC, 2012), page 4).

46. Public exposure to ELF EMFs from the OnTI will be both transient (e.g. on public footpaths) and residential, as there are a number of properties and small settlements within the cable route corridor. To be conservative, ELF EMFs exposure from the OnTI have been assessed against the public exposure guideline in this technical appendix.

47. Table 5.1 summarises the relevant exposure guidelines. The 'basic restriction' level to protect health is for induced current in the central nervous system. The reference level for external fields indicates a threshold beyond which the potential for induced current to exceed the 'basic restriction' should be investigated. Reference levels have been published by ICNIRP and by the former HPA. They relate to the same 'basic restriction' published by ICNIRP in 1998.

Table 5.1: ELF EMFs exposure guidelines adopted in the UK

Description		**1998 ICNIRP guidelines, as adopted in the UK in the CoP**	
		Occupational	**Public**
'Basic restriction' (the quantity that must not be exceeded)	Induced current density in the central nervous system	10 mA m^{-2}	2 mA m^{-2}
ICNIRP reference level (not a limit in itself but a guideline for when 'basic restriction' investigation may be required)	Magnetic field	500 µT	100 µT
	Electric field	10 kV m^{-1}	5 kV m^{-1}
CoP reference level (not a limit in itself but a guideline for when 'basic restriction' investigation may be required)	Magnetic field	1,800 µT	360 µT
	Electric field	46 kV m^{-1}	9 kV m^{-1}

Sources: (ICNIRP, 1998) (DECC, 2012)

48. Although ICNIRP published updated guidance in 2010 that gives a less stringent 200 µT reference level for general public magnetic field exposure, due to changes in the basis of the basic restriction, the 1999 EC recommendation for use of the more stringent 1998 ICNIRP guidance remains the basis of UK guidance.

49. The reference levels given in the CoP are those specified by the former HPA, on the basis of modelling undertaken by Dimbylow (Dimbylow, 2005). This assessment is undertaken against the public exposure guideline reference level values given in the CoP, of 9 $kV.m^{-1}$ for electric fields and 360 µT for magnetic fields.

6 Electric and Magnetic Fields from the Underground Cables and Substation

Measures adopted as part of the project

50. Underground power cables, as opposed to the alternative of overhead power lines for onshore HVAC transmission, do not produce an external electric field at ground level. In addition, the closer spacing of the cable carrying each power phase in underground cable designs can lead to a more rapid decrease in magnetic field strength with distance from the cable, relative to the equivalent typical overhead power line design.

Modified OnTI parameters and route

51. The modified OnTI will comprise up to four 220 kV onshore underground cables and two onshore substations. The modified OnTI area, with cable route corridor and works area for the onshore substations, is shown in Figure 6.1.

52. The underground cables will be buried at a minimum of 0.8 m depth, typically in 1 m depth backfilled trenches, although in some sections deeper horizontal directional drilling (HDD) may be used to cross under obstacles such as roads or watercourses. Each circuit comprises three conductors, carrying the three phases of HVAC power. There will be up to four 220 kV circuits (12 conductors). The maximum current of the 220 kV cables will be 630 A.

53. The three conductors of each circuit can either be laid bundled together in a trefoil formation (see Figure 6.2) or laid flat alongside each other (see Figure 6.3). The trefoil design typically leads to a lower maximum magnetic field strength and this will be the primary layout used along the cable route. A flat formation may be used in short sections at cable jointing bays, where two sections of cable are joined. Both designs have been assessed.

54. Either two or four trenches may be used for the four circuits. If two trenches are used, with two circuits per trench, the circuit spacing will be 3 m (as shown for two of the four circuits in Figure 6.3 and Figure 6.3) and spacing between the trenches will be 4 m. If four trenches are used, one for each circuit, the spacing between all circuits will be 4 m.

Figure 6.1: Onshore underground cable route corridor and substation works area

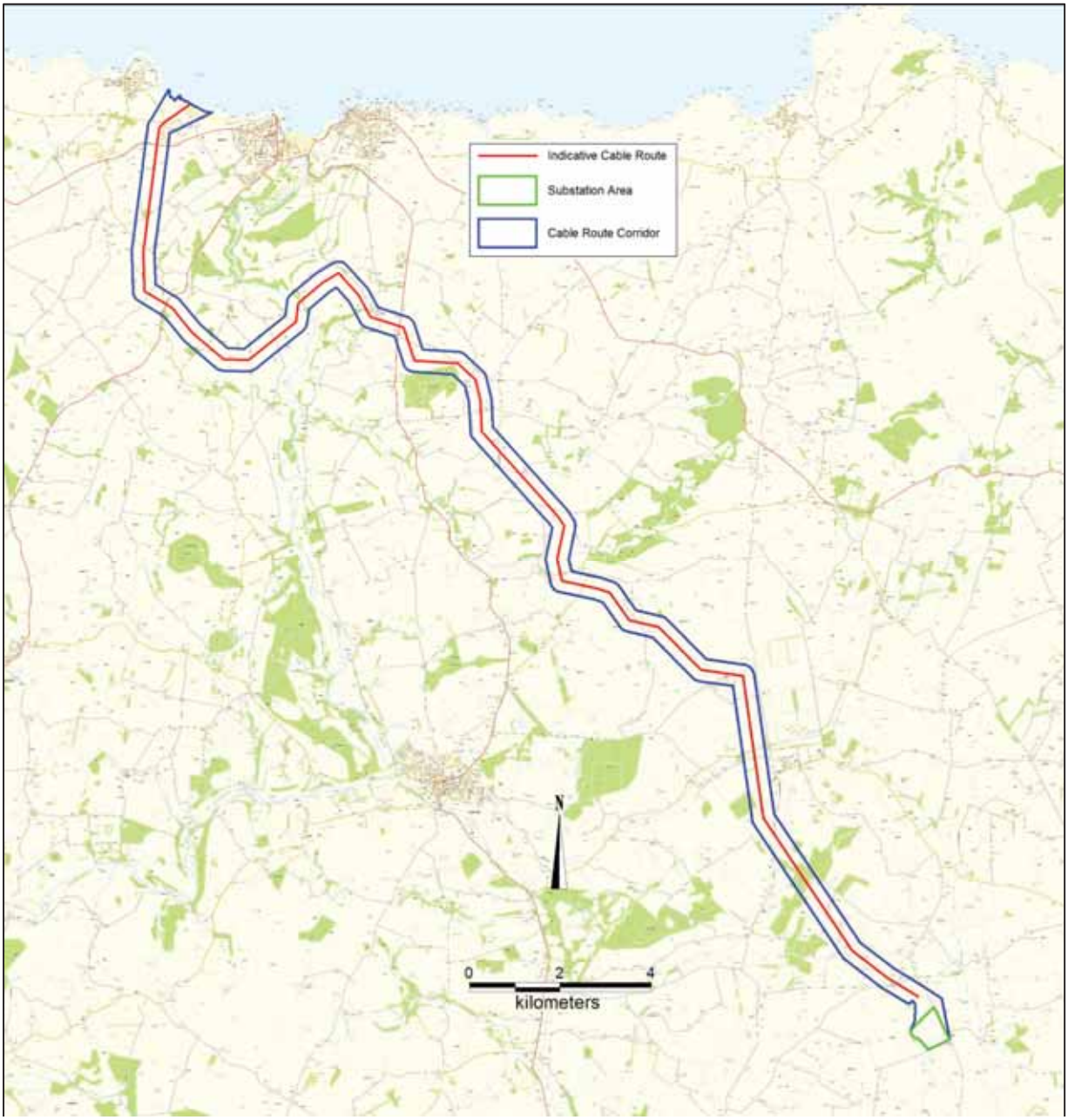
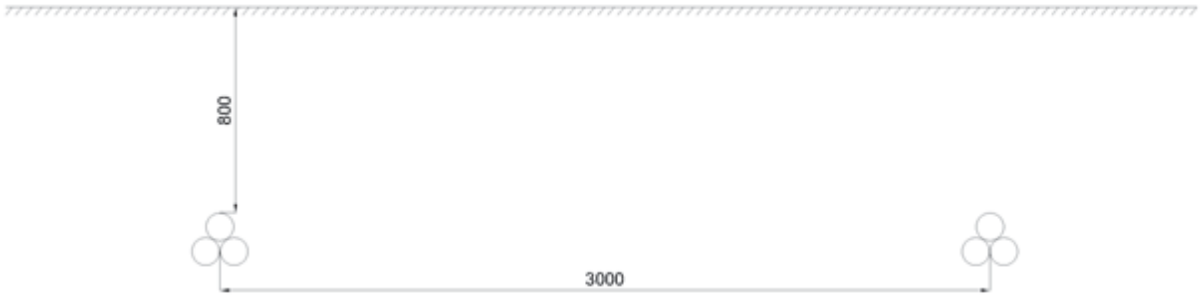
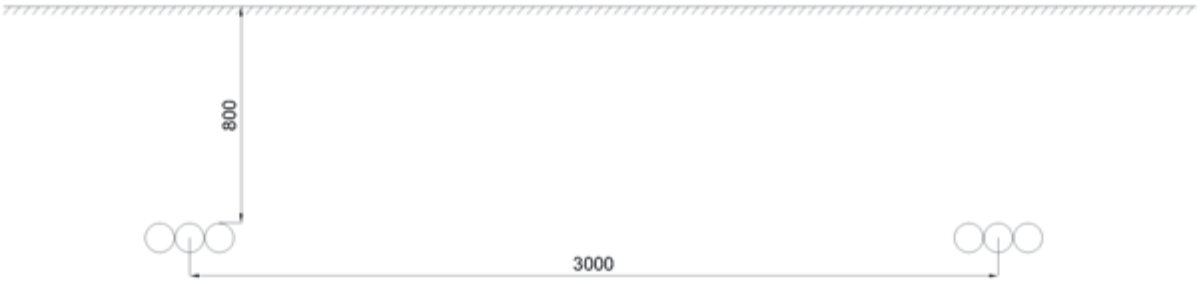


Figure 6.2: Two HVAC circuits with trefoil layout



Dimensions in mm

Figure 6.3: Two HVAC circuits with flat layout



Dimensions in mm

55. Due to the vector nature of magnetic fields and the fact that field strength decreases rapidly with distance from source, the magnetic field at a given location is typically dominated by the closest source, even when multiple similar sources are present. This assessment therefore provided calculation of the magnetic field strength only from the underground cables and the interaction of fields between the four circuits.

56. Table 6.1 summarises the underground cable design parameters that have been assessed.

Table 6.1: Underground cable design parameters

Parameter	Value	
Circuits		4
Conductors		12
Spacing between conductors		Nil
Spacing between circuits (from central conductor)	3 m within trench	4 m between trenches
Minimum burial depth (to top of conductors as worst case scenario)		0.8 m
Maximum current		630 A

EMFs from the underground cables

57. Magnetic field strength generated by the underground cables has been calculated following the approach set out in the CoP. Results are set out in Table 6.2 and Table 6.3. Distances are from the centreline of the four 220 kV circuits and results are at 1 m above ground level.

Table 6.2: Maximum magnetic field strength from 220 kV underground cables

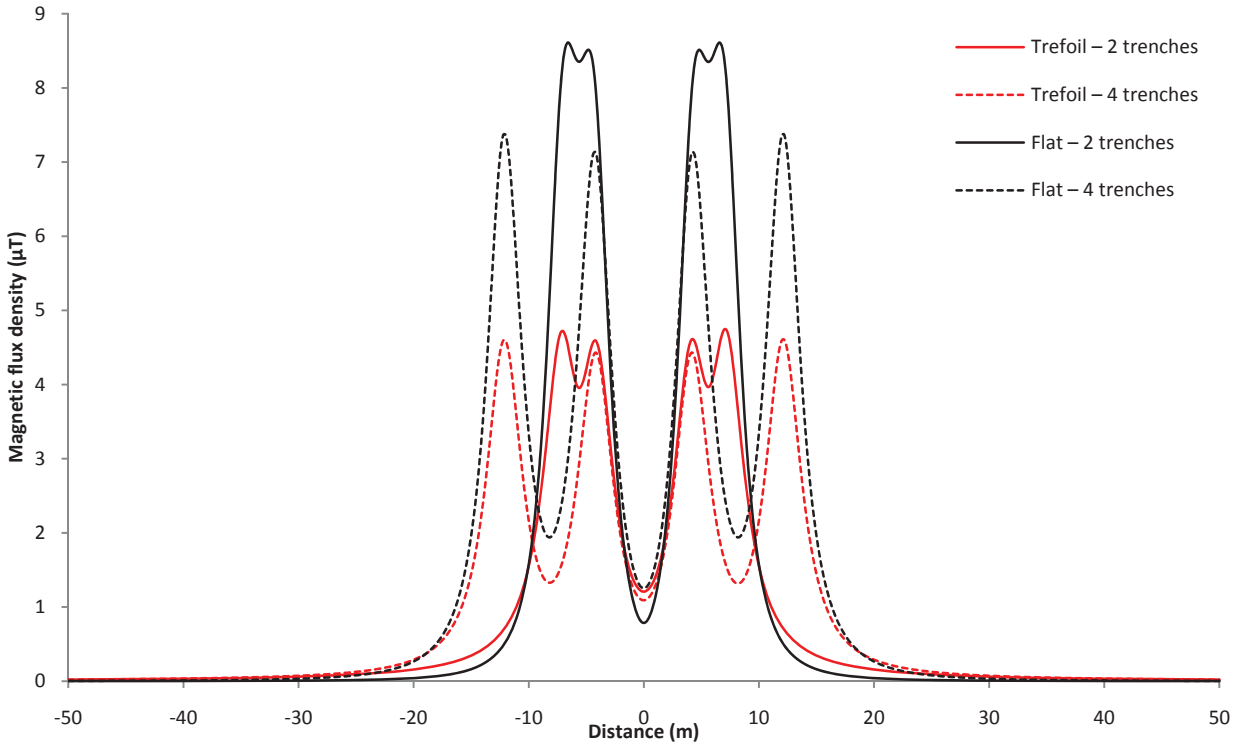
Guideline public exposure limit	360 µT		
Scenario	**Magnetic field strength (µT)**	**Proportion of guideline exposure limit**	**Distance**
Trefoil – two trenches	4.74 µT	1.32 %	7.0 m
Trefoil – four trenches	4.60 µT	1.28 %	12.2 m
Flat – two trenches	8.61 µT	2.39 %	6.6 m
Flat – four trenches	7.37 µT	2.05 %	12.2 m

Table 6.3: Magnetic field strength by distance from 220 kV underground cables

Guideline public exposure limit	360 µT			
Distance (m)	Magnetic field strength (µT)			
	Trefoil – two trenches	Trefoil – four trenches	Flat – two trenches	Flat – four trenches
0	1.21	1.09	0.79	1.25
5	4.22	3.78	8.49	6.20
10	1.55	2.16	1.57	3.34
15	0.35	1.45	0.16	1.96
20	0.16	0.29	0.04	0.26
25	0.09	0.13	0.02	0.08
30	0.06	0.07	0.01	0.03

58. The maximum magnetic field strength from the underground cables, in either flat or trefoil formation, will be well below the guideline public exposure limit set to protect health. The maximum magnetic field strength calculated is 8.6 µT, 2.4 % of the 360 µT public exposure guideline limit. The maximum field strength occurs above the outer conductors; distance from the source and cancellation in the magnetic fields leads to a lower field strength in the centreline between the circuits. Trefoil formation leads to a lower peak magnetic field strength, but as noted the maximum flat formation field strength is well within the guideline public exposure limit set to protect health. The magnetic field strength decreases rapidly with distance from the cables, as illustrated in Figure 6.4.

Figure 6.4: Magnetic field strength from 220 kV underground cables



EMFs from the onshore substations

59. The onshore substations will also be a source of both electric and magnetic fields. Due to the distance between substation components and the closest publically-accessible point (the perimeter fence), the greatest EMFs exposure in the vicinity of substations is typically from the overhead lines or underground cables entering and exiting them. The magnetic field strength from the underground cables, connecting with the onshore substations, has been assessed in the section above.

60. The onshore substation building walls or perimeter fence will provide screening of the electric field, and the existing 275 kV overhead line (part of the national grid) would be the greatest source of electric field exposure in the area. Compliance of overhead line designs with the guideline public exposure limit set to protect health is established by National Grid.

Occupational EMFs exposure

61. The OnTI will be designed and operated in accordance with all relevant health and safety legislation. The Offshore Transmission Owner (OFTO) will undertake appropriate occupational exposure assessments, as necessary, to ensure the safety of maintenance workers for the OnTI once they are operational and generating EMFs. MORL and the OFTO will have regard to the guidance of the Health and Safety Executive, to the occupational exposure guidelines published by ICNIRP, and to the general duty of care to employees under the Health and Safety Act (1974) and relevant health and safety regulations. No national legislation specific to occupational EMFs health and safety presently exists. However, EU

Directive 2013/35/EU (European Parliament and Council, 2013) sets requirements for assessment of occupational exposure, consistent with ICNIRP guidelines, which will be transposed into national legislation by 2016. This provides for compliance with occupational EMFs exposure standards set to protect workers' health.

7 Conclusion

62. The onshore transmission infrastructure (OnTI) will comprise up to four 220 kV export cable circuits and two onshore substations, that generate electric and magnetic fields (EMFs). EMFs are part of the natural world, and are also produced wherever electricity is generated, transmitted or used. Public exposure to EMFs comes from a range of sources including household wiring and appliances, low-voltage distribution power lines or underground cables, and high-voltage transmission power lines or underground cables.

63. Strong EMFs are known to have a detectible physiological effect on the body. Very extensive scientific research has been undertaken to investigate whether there is potential for adverse health effects from EMFs exposure. International and national health protection bodies have reviewed this data using a weight of evidence approach and have recommended conservative guidelines for public EMFs exposure, set to protect health. These guidelines have been adopted in the UK and are applied using a Code of Practice for electricity transmission infrastructure.

64. Electric fields generated by the onshore underground cables will be fully screened by the cable sheath and their burial in the ground. No electric field will be experienced above ground level. The onshore substation building walls or perimeter fence will also offer screening of the electric field, and the field strength from it will not be significant relative to the existing nearby 275 kV overhead line.

65. The maximum magnetic field that would be generated by the underground export cables, using worst-case assumptions regarding design parameters, has been calculated in line with the Code of Practice approach. The calculation results show that this maximum magnetic field strength would be 8.6 μT, 2.4 % of the 360 μT guideline public exposure limit set to protect health.

66. Due to the distance between substation components and the closest publically-accessible point (the outer wall or perimeter fence), the greatest EMFs exposure in the vicinity of substations is typically from the overhead lines or underground cables entering and exiting them. The magnetic field strength from the underground export cables connecting with the onshore substation has been assessed and forms a conservative proxy for magnetic field exposure from the onshore substation. The onshore substation will be designed and operated in accordance with all relevant health and safety legislation and the occupational exposure guidelines for EMF, to protect the health of workers and maintenance staff accessing the OnTI.

67. In conclusion, a conservative assessment has shown that EMFs from the OnTI will be well below the adopted guideline public exposure limits set to protect health and no measurable adverse health impacts as a result of public exposure to EMFs from the OnTI are anticipated.

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moray offshore renewables ltd

Developing Wind Energy In The Outer Moray Firth

Environmental Statement

Modified Transmission Infrastructure for
Telford, Stevenson and MacColl Wind Farms

Technical Appendix 2.1 B

Environmental and Planning Study
(RPS, 2013)

edp renewables

Moray Offshore Renewables Ltd (MORL)

Onshore Cable Route and Substation Option Areas Feasibility Study

1 November 2013

Project Number: SAP7748

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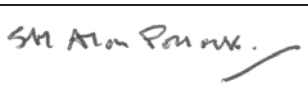
	Signature:			
Current Status:	**Final**			
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This report has been prepared within the RPS Planning and Development Quality Management System to British Standard EN ISO 9001 : 2008

CONTENTS

EXECUTIVE SUMMARY

RPS was appointed by Moray Offshore Renewables Limited (MORL) to undertake a high level feasibility assessment for the onshore section of their export cable route and substation in Aberdeenshire from the MORL wind farms in the Outer Moray Firth.

From a proposed landfall point at Inverboyndie near Banff, MORL has identified seven potential substation option area locations in the close vicinity of a 250 kV overhead electricity line to the south of New Deer. For the purposes of this study, the following project assumptions were made:

- *The proposed substation compound would house two onshore converter substations, one owned by MORL and the second owned by Scottish Hydro-Electric Transmission (SHE-T). The two substations may be housed separately or within one building. The MORL substation would cover a maximum area of approximately 200m x 170m (8.5 acres) and would have an indicative height of up to 25m. The SHE-T substation would cover a maximum area of approximately 300m x 284m (8.5 hectares).*

- *Cabling between the landfall point and the substation location will be underground.*

- *There is the possibility that there may need to be some overhead cabling between the two substations, and also from the existing 250 kV overhead electricity line to the connecting substation, albeit this is likely to be fairly short.*

This study provides an initial high level review of planning and environmental constraints in order to inform the following:

- *A feasibility assessment of each of the seven proposed substation option area locations.*

- *Identification of a preferred cable route (approximately 500 metres wide) to each of the proposed substation option area locations from the landfall point.*

- *If possible, identification of an alternative cable corridor (approximately 500 metres wide) to each of the proposed substation option area locations from the landfall point.*

- *A summary of environmental surveys that is likely to be required, including details on the timescales of each of the surveys.*

With reference to the identified planning and environmental constraints, all of the substation option area locations were classified as 'Satisfactory', a 'Possibility' or 'Unsatisfactory'. Substation option area locations 1, 2, 4, 6 and 7 are considered to present a 'Possibility' for substation development and have therefore been shortlisted for further investigation. Substation option area locations 3 and 5 were considered to be 'Unsatisfactory' from a planning and environmental perspective and have not therefore been shortlisted for further investigation.

In conjunction with the other engineering and economic appraisals that MORL are understood to have undertaken, the constraints identified for the shortlisted substation options areas should now be taken forward by MORL for more detailed assessment. The key constraints that will require to be considered when taking forward these shortlisted substation option areas will be minimising the effects of the substations on i) the character and appearance of the existing rural landscape, ii) wildlife interests and iii) residential amenity.

With regards to the proposed cable route, the principal conclusion of this appraisal is that the land referenced area for the cable corridor is relatively free from any significant planning or environmental constraints and is therefore considered to be satisfactory. The only potential exceptions to this relatively constraint free position are several areas of ancient woodland which are generally considered to be 'Unsatisfactory' for underground cable development. The only other potential constraints are the landfall area to the south of Boyndie Bay and in the vicinity of Craigston Castle and its associated woodlands which are considered to present a 'Possibility' for a underground cable development. In the light of these conclusions it is considered unnecessary to define specific 500m corridors within the referenced land at this stage. This level of detail should only become necessary after the next stage of more detailed investigations.

In conjunction with the other engineering and economic appraisal, it is considered that the next step for the substation option areas shortlisted for more detailed assessment should include:

- *Pre-application consultation with Aberdeenshire Council and other statutory and non consultees. In particular it is recommended that detailed consultation is had with Scottish Natural Heritage (SNH) to discuss the findings of the feasibility study and to confirm ecology surveys that may be required. Most importantly the meeting.*

- *Undertaking the following environmental surveys for each of the substation option areas:*

    - *Extended Phase 1 Habitat Surveys;*
    - *Protected Species Surveys;*
    - *Geomorphology Survey;*
    - *Landscape and Visual Survey;*
    - *Noise Surveys; and*
    - *Cultural Heritage Walkover Surveys.*

- *Undertaken a detailed environmental appraisal of the environmental impacts of the short listed substation option areas.*

Full details on the timescales for ecology surveys are provided within Appendix 3.

1 INTRODUCTION

Background

1.1 RPS was appointed by Moray Offshore Renewables Limited (MORL) to undertake a high level feasibility assessment for the onshore section of their export cable route and substation in Aberdeenshire from the MORL wind farms in the Outer Moray Firth.

1.2 It should be noted that this study focused on the following planning and environmental constraints only:

- Natural heritage;
- Archaeology and cultural heritage;
- Landscape and visual;
- Noise;
- Hydrology;
- Land use; and
- Planning policy.

1.3 The influence of other constraints, primarily engineering and economic constraints, are considered to be subject to separate appraisal and are not therefore discussed within the findings of this report.

Project Description

1.4 The onshore connection of the MORL wind farms in the Outer Moray Firth to the National Grid will be primarily composed of the following key elements:

Cable Landfall

1.5 The cable landfalls are the main area of interaction between the onshore and offshore components of the project. This study is based upon a proposed buried landfall point at Inverboyndie. For the avoidance of doubt, it is not the purpose of this study to comment on the feasibility of the proposed cable landfall point at Inverboyndie.

Onshore Transmission Cable

1.6 Delivery of the electricity from the MORL wind farms will be achieved via an onshore cable, connecting the onshore substations to the landfall and the subsea export cable beyond.

1.7 For the purposes of this study, it is assumed that the width of the onshore cable corridor will be approximately 500m wide and that the cable will be buried underground. It is noted however that there is the possibility that there may need to be some overhead cabling between the two proposed substations (as discussed below) and also from the existing 250 kV overhead line, albeit that this overhead cabling is likely to be relatively short.

1.8 MORL have provided a map showing the location of land that has been referenced to them from the proposed landfall point at Inverboyndie to the proposed substation option area locations near New Deer. This referenced land is identified on Figure 1. It is noted that although this referenced land signifies a significant cable corridor, that this corridor is still flexible. Consequently it is acknowledged that the onshore cable route can divert from this referenced land if necessary.

Onshore Substations

1.9 The onshore converter substations will provide the means by which the electricity being transported via the offshore export cable and onshore underground cable will be transmitted to

the National Grid. Two onshore substations will be required for this purpose, one owned by MORL and a second owned by Scottish Hydro-Electric Transmission (SHE-T).

1.10 The detailed designs of the onshore substations are not known at this point in time. However, MORL have advised that the footprint of the MORL substation would cover a maximum area of approximately 200m x 170m (8.5 acres) and would have an indicative height of up to 25m. The SHE-T substation would cover a maximum area of approximately 300m x 284m (8.5 hectares).

1.11 MORL have identified seven potential onshore substation option area locations for the purposes of this feasibility study. All of these potential substation option area locations are located to the south of New Deer where a 250 kV overhead electricity lines runs, thereby enabling the substations to be easily connected to the National Grid with minimal overhead cabling. The locations of the seven proposed substations option areas identified by MORL are shown on Figure 2.

Study Purpose

1.12 This study provides an initial high level review of planning and environmental constraints in order to inform the following:

- A feasibility assessment of each of the seven proposed substation option area locations.
- Identification of a preferred cable route (approximately 500 metres wide) to each of the proposed substation option areas from the landfall point.
- If possible, identification of an alternative cable corridor (approximately 500 metres wide) to each of the proposed substation option areas from the landfall point.
- A summary of environmental surveys that is likely to be required, including details on the timescales of each of the surveys.

Report Structure

1.13 The remainder of this report is split into the following sections:

- Section 2 – Study Methodology;
- Section 3 – Substation Option Areas Appraisal;
- Section 4 – Onshore Cable Option Appraisal; and
- Section 5 – Conclusions and Next Steps.

2 STUDY METHODOLOGY

Overall Approach

2.1 For the purposes of a high level planning and environmental appraisal, the key guiding principle is to avoid as many 'show stopper' constraints as possible. Show stopper constraints are considered to be constraints that would likely result in either unacceptable environmental effects or constraints that would result in the project being unlikely to obtain planning permission. The ultimate goal is to guide the selection of the proposed substation and proposed onshore cable route to a location that minimises environmental risk and maximises the likelihood of obtaining planning permission. Another important guiding principle is to ensure that the data collected and analysed is appropriately detailed for the level of review being undertaken.

2.2 Within this context, a simple but effective approach to this planning and environmental appraisal has been adopted which adheres to the following principles:

- A desk based assessment has been undertaken to collect and collate baseline planning and environmental data for the seven substation options and the land referenced area for the cable route as identified by MORL.
- The baseline data has been captured on GIS and has been summarised in this report for the purposes of providing an overview of the key constraints in relation to the seven substation option areas and the land referenced for the cable route corridor.
- A field visit has been undertaken to confirm the baseline data and to identify any further constraints that may be present that had not been identified during the desk based assessment.
- A review of the constraints affected by each of the substation option areas and the land referenced for the cable route corridor has been completed.
- Classification of the constraints has then been undertaken in order to identify which substation option areas should be taken forward for further detailed assessments and to identify optimum cable route corridors and possible alternative cable route corridors to each substation option area where possible.

2.3 Further details on each of the above stages are provided below.

Baseline Data Collection and Collation

2.4 The desk based assessment sought to identify the following planning and environmental constraints for both the proposed substation option area locations and the land referenced area for the cable route corridor:

- Nature conservation designations
    - Special Protection Areas (SPAs)
    - Special Areas of Conservation (SACs)
    - Ramsar
    - Sites of Special Scientific Interest (SSSIs)
    - National Nature Reserves (NNRs)
    - Local Nature Reserves (LNRs)
    - Sites of Interest to Natural Science (SINS)
    - RSPB Reserves
    - Scottish Wildlife Sites
    - Ancient Woodland

- Protected habitats and species records
- Protected archaeology and cultural heritage designations and constraints
    - Scheduled monuments
    - Listed Buildings
    - Gardens and Designed Landscapes
    - Conservation Areas
- Landscape designations
    - National Scencic Areas
    - Areas of Landscape Significance
    - Protected Views
    - Wild land
- Landscape character
- Land use
- Tourism and Recreation
    - Country Parks
    - Regional Parks
    - Longer distance routes
    - Core Paths
- Flood risk
- Planning policy constraints
- Any major planning applications or allocations that may represent a constraint to development.

2.5 A detailed breakdown of the information sources for each of the above constraints is presented in Appendix 1.

2.6 The baseline data has been captured to form a constraints map for the seven substation option area locations and the land referenced for the cable route corridor and this is presented graphically in Figures 3a to 3g.

Site Visit

2.7 The site visit sought to confirm the data captured for the desk based assessment as far as practicable and to identify any further constraints present on the seven substation option area locations that may be present that had not previously been identified. The site visit was restricted to publically accessible area as access to private land was not available at the time of survey.

2.8 In particular, the site visit sought to identify:

- Those properties whose residential amenity may be affected by the landscape and visual effects of the proposed substations, taking into account their proximity to the site, intervening topography and screening.
- Those properties whose residential amenity may be affected by the noise effects of the proposed substations, taking into account their proximity to the site and existing background noise levels.
- Primary habitats on site and the potential for protected species.

2.9 For the avoidance of doubt, a site visit was not undertaken for the purposes of the cable route corridor given the physical extent of the corridor. Consequently a site visit is recommended during subsequent stages of the selection process for the optimal cable route and any identified alternatives.

Appraisal

2.10 Once captured, the data was appraised against each of the seven substation option areas as well as with the land referenced for the cable route corridor. In order to guide the process of the site appraisal, the following criteria/principles were considered:

- potential effects upon international and national protected or designated resources;
- potential effects upon regionally and locally protected or designated resources;
- risks associated with flooding;
- potential land use impacts;
- avoidance of conflict with other proposed development;
- likely compliance with planning policy.

2.11 Each substation option area was then appraised on the basis of professional judgement and assigned one of the following criteria:

Category	Criteria
Satisfactory	Key risks should be capable of successful resolution through the adoption of standard mitigation measures. Good potential for development.
Possibility	Key risks that either in isolation or combination could lead to a refusal of planning permission if not mitigated for sufficiently. Although the issue should generally be capable of successful resolution, the issue may nevertheless require significant attention during construction and/or operation. Moderate potential for development.
Unsatisfactory	Key risks of such significance that there is a high probability that planning permission may not be granted because of a specific, or combination of specific issues. Alternatively the constraints may be such that they could cause excessive restrictions to the progression of the site. Poor potential for development.

3 PLANNING AND ENVIRONMENTAL BASELINE

Introduction

3.1 This section summarises the key planning and environmental constraints that lie within the land referenced area for the cable route corridor and substation option areas that have been taken into account in this feasibility study.

Planning and Environmental Constraints

Planning Policy and Applications

3.2 The Development Plan for the land referenced for the onshore cable route corridor and substation option areas currently comprises the Aberdeen City and Shire Structure Plan (ACSSP) 2009 and the Aberdeenshire Local Development Plan (ALDP) (2012).

3.3 As part of the reform of the planning system in Scotland supplementary guidance now has greater weight and forms parts of the Development Plan. The associated Supplementary Guidance (SG) for the ALDP was formally adopted in June 2012 and provides more detailed information on specific issues, proposals and sets out detailed policies.

3.4 The majority of the land referenced for the cable route corridor and all of the substation option areas comprise land defined as countryside within the ALDP.

3.5 Within the countryside, **ALDP Policy 3: Development in the Countryside** provides that development will be promoted in the countryside where it meets the needs of a rural community by contributing to its overall social and economic wellbeing and promotes vigorous and prosperous rural settlements.

3.6 Whilst the proposed cable route and substations are not a wind energy development, they are a fundamental element of the MORL wind farms in the Outer Moray Firth and consequently the criteria of SG Rural Development 3: Other Renewable developments are considered to be of relevance.

3.7 **SG Rural Development3: Other Renewable Energy Developments** provides that Aberdeenshire Council will approve renewable energy development, subject to other policies, if it is located, sited and designed in accordance with the following criteria. The applicant must demonstrate that:

1. any new facilities are well related to the source of the primary renewable resources that are needed for operation; and
2. the proposal will not compromise public health, safety or amenity; and
3. satisfactory steps will be taken to mitigate any negative development impacts on occupiers of nearby properties (in or outwith a settlement boundary).

3.8 The policy also provides that in all cases, if consent is granted, that Aberdeenshire Council will approve appropriate conditions (along with a legal agreement under Section 75, where necessary) relating to the removal of the development and associated equipment and to the restoration of the site, whenever the consent expires or the project ceases to operate for a specific period.

3.9 In the context of the above policy criteria, it is considered that there is clear operational need to locate the proposed substations and onshore cable route in this locale in order to make use of the existing electricity infrastructure. Consequently the principle of the proposed onshore cable route and substations should be acceptable. However, in the context of determining the acceptability of the proposed development, it is considered that the key policy criteria above relevant to identifying the most suitable substation location and cable route corridor will be proximity of the site to settlements and properties where there is greater potential for adverse impacts upon amenity.

3.10 Part of the land referenced for the onshore cable route corridor is defined as the coastal zone in the ALDP. The location of the coastal zone is shown on Figure 3g.

3.11 **ALDP Policy 4: Special Types of Rural Land** provides that Aberdeenshire Council will protect the special character of the coastal zone and that the Council will have special controls on development in these areas. These special controls include a presumption against development that would erode the special nature of the coastal zone.

3.12 The detailed circumstances in which development in the coastal zone may be acceptable is set out in SG STRLtype1: Development in the Coastal Zone.

3.13 **SG STRLtype1: Development in the Coastal Zone** provides that Aberdeenshire Council will approve development within the coastal zone if:

1. the site is within a settlement boundary identified in the plan; or
2. outwith the settlement boundary the proposal requires a coastal location, and the social and economic benefits outweigh any adverse environmental impact; or
3. it is demonstrated that there is no alternative site as it is the redevelopment of an existing building, or within the curtilage of an existing building.

3.14 In either of the above cases, the policy also provides that the applicant must also demonstrate that:

a) it will not contribute to the coalescence of coastal developments; and
b) it will respect the character and amenity of the surrounding area; and
c) the site is not at risk from flooding, overtopping, landslip or erosion; and
d) there is no adverse impact on water quality and it will not result in the pollution of coastal waters; and
e) it will not unreasonably adversely impact on natural coastal processes or habitats.

3.15 Given that there will be no ground presence in the coastal zone following construction of the onshore cable, it is not considered that the above criteria raise any specific location guidance in relation to the identification of the onshore cable route corridor. It is considered that the proposed onshore cable route should be capable of meeting the criteria of SG STRLtype 1: Development in the Coastal Zone.

3.16 Part of the land referenced for the onshore cable route corridor is defined as areas of search for minerals in the ALDP. The location of these areas of search for minerals are shown on Figure 3g.

3.17 **ALDP Policy 14: Safeguarding of Resources and Areas of Search** provides that Aberdeenshire Council will not support developments that sterilise, degrade or otherwise make unavailable key strategic resources, including important mineral deposits.

3.18 In light of the above policy it is recommended that the preferred cable route avoid areas of search for minerals where possible. All areas of search for minerals within the land referenced area should therefore be considered a possibility only for development of the onshore cable route.

3.19 In addition to the above policies, particular attention should also be given to a number of other policies in the ALDP that relate to ensuring protection of the landscape, nature conservation interests and the amenity of the area. These include:

- **ADLP Policy 11: Natural Heritage** which provides that Aberdeenshire Council will improve and protect designated nature conservation sites and the wider biodiversity and geodiversity of the area. The way they will do this is set out in detail in the following Supplementary Guidance:
    - SG Natural Environment1: Protection of nature conservation sites
    - SG Natural Environment2: Protection of the wider biodiversity and geodiversity

- **ADLP Policy 12: Landscape Conservation** which provides that Aberdeenshire Council will plan for and promote the improvement and protection of all landscapes in Aberdeenshire by recognising and using landscape character areas. The way they will do this is set out in detail in the following Supplementary Guidance:

    - SG Landscape1: Landscape character
    - SG Landscape2: Valued views

- **ADLP Policy 13: Protecting, Improving and Conserving the Historic Environment** which provides that Aberdeenshire Council supports the protection, improvement and conservation of the historic environment. There will be a presumption against development that would have a negative effect on quality of these historic assets. The way they will do this is set out in detail in the following Supplementary Guidance:

    - SG Historic Environment1: Listed buildings
    - SG Historic Environment2: Conservation areas
    - SG Historic Environment3: Historic gardens and designed landscapes
    - SG Historic Environment4: Archaeological sites and monuments

- **ADLP Policy 14 Safeguarding of Resources and Areas of Search** provides that Aberdeenshire Council will not support developments that sterilise, degrade or otherwise make unavailable key strategic resources, including the water environment, important mineral deposits, prime agricultural land, open space, trees and woodlands. The way they will do this is set out in detail in the following Supplementary Guidance:

    - SG Safeguarding1: Protection and conservation of the water environment
    - SG Safeguarding2: Protection and conservation of agricultural land
    - SG Safeguarding3: Protection and conservation of trees and woodland
    - SG Safeguarding4: Safeguarding transportation facilities
    - SG Safeguarding7: Areas of search for minerals

3.20 From a desk based search of planning applications, no major planning applications or allocations that may represent a constraint to development of either the onshore cable route or substation option areas were identified.

3.21 Specific environmental constraints are discussed further within this report under the relevant topic headings.

Nature Conservation Designations

3.22 The following statutory and non statutory nature conservation designations have been taken into account in this feasibility study as a potential constraint:

- International Nature Conservation Designations

    - Special Protection Areas (SPAs)
    - Special Areas of Conservation (SACs)
    - Ramsar

- National Nature Conservation Designations

    - Sites of Special Scientific Interest (SSSIs)
    - National Nature Reserves (NNRs)

- Local Nature Conservation Designations

    - Local Nature Reserves
    - Sites of Interest to Natural Science
    - RSPB Reserves
    - Scottish Wildlife Trust Reserves
    - Ancient Woodland

3.23 Any parts of the onshore cable route land referenced area or substation option areas which lie within any of the above nature conservation designations would be considered unsatisfactory and discounted. Any parts of the onshore cable route land referenced area or substation option areas which lie in close proximity to any of the above nature conservation designations would be considered a possibility depending upon its potential to effect the designation.

3.24 There are no international or national nature conservation designations which lie within the land referenced area for the onshore cable route or the proposed substation option areas. The nearest international and national nature conservation designations to these areas are identified in the table below.

Nature Conservation Designation	Distance to Land Referenced Area (km)	Summary of Key Characteristics
Cullen to Stake Ness Coast SSSI	0.97	The site is designated for a mix of biological and geological features, including lowland dry heath, springs and saltmarsh.
Tore of Troup SSSI	3.95	The site is designated for upland habitat features.
Gight Woods SSSI	4.34	The site is designated for upland mixed ash and oak woodland habitat features.
Reidside Moss SAC and SSSI	4.7	The site is designated for raised bog.
Turclossie Moss SAC and SSSI	4.8	The site is designated for intermediate raised bog.
Gamrie and Pennan Coast SSSI	4.9	The site is designated for a mix of biological and geological features, most importantly for the development an important assemblage of breeding seabirds.
Troup, Pennan and Lion's Heads SPA	8.3	The site is designated for a an important assemblage of breeding seabirds.
Moss of Crombie SSSI	9.74	The site is designated for intermediate blanket bog.

3.25 Given the nature of development and distance of the land referenced area for the onshore cable route and the substation option areas from these international and national nature conservation designations it is considered that all of the land referenced areas and substation option areas would be considered satisfactory with regards to these designations.

3.26 There are no Local Nature Reserves, Sites of Interest to Natural Science, RSPB reserves or Scottish Wildlife Trust Reserves within the land referenced for the onshore cable route or substation option areas.

3.27 There are a number of areas of Ancient Woodland that lie within the land referenced area for the onshore cable route. The location of these areas can be seen on Figure 3a. Ancient Woodland is defined as land that is currently wooded and has been continually wooded at least since 1750. Although not a statutory designation, it is given considerable protection through the planning process given its important biodiversity and cultural heritage value by virtue of its antiquity. Consequently it is considered that all parts of the land referenced area for the onshore cable route which are covered by Ancient Woodland be considered unsatisfactory for development.

3.28 None of the proposed substation option areas contain woodland designated as Ancient Woodland, albeit it is noted that an area located to the west and south of Option Area 3 is designated for Ancient Woodland.

Protected Habitats and Species

3.29 The NBN Gateway was used to identify data on the distribution of protected habitats and species for the land referenced area for the onshore cable route and for the substation option areas. A field visit was then undertaken to identify any signs of protected habitats and species at each of the substation option areas. This field visit was restricted to publically accessible vantage points as access to private land was not available at the time of the survey. It was not possible to undertake a similar field visit to the land referenced for the onshore cable route given the large physical extent of this area.

3.30 It is considered that any parts of the onshore cable route land referenced area or substation option areas that lie within an area of importance for protected habitats and species would be

categorised as unsatisfactory depending on the ability to mitigate the potential risk to the protected species or habitat in question. Any parts of the onshore cable route land referenced area or substation option areas which lie in close proximity to area of importance for protected habitats and species would be considered a possibility depending upon its potential to effect the designation.

3.31 The initial desk assessment indicates that the main habitats within the land referenced area are typical of the region, e.g. intensively managed farmland, plantation woodland, remnant ancient and semi-natural woodland, freshwater rivers and ditches and farm outbuildings. An Extended Phase 1 Habitat survey is recommended for the area. This will inform the need for targeted, specific ecological surveys within the land referenced area. The desk assessment suggests that the following ecological surveys are likely to be required:

- Terrestrial mammals (badger, otter, water vole and potentially red squirrel);
- Bats (particularly roost assessments); and,
- Birds (winter bird surveys and roost / nest searches).

3.32 The substation option areas were identified as having the potential for a variety of protected species including water voles, otters, badgers, bats and barn owl. All substation option areas were also identified as being suitable for winter foraging and roosting waterfowl. Details on primary habitats and protected species potential for each of the substation option areas are contained within Appendix 2. A guide to the seasonal constraints relating to surveying for each of these ecological sensitivities is presented in Appendix 3.

Landscape designations

3.33 The following statutory landscape designations have been taken into account in this feasibility study as a potential constraint:

- National Landscape Designations
    - National Scenic Areas
    - Wild Land
- Local Landscape Designations
    - Areas of Landscape Significance
    - Valued views

3.34 Given that the onshore cable route would be underground it is recognised that it would have minimal visual impact. Therefore it is considered that all parts of the land referenced area for the onshore cable route that may lie within any national or local landscape designations would be considered satisfactory.

3.35 However, given the greater visual impact of the proposed substations, any substation option areas which lie within any national or local landscape designation would be considered unsatisfactory. Any of the substation option areas which lie in close proximity to any national or local landscape designations would be a possibility and any other considered satisfactory.

3.36 There are two National Scenic Areas in Aberdeenshire: Deeside & Lochnager and the Cairngorm Mountains. In recognition of their landscape qualities these areas are now part of the Cairngorms National Park. Both these areas lie far away from the land referenced area for the onshore cable route and the proposed substation option areas and are therefore not considered to be a constraint to development.

3.37 Wild land was considered using SNH's Core Areas of Wild Land in Scotland (25 April 2013) as prepared for the draft National Planning Framework 3. None of the land referenced for the onshore cable route or any of the substation option areas fall within any identified core areas of wild land.

3.38 Areas of Landscape Significance (ALS) were areas defined by Aberdeenshire Council in the Aberdeenshire Local Plan (2006) for their local landscape value. However, the recently adopted ALDP does not identify local landscape designations. Instead, Aberdeenshire Council intends producing further planning advice on landscape character areas which will highlight areas of increased landscape sensitivity, reflecting those areas formerly designated as ALS in the previous Aberdeenshire Local Plan.

3.39 There are 42 'Valued Views' identified in the ALDP. These Valued Views are defined as rural views which are valued by the community at large and should be protected from development which would "spoil the view". All of these Valued Views represent views from public vantage points, such as formal viewpoints and key views revealed by cresting a hill.

3.40 There are no Valued Views on or in the vicinity of the proposed substation option areas. Although there are Valued Views located within the land referenced for the onshore cable route, given that the proposed onshore cable would be underground it is considered that the development of the cable route in these areas would be satisfactory.

Landscape Character

3.41 The existing SNH landscape character assessment for Banff and Buchan (SNH, 1997) covers the land referenced area for the onshore cable route corridor and the preferred substation option areas. Appendix 1 of the ALDP Supplementary Guidance provides an amalgamated revision of these Landscape Character Assessments. The assessment divides the landscape into tracts that are mapped and referred to as landscape character areas. These have been subsequently subdivided into geographically specific areas and it is these areas that provide a useful starting point for the baseline characterisation of the land referenced area for the onshore cable route and the substation option areas. These landscape character areas are described below with a summary of their key characteristics.

Landscape Character Area	Landscape Character Sub Area / Type	Summary of Key Characteristics
Coast	Cliffs of the North and South East coasts	Cliff edged headland, inlets occasional sandy bays and notable blow holes. Overall impression of open, large scale landscape, wide expanses of merging sea and sky. Vegetated slopes and frequent habitation, including ruined castles and mansion houses.
Coastal Farmland	Western Coastal Farmland	Large scale landscape, with sweeping plains rising to infrequently placed rounded hills. Substantial amount of forestry blocks are a feature. Large fields of arable and pasture land and frequent farmsteads are a feature. An awareness of the presence of the sea nearby.
Agricultural Heartland	Agricultural Heartland	Agricultural land use over gently rolling landform. Open views over the surrounding, large scale landscape. Trees in shelterbelts, along ridges, around farms and in small coniferous blocks combine to provide some contrast and prevent a sense of bleakness. Field boundary types varied between fences and hedges to the south and east with some stone walls and consumption dykes to the north near Strichen.
The Straths and River Valleys	Deveron and Upper Ythan Valleys	Shallow valleys bounded by broad rolling hills. A loose network of hedges and shelterbelts and small woodland clumps make a key contribution to the landscape character. House and villages are concentrated on the roads alongside the rivers. Presence of some castles and mansion houses. Mosaic of diverse land uses; rough sheep grazing, hay fields, cereals, commercial forestry and deciduous woods.

3.42 Scottish Natural Heritage Review No. 37 (Banff and Buchan) identifies the landfall point as being located in The Coast landscape character area, within the Cliffs of the North and South East coasts landscape type. This landscape type is an open, large-scale coastal landscape with high headlands and cliffs with some sheltered sandy bays. The landfall area is located within the sheltered bay of Boyndie Bay. This area is of increased landscape sensitivity as the area was coincident with a former ALS.

3.43 The land referenced area for the onshore export cable route and the onshore substation option areas are located in The Coastal Farmland landscape character area (Western Coastal Farmland landscape type), Straths and River Valleys (Deveron and Upper Ythan Valleys landscape type), and Agricultural Heartland landscape character area (Agricultural Heartland landscape type).

3.44 Whilst a constraint to development, all of these landscape character areas are considered to have a similar level of risk and are likely to be satisfactory for the development of the underground cable route and a possibility for the development of the proposed substations.

Archaeology and Cultural Heritage

3.45 This appraisal includes consideration of protected archaeological constraints, specifically Scheduled Monuments, Gardens and Designed Landscapes, Listed Buildings and Conservation Areas.

3.46 It is considered that any of the substation option areas that fall within any of the above cultural heritage constraints would be unsatisfactory, any that fall adjacent or within their setting would be a possibility and any other would be considered satisfactory. Given the nature of the development it is considered that any parts of the land referenced areas that fall within the above cultural heritage designations would be unsatisfactory and any that fall in close proximity would be considered a possibility depending upon its potential to effect the designation (e.g. vibration effects etc.).

3.47 There are a number of Scheduled Monuments within the study area which are of national importance and given legal protection under the Ancient Monuments and Archaeological Areas Act 1979. It should be noted that the setting of Scheduled Monuments is also protected.

3.48 The location of the Scheduled Monuments is shown in Figure 3b and are listed below from the north west of the land referenced area for the onshore cable route to the southeast:

- Hills of Boyndie Barrows and Enclosures
- Hills of Alvah, cairns
- Stirling Cairn
- Eden Castle
- King Edward Old Parish Church

3.49 There are two Garden and Designed Landscapes which fall within the land referenced area for the onshore cable route, namely:

- Duff House Garden and Designed Landscape, near Banff.
- Craigston Castle Garden and Designed Landscape, near Turiff

3.50 There are a total of 38 listed buildings within the land reference area for the onshore cable route as shown on Figure 3b. Listed buildings and their settings are protected under the Planning (Listed Buildings and Conservation Areas) (Scotland) Act 1997. Listed buildings fall into three categories as follows:

- Category A – Buildings of national or international importance, either architectural or historic, or fine little-altered examples of some particular period, style or building type (three within cable route corridor)
- Category B - Buildings of regional or more local importance, or major examples of some particular period, style or building type which may have been altered (twenty two within cable route corridor)
- Category C – Buildings of local importance, lesser examples of any period, style, or building type, as originally constructed or moderately altered; and simple traditional buildings which group well with other listed buildings (thirteen) within cable route corridor).

3.51 There are two Conservation Areas which border the land referenced area for the onshore cable route, the Whitehills Conservation Area and the Banff Conservation Area, as shown on Figure 3b. These are protected under the same legislation as for listed buildings.

3.52 None of the substation options areas contain or are in close proximity to any Scheduled Monuments, Garden and Designed Landscapes and Conservation Areas. All of the substation option areas are therefore considered to be satisfactory from a cultural heritage designation perspective.

Land Use

3.53 Land use capability was considered using the Macaulay Land Capability for Agriculture (LCA) Classification maps. Prime quality agricultural land is defined as land which falls into one of the following three classes:

- Class 1 land is capable of producing a very wide range of crops and there are no or only very minor physical limitations affecting agricultural use.
- Class 2 land is capable of producing a wide range of crops, there are minor physical limitations affecting agricultural use and the land is highly productive.
- Class 3.1 land is capable of producing a moderate range of crops, with high yields of cereals and grass; potatoes and other vegetables are also grown.

3.54 The majority of the substation option areas fall within Class 3.1, the only exception to this being substation option areas 1 and 7 which partly lie within Class 3.2. Class 3.2 land is defined as land capable of average production with the potential for high yields of barley, oats and grass. Whilst a constraint to development, it is considered that land classification is unlikely to be a key consideration in the determination of the application for the substation given the extent of other prime quality agricultural land. All of the substation option areas are therefore considered to have a similar level of risk and likely to be satisfactory.

3.55 The land referenced for the onshore cable route falls between Class 3.1 and 3.2, with the largest areas of Class 3.1 land within the referenced land area being located around Milltown of Craigston and to the west of New Deer. Whilst a constraint to development, land classification is unlikely to be a key consideration in the determination of the application of the onshore cable route either given that the cable route will be underground and the land can be restored following completion. All of the land referenced area for the onshore cable route is therefore considered to have a similar level of risk and likely to be satisfactory.

Tourism and Recreation

3.56 The following tourism and recreation designations have been taken into account in this feasibility study as a potential constraint.

- Country Parks
- Regional Parks
- Promoted Long Distance Routes and Cycleways
- Core Paths

3.57 It is considered that any parts of the onshore cable route land referenced area or substation option areas which fall within a Country Park or Regional Park would be unsatisfactory, any that fall adjacent would be a possibility and any other would be considered satisfactory.

3.58 There are four country Parks in Aberdeenshire, namely Haughton Country Park, Balmedie Country Park, Haddo Country Park and Aden Country Park. None of these Country Parks lie within the land referenced area for the onshore cable route or the substation option areas. There are no Regional Parks within Aberdeenshire. Therefore these constraints can be discounted.

3.59 There are four promoted Long Distance Routes in Aberdeenshire, namely:

- The Deeside Way – a mainly off road route under development between Aberdeen and Ballater, much of which follows the route of the former Royal Deeside Railway.

- Formantine and Buchan Way – a 54 mile off road route linking Dyce with Ellon, Maud, Fraserburgh and Peterhead using the level track bed of a former railway line through rolling farmland.

- Gordon Way - a 12 mile waymarked hill and forest footpath from Bennachie Centre to Suie Hill.

- Aberdeenshire Coastal Path - a network of coastal and inland paths between Cullen in the north and St Cyrus in the south.

3.60 Furthermore, the National Cycle Network is a network of routes suitable for bicycles promoted by SUSTRANS. National Cycle Route (NCR) 1 is a long distance cycle route which connects Dover and the Shetland Islands via the east coast of Scotland and England.

3.61 The Aberdeenshire Coastal Path runs through Whitehills, Banff and MacDuff and therefore runs through the northern part of the land referenced area for the onshore cable route. NCR1 runs through the land referenced area for the onshore cable route between Maud and Turiff and also further north between Turiff and MacDuff. Whilst a constraint to the development of the onshore cable, given that the cable is to be buried and there would be no permanent disruption or barrier to walking or cycle on these long distance routes it is considered that the development of the onshore cable under these routes would be satisfactory.

3.62 The Aberdeenshire Core Path Plan was formally adopted by Aberdeenshire Council in March 2013. The Core Path Plan shows that are a number of core paths around the Banff and Whitehills areas to the north of the land referenced area for the onshore cable route and also further south around New Byth. Again, whilst a constraint to the development of the onshore cable, given that there would be no permanent barriers to the use of these routes it is considered that the development of the onshore cable under these core paths would be satisfactory.

3.63 The Aberdeenshire Core Path Plan confirms that none of the proposed substation option areas are crossed or are in close proximity to any core paths. Consequently all of the substation option areas are considered to be satisfactory from a tourism and recreation perspective.

Flood Risk

3.64 SEPA have produced an Indicative River and Coastal Flood Map which shows the possible extent of flooding from rivers and the sea. The map focuses on the 200 year flood event (an event with a 0.5% chance of occurring in any year). Identification of these areas allows planning authorities to make informed decisions concerning the location of new developments.

3.65 SEPA's Indicative River & Coastal Flood Map has been consulted to give an indication of flood risk within the land referenced for the onshore cable route corridor and for each of the substation option areas. Any of the substation option areas which fall within an area prone to flooding would be categorised as unsatisfactory or a possibility depending upon the ability to mitigate the flood risk. The cable route is not considered to be vulnerable to the impacts of flooding and consequently all of the land referenced for the cable route is considered to be satisfactory from a flood risk perspective.

3.66 The River Deveron dissects the land referenced area for the onshore cable route corridor to the south of Banff and is highlighted on SEPA's flood map as having the potential to flood. Likewise the Burn of King Edward, a tributary of the River Deveron is also marked on SEPA's flood map. To the north of Cumniestown the Burn of Monquitter/ Burn of Byth dissect the route cable route corridor and are shown as having the potential to flood. Lastly the Little Water River which runs between substation location 6 and substation location 5 is also liable to flooding.

3.67 The SEPA's Indicative River & Coastal Flood Map confirms that none of the substation options areas are of risk from fluvial or tidal flooding. Consequently all of the substation option areas are considered to be satisfactory from a flood risk perspective.

Residential Amenity

3.68 The potential for adverse impacts upon residential amenity as a result of noise or landscape and visual impact is likely to be a key consideration in the determination of the planning application for the substations.

3.69 A desk based study was undertaken to identify the nearest properties to each of the substation option areas. This was followed up with a site visit to each of the substation option areas to enable the assessment to take into account potential mitigating factors such as screening and existing high levels of background noise. Professional judgement was then used to assess the potential for a detrimental impact upon residential amenity.

3.70 It is considered that any of the proposed substation option areas that have the potential for a detrimental impact upon residential amenity would be unsatisfactory. Where there is potential for mitigation to offset potential significant detrimental impacts upon residential the site is considered to be a possibility. All other sites are considered to be satisfactory.

3.71 A review of all of the substation option areas identified that the area is generally well settled, with a significant number of residential properties and farmsteads scattered in close proximity to the majority of all sites. Although some of the farmsteads and properties have associated woodland and planting around them, the majority are relatively open and experience open views across the surrounding countryside. A detailed review of the possible landscape and visual receptors at each substation option area is contained within Appendix 2.

3.72 There are a number of settlements and individual properties throughout the land referenced area for the onshore cable route. Whilst a constraint to development, given that the visual effects on these receptors would be largely confined to temporary visual effects associated during the construction of the onshore cable due to the cable being underground, proximity to settlements and properties is unlikely to be a key consideration in the determination of the application of the onshore cable route. All of the land referenced area for the onshore cable route is therefore considered to have a similar level of risk from a residential amenity perspective and is therefore likely to be satisfactory.

4 SUBSTATION OPTION AREA APPRAISAL

Introduction

4.1 This section sets out the key issues associated with each of the substation option areas. Further detailed information on each of the substation option areas is contained in Appendix 2.

Substation Option Areas Considered

Substation Option Area 1

4.2 Site 1 is located approximately 2 km to the south east of New Deer. The site is bounded by the A948 (New Deer – Auchengatt) public road to the east; a C class road to the north; and a mix of agricultural land and woodland to the south and west.

4.3 The key site issues are considered to be:

- The site is physically capable of accommodating the maximum footprints of both the proposed MORL and SHE-T substations.
- There are no statutory or non-statutory planning or environmental designations affecting the site or its environs.
- The site is flat and largely open in views from the A948 public road which forms part of the approach to the settlement of New Deer from the south. It is considered that the scale of the proposed substations would mean that they would be visually prominent in views from the A948.
- There are a number of residential properties in close proximity to the north of the site that currently experience open views across the site. It is considered that the scale of the proposed substations would mean that they would be visually prominent in views from these properties.
- Although there are some existing man made features within this landscape, the site remains rural in landscape character and appearance. It is considered that the construction of the proposed substations would have a significant effect on this rural landscape character and appearance.
- Although there are some large existing farm buildings in the surrounding landscape, the scale of the proposed substations would not enable them to be integrated with these buildings.
- The site is suitable for winter foraging and roosting of waterfowl and therefore consultation should be undertaken with SNH to establish if the site is a known important wintering area for waterfowl.
- The patch of mixed conifer and broadleaved woodland, adjacent to Clockhill is considered suitable for badgers. In addition to a badger survey of the site, a walkover of the woodland should be undertaken to identify squirrel dreys within any woodland affected by Site 1. Further details are provided in Appendix 2.

Substation Option Area 2

4.4 Site 2 is located approximately 2.7 km to the south of the settlement of New Deer. It is bounded by the A948 to the east; and agricultural land to the north, south and west. The properties within the small hamlet of Nethermuir are located to the south with Ebriehead Farm lying to the west of the site.

4.5 The key site issues are considered to be:

- The site option area boundary as provided by MORL is not physically capable of accommodating the maximum footprints of both the proposed MORL and SHE-T substations. However, it is considered that there is scope to extend the identified site boundary in order to accommodate both substations, albeit that this would likely result in the larger SHE-T substation being in relatively close proximity to Ebriehead Farm.

- There are no statutory or non-statutory planning or environmental designations affecting the site or its environs.

- The site is flat and largely open in views from the A948 public road which forms part of the approach to the settlement of New Deer from the south. It is considered that the scale of the proposed substations would mean that they would be visually prominent in views from the A948.

- Compared to the other substation option areas, there are relatively few properties that would experience a significant visual impact should the proposed substations be constructed at this location.

- Development of both substations would likely require the private access road to Ebriehead to be rerouted.

- The site is suitable for winter foraging and roosting of waterfowl and therefore consultation should be undertaken with SNH to establish if the site is a known important wintering area for waterfowl.

- There is suitable water vole, badger and otter habitat within the buffer area for this site. Details are provided in Appendix 2.

Substation Option Area 3

4.6 Site 3 is located approximately 2.8 km to the south east of the nearby settlement of New Deer. It is bounded by the A948 to the west, the B9016 and agricultural land to the north and agricultural land to the south and east.

4.7 The key site issues are considered to be:

- The site is physically capable of accommodating both the proposed MORL and SHE-T substations, albeit that given the smaller size of this site compared to the other site options this would require the proposed substations to be located in very close proximity to two residential properties at Woodside and Morven Cottage.

- The woodland to the south and west of the site is identified as ancient and long-established woodland. There are no other statutory or non statutory designations affecting the site or its environs.

- Given the mature tree planting which surrounds the western, eastern and southern boundary of the site, the site is relatively well enclosed. The site is effectively screened by these trees from the A948.

- Although there are several man made features within the landscape, including the existing overhead electricity pylons, a telecommunications mast and a nearby wind turbine, these features do not significantly impact upon the rural character and appearance of this landscape.

- Two properties at Woodside and Morven Cottage lie in very close proximity to the site and experience partial views towards the site.

- The site is suitable for winter foraging and roosting of waterfowl and therefore consultation should be undertaken with SNH to establish if the site is a known important wintering area for waterfowl.

- There is potential water vole, badger and to a lesser extent, otter habitat within the buffer areas of the site. In addition, outbuildings within the buffer area provides potential habitat for bats and barn owls (as well as other nesting birds). Details are provided in Appendix 2.

Substation Option Area 4

4.8 Site 4 is located approximately 1.6 km of New Deer. It is bounded by the B170 to the south east, an unclassified road to the north and by agricultural land to the south and west.

4.9 The key site issues are considered to be:

- Given the large physical extent of this site, it s physically capable of accommodating the proposed MORL and SHE-T substations in several potential locations.

- There are no statutory or non-statutory planning or environmental designations affecting the site or its environs.

- The site sits relatively low in relation to the surrounding landscape, overlooked by the B9170 and Myre of Bedlam to the east. Consequently the site is relatively well screened from the distant surrounding landscape on all sides.

- Although the existing overhead electricity pylons run across the site, the site still retains its rural character. It is considered that the proposed substations would result in a significant effect on the character and appearance of this rural location.

- The proposed substations would be visually prominent from the properties along the C class road to the north of the site, in particular from Tanamara.

- There is a watercourse (The Black Burn) running to the south west of the site, approximately 40m from the site boundary, which is identified within the SEPA 1 in 200 year flood map (5% probability).

- The site is suitable for winter foraging and roosting of waterfowl and therefore consultation should be undertaken with SNH to establish if the site is a known important wintering area for waterfowl.

- Black Burn and other minor ditches within the site are considered to provide water vole, and potentially otter habitat. There are a number of buildings (farm outbuildings and ruined residences) within the buffer areas which provide suitable habitat for roosting and nesting bat and bird species. There is limited potential for badgers within the site. Details are provided in Appendix 2.

Substation Option Area 5

4.10 Site 5 is located approximately 2.6km to the southwest of New Deer. It is bounded by a C class rural road to the south and by agricultural land on all other sides.

4.11 The key site issues are considered to be:

- The site is not physically capable of accommodating both the MORL and SHE-T substations.

- There are no statutory or non-statutory planning or environmental designations affecting the site or its environs.

- The site is visually well screened from the nearest properties to the south west of the site at Moss Croft by mature coniferous planting.

- The relatively enclosed nature of the site would help to reduce the significance of the impact of the proposed substations on the existing rural character and appearance of the site.

- The site is suitable for winter foraging and roosting of waterfowl and therefore consultation should be undertaken with SNH to establish if the site is a known important wintering area for waterfowl.

- The marshy grassland within Site 5 provides potential foraging habitat for bird species (including kestrel and barn owl), bats and to a lesser extent otters. The marshy grassland and standing water represents a greater degree of habitat diversity when compared to the other sites. Ditches to the north and east of the site provide water vole potential. As with Site 4 there are a number of buildings (farm outbuildings) within the buffer areas which provide suitable habitat for roosting and nesting bat and bird species. Details are provided in Appendix 2.

Substation Option Area 6

4.12 Site 6 is located approximately 4.9 km to the south west of New Deer. It is partly dissected by a C class rural road in its northern section and is bounded by the same road to the east as it relates to the southern half of the site. To the north, south and west the site is surrounded by rolling agricultural land.

4.13 The key site issues are considered to be:

- Given the large physical extent of this site, it s physically capable of accommodating the proposed MORL and SHE-T substations in several potential locations.

- The site is largely open, with occasional woodland planting found associated with properties and farmsteads. Although the existing overhead electricity pylons cross the site, the landscape remains rural in character.

- There are no statutory or non-statutory planning or environmental designations affecting the site or its environs.

- Given the extent and relatively open nature of the site, it is considered that the proposed substations would result in a significant effect on the character and appearance of this rural landscape.

- Although there are a large number of properties scattered around the immediate vicinity of the site, the majority of these properties have either been located in the lower undulating parts of the landscape or have boundary treatments which screen views of the site.

- The site is suitable for winter foraging and roosting of waterfowl and therefore consultation should be undertaken with SNH to establish if the site is a known important wintering area for waterfowl.

- The old outbuildings within the buffer area provides potential for roosting and nesting bird species (such as barn owl) and bat species. Ditches within the buffer area provide potential for water vole but minimal otter potential. Details are provided in Appendix 2.

Substation Option Area 7

4.14 Site 7 is located approximately 6.3 km from New Deer. It is bounded by C class rural roads to the west and south and agricultural land to the north and east.

4.15 The key site issues are considered to be:

- The site is physically capable of accommodating both the proposed SHE-T and MORL substations.

- There are no statutory or non-statutory planning or environmental designations affecting the site or its environs.

- Given the extent and relatively open nature of the site, it is considered that the proposed substations would result in a significant effect on the character and appearance of this rural landscape.

- The properties to the north of the site are effectively screened from the site by vegetation along the northern boundary of the site, whilst views from Burnside Millbrex to the east of the site are well screened by intervening outbuildings. Consequently the key potential sensitive receptors are confined to the properties at North Millbreck to the south west of the site.

- The site is suitable for winter foraging and roosting of waterfowl and therefore consultation should be undertaken with SNH to establish if the site is a known important wintering area for waterfowl.

- The old outbuildings within the buffer area provides potential for roosting and nesting bird species (such as barn owl) and bat species. Ditches within the buffer area provide potential for water vole but minimal otter potential. Details are provided in Appendix 2.

Option Classification

4.16 On the basis of the key issues for each site, the following table suggests a classification for each of the substation option areas based upon the criteria in Section 2.

Site	Appraisal	Classification
SOA1	This site is considered to be possible for development. However, any development on this site will need to demonstrate that it is capable of minimising visual intrusion and landscape impact, in particular on the residential properties to the north of the site and on the A948 which forms part of the approach to the settlement of New Deer. This site is considered to be jointly the least sensitive for ecological receptors.	Possibility
SOA2	This site is considered to be possible for development. However any development will need to demonstrate that it is capable of minimising visual intrusion and landscape impact, in particular on the A948 which forms part of the approach to the settlement of New Deer. This site is considered to be jointly the least sensitive for ecological receptors.	Possibility
SOA3	This site is considered to be unsatisfactory given potential detrimental impacts upon the residential amenity of Woodside and Morven Cottage. This site is considered to be jointly the most sensitive for ecological receptors.	Unsatisfactory
SOA4	This site is considered to be possible for development. However any development will need to demonstrate that it is capable of minimising adverse visual impact upon the properties along the C class road to the north of the site, in particular from Tanamara. This site is considered to be jointly the most sensitive for ecological receptors.	Possibility
SOA5	This site is considered to be unsatisfactory given it is not physically capable of accommodating both the MORL and SHE-T substations. This site is considered to be jointly the most sensitive for ecological receptors.	Unsatisfactory
SOA6	This site is considered to be possible for development. However, any development on this site will need to demonstrate that is capable of minimising visual intrusion and landscape impact given the number of properties scattered in close proximity to the site. This site is considered to be jointly the least sensitive for ecological receptors.	Possibility
SOA7	This site is considered possible for development. However, any development on this site will need to demonstrate that it is capable of minimising visual intrusion and landscape impact, in particular on the residential properties at North Millbrex. This site is considered to be jointly the least sensitive for ecological receptors.	Possibility

5 CABLE ROUTE APPRAISAL

5.1 As noted in Section 2 above this initial appraisal of the land referenced for the cable route corridor is based on a desk study only with insufficient time available for site visits along the potential cable corridor route.

5.2 The key site issues within the land referenced area for the cable route corridor identified from this desk based study are considered to be:

- There are no international, national or local natural heritage or landscape designations within the land referenced area, with the exception of Ancient Woodland as discussed below.

- There are a number of areas of Ancient Woodland that lie within the land referenced area. The locations of these areas can be seen on Figure 3a. These areas should be generally be considered unsatisfactory for development.

- The land referenced area for the onshore cable route corridor is located within the The Coast landscape character area (Cliffs of the North and South East landscape type), the Coastal Farmland landscape character area (Western Coastal Farmland character type), the Straths and River Valleys (Deveron and Upper Ythan Valleys landscape type) and the Agricultural Heartland landscape character type (Agricultural Heartland landscape type). All of these landscape character areas are considered to be satisfactory for the development of an underground cable route given their would be minimal landscape and visual impact.

- There are five Scheduled Monuments, two Garden and Designed Landscapes and a total of 38 listed buildings within the land referenced area for the onshore cable route. All of these sites should be considered unsatisfactory for development. Parts of the land referenced in close proximity to the these sites should be considered to be a possibility depending upon the potential to affect the designation.

- There are three areas of search for minerals within the land referenced area. Given the potential for sterilisation, these areas should be considered a possibility for development depending upon the potential for micrositing.

- The Aberdeenshire Coastal Path, NCR1 and a number of core paths cross the land referenced areas for the onshore cable route. The locations of these routes can be seen on Figure 3e. Given the cable would be buried and there would be no permanent disruption or barriers to walking or cycling on these routes once operational it is considered that the development of the onshore cable route under these routes would be satisfactory.

- The majority of the land referenced area is likely to be suitable for winter foraging and roosting of waterfowl. The land may also have potential for other protected species including badgers, bats, squirrels, water voles, otters and wild birds. These areas should be considered to be satisfactory or possible for development depending upon the potential for mitigation.

6 CONCLUSIONS AND NEXT STEPS

Conclusions

Preferred Substation Option Areas

6.1 Section 4 of this reports indicates that, of the seven substation option areas being appraised, two are considered to be potentially unsatisfactory from an environmental and/or planning perspective within the limits of this study. These are substation option areas 3 and 5.

6.2 It should be noted that it is possible that, when considered in conjunction with other engineering, economical or environmental constraints, overriding reasons may suggest that both of these site will be considered feasible and so this report should be read in conjunction with such other studies.

6.3 The remainder of the substation option areas are considered to be a possibility for development and should now be taken forward for more detailed assessment. The key constraints that will require to be considered when taking forward all of these option areas will be minimising the effects of the substations on i) the character and appearance of the existing rural landscape, ii) wildlife interests and iii) residential amenity.

Preferred Cable Route Corridors

6.4 The principal conclusion of this appraisal is that the referenced land for the onshore cable corridor is relatively free from any significant planning or environmental constraints, based upon the assumption that the cable is buried for its entire length from the landfall to the selected sub-station site. For most of the proposed cable route corridor there is considerable scope for micro-siting within the referenced land to avoid potential temporary loss of amenity to individual houses or other local features to provide an optimum solution.

6.5 The main exception to this relatively constraint free position relates to several areas of Ancient Woodland which it is considered would be unsuitable for an underground cable route and should consequently be avoided. Scheduled Monuments and Listed Buildings within the land referenced area for the cable route should also be avoided, albeit it should be relatively straightforward to micro-site around these constraints where encountered.

6.6 The only other potential exceptions to this relatively constraint-free position arise in relation to the landfall area to the south of Boyndie Bay and the Garden and Designed Landscapes at Craigston Castle and Duff House. In all of these areas potential routes will require more detailed investigation, although given that any surface disturbance during construction will be temporary in nature, no significant issues are to be anticipated. For similar reasons, no significant issues are likely to be raised by long distance promoted paths and core paths that cross the land reference area for the cable corridor at some points.

6.7 In the light of these conclusions it is considered unnecessary to define specific 500m corridors within the referenced land area for the cable corridor at this stage. This level of detail should only become necessary after the next stage of more detailed investigation of ground conditions and other local features.

Next Steps

6.8 In conjunction with the other engineering and economic appraisal, it is considered that the next steps for the substation option areas short-listed for more detailed assessment should include:

- Pre-application consultation with Aberdeenshire Council and other relevant statutory and non-statutory bodies. In particular, it is recommended that detailed consultation is had with SNH to discuss the findings of the feasibility study and to confirm ecology surveys that may be required. Most importantly the meeting with SNH should seek to determine the need for surveys over the winter 2013-2014 season in relation to wildfowl.

- The following environmental surveys should be undertaken for each of the substation option areas:

    - Extended Phase 1 Habitat Surveys;
    - Protected Species Surveys;
    - Geomorphology Survey;
    - Landscape and Visual Survey;
    - Noise Surveys; and
    - Cultural Heritage Walkover Surveys.

- Undertake a detailed environmental appraisal of the environmental impacts of the short listed substation options. The appraisal will include the following topics areas: landscape and visual; ecology; noise; noise; land use; socio-economics and land use. The appraisal should consider the potential impacts, appropriate mitigation measures that could be employed and the residual impacts of the proposed substations.

- Public consultation

- Identification of the preferred substation option area.

6.9 At the same time the following steps are proposed for the identification of the preferred cable route corridors and relevant alternatives to each of the substation option areas:

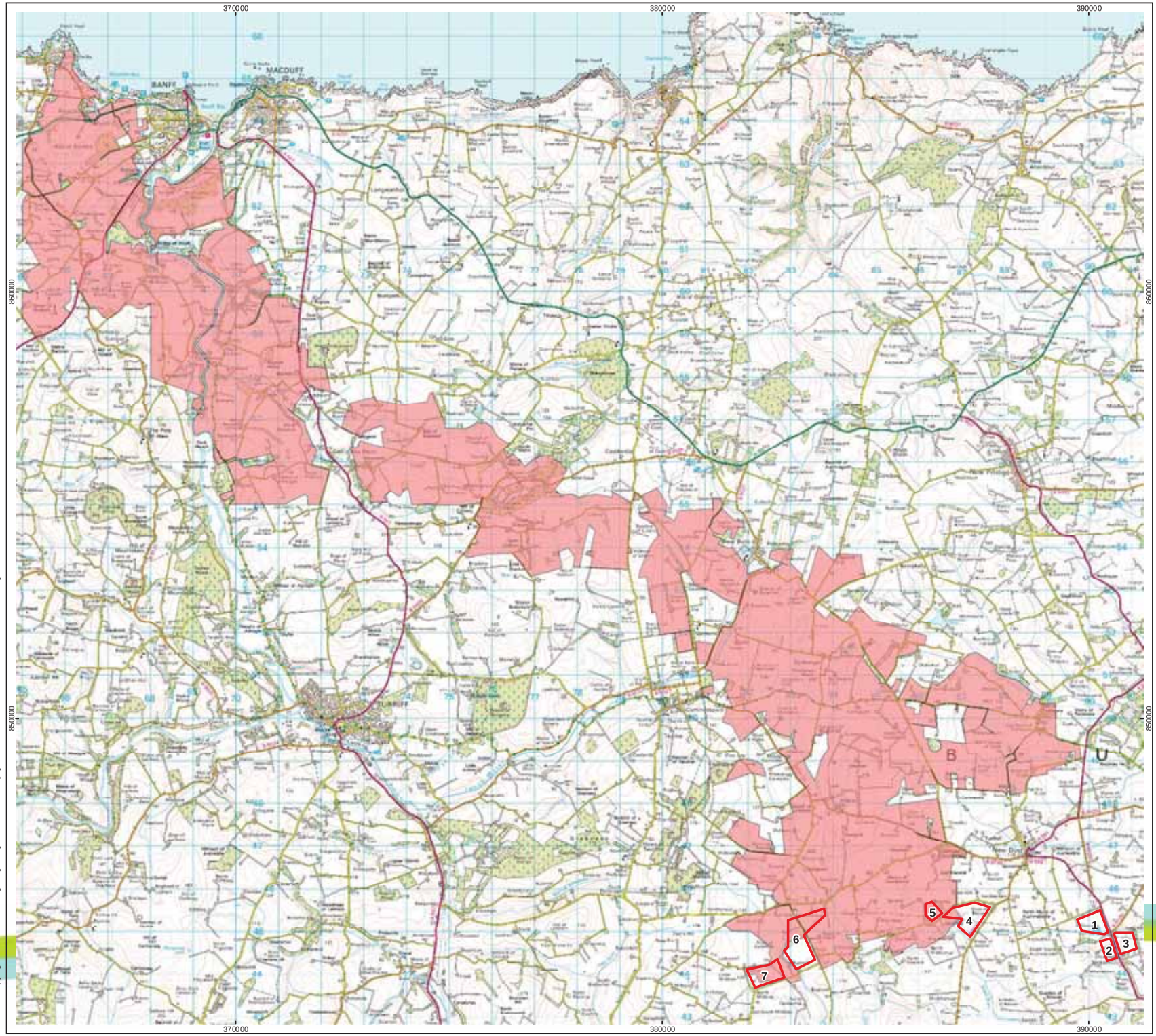
- Site visit to confirm the data captured from the desk based assessment of the land referenced area as far as practicable and to identify any further planning and environmental constraints that may be present that had not previously been identified.

- Pre-application consultation with Aberdeenshire Council and other relevant statutory and non-statutory bodies.

6.10 Details on the timescales for ecology surveys are provided in Appendix 3.

FIGURES

List of Figures:



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REPSOL

Moray Offshore Renewables Ltd

KEY

- CKDG Land Referenced Area (Sept 2013)
- Substation Option Areas

Horizontal Scale: 1:85,000 A3 Chart

0 2,000 4,000 Meters

Geodetic Parameters: British National Grid

Produced: KAG
Reviewed: MF
Approved: AP

Date: 31/10/2013 | Revision: -

REF: RPS-SAP7748_003

MORL Onshore Feasibility Study
MORL Land Referenced Area
for Onshore Cable Route
Figure 1

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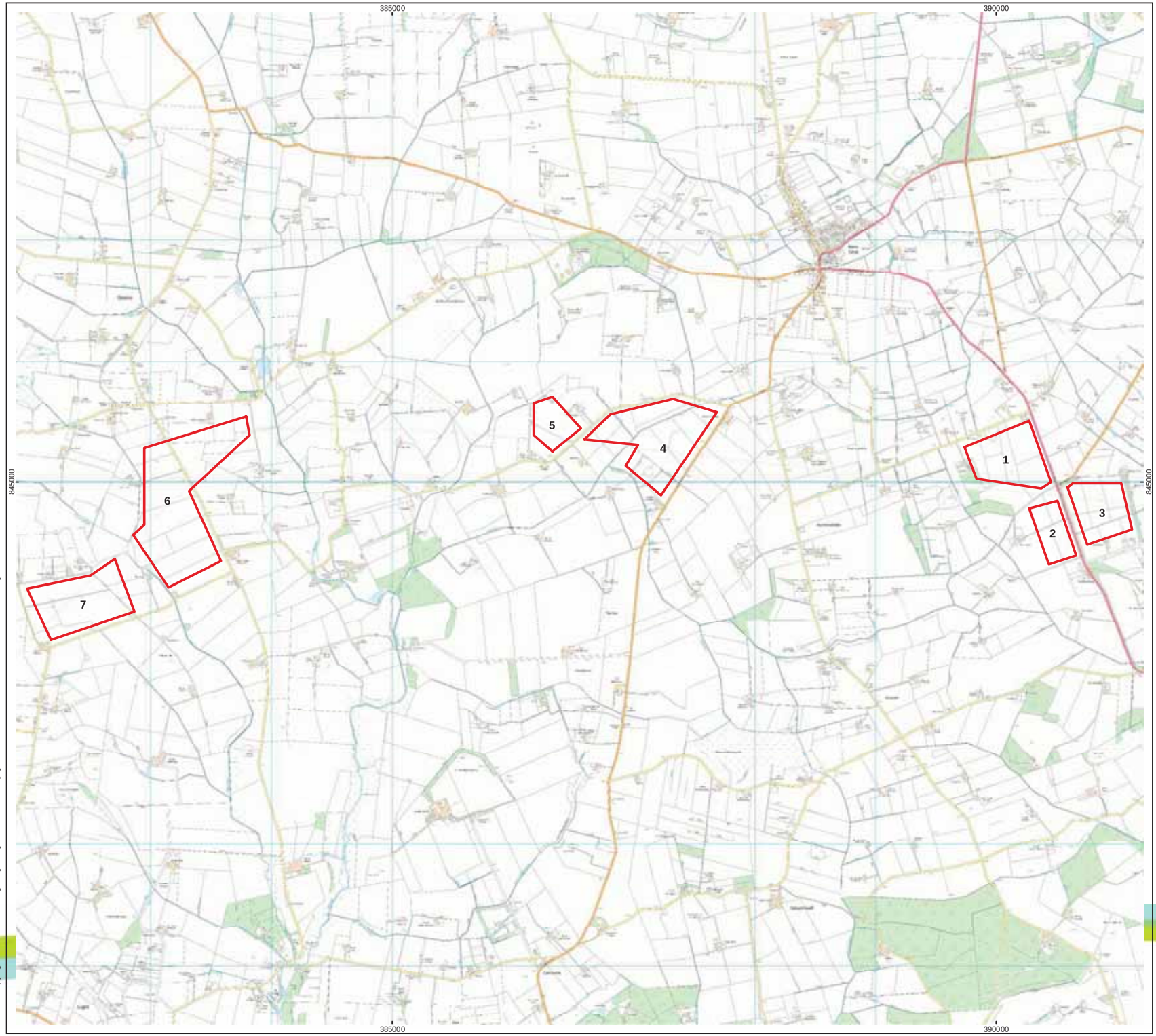

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REPSOL

Moray Offshore Renewables Ltd

KEY

Substation Option Areas

Horizontal Scale: 1:30,000 A3 Chart

0 500 1,000 Meters

Geodetic Parameters: British National Grid

Produced: KAG
Reviewed: MF
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Date: 31/10/2013 | Revision: -

REF: RPS-SAP7748_015

MORL Onshore Feasibility Study
MORL Substation Option Areas
Figure 2

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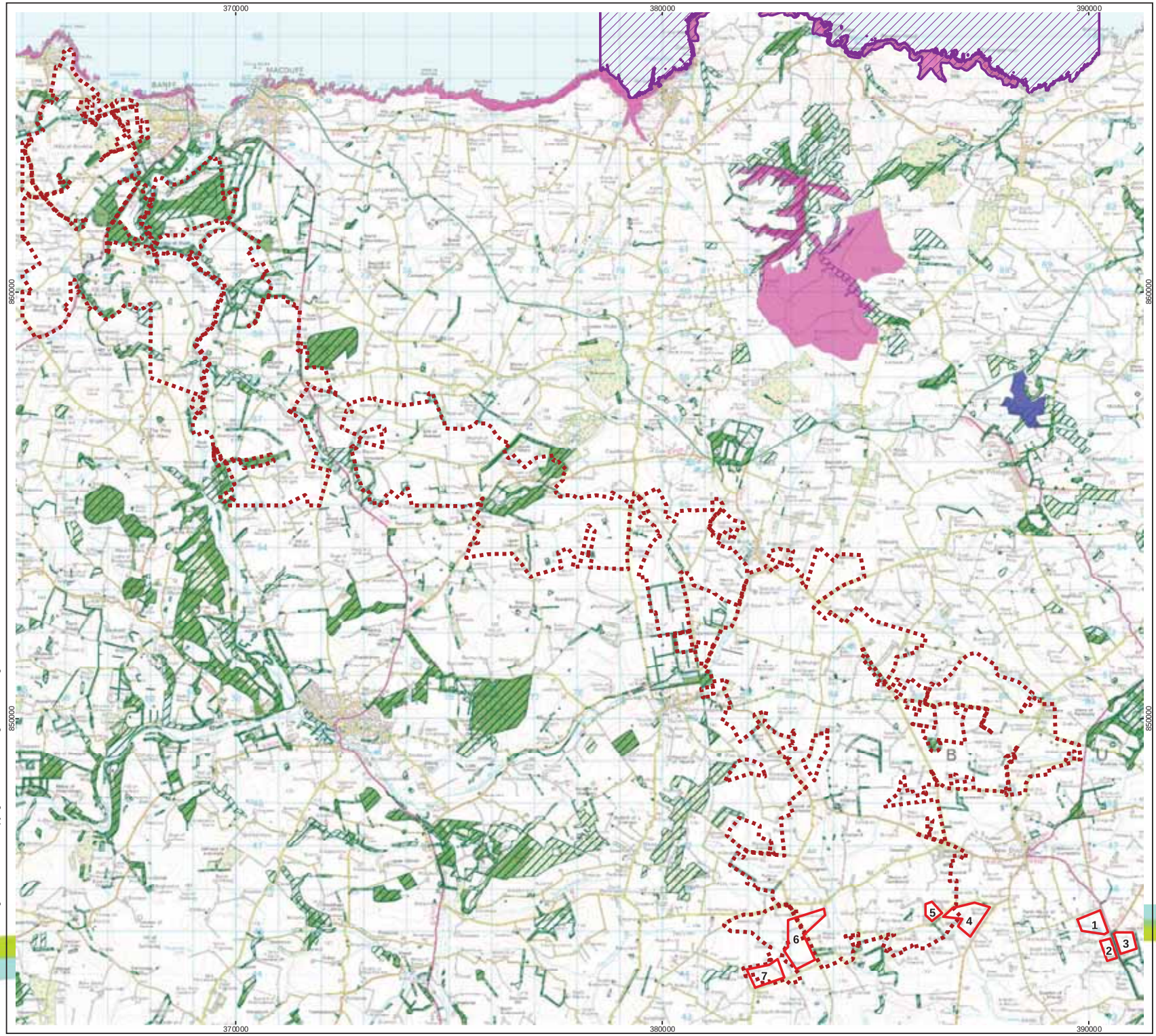

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REPSOL

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KEY

- CKDG Land Referenced Area (Sept 2013)
- Substation Option Areas
- Special Protection Area
- Special Areas of Conservation
- Sites of Special Scientific Interest
- Ancient and Long-established Woodland
- Semi-Natural Woodland Cover on Ancient and Long-established Woodland Sites

Dataset source - Scottish Natural Heritage

Horizontal Scale: 1:85,000 A3 Chart

0 2,000 4,000 Meters

Geodetic Parameters: British National Grid

Produced: KAG
Reviewed: MF
Approved: AP

Date: 31/10/2013 | Revision: -

REF: RPS-SAP7748_012B

MORL Onshore Feasibility Study
Nature Conservation Constraints
Figure 3a

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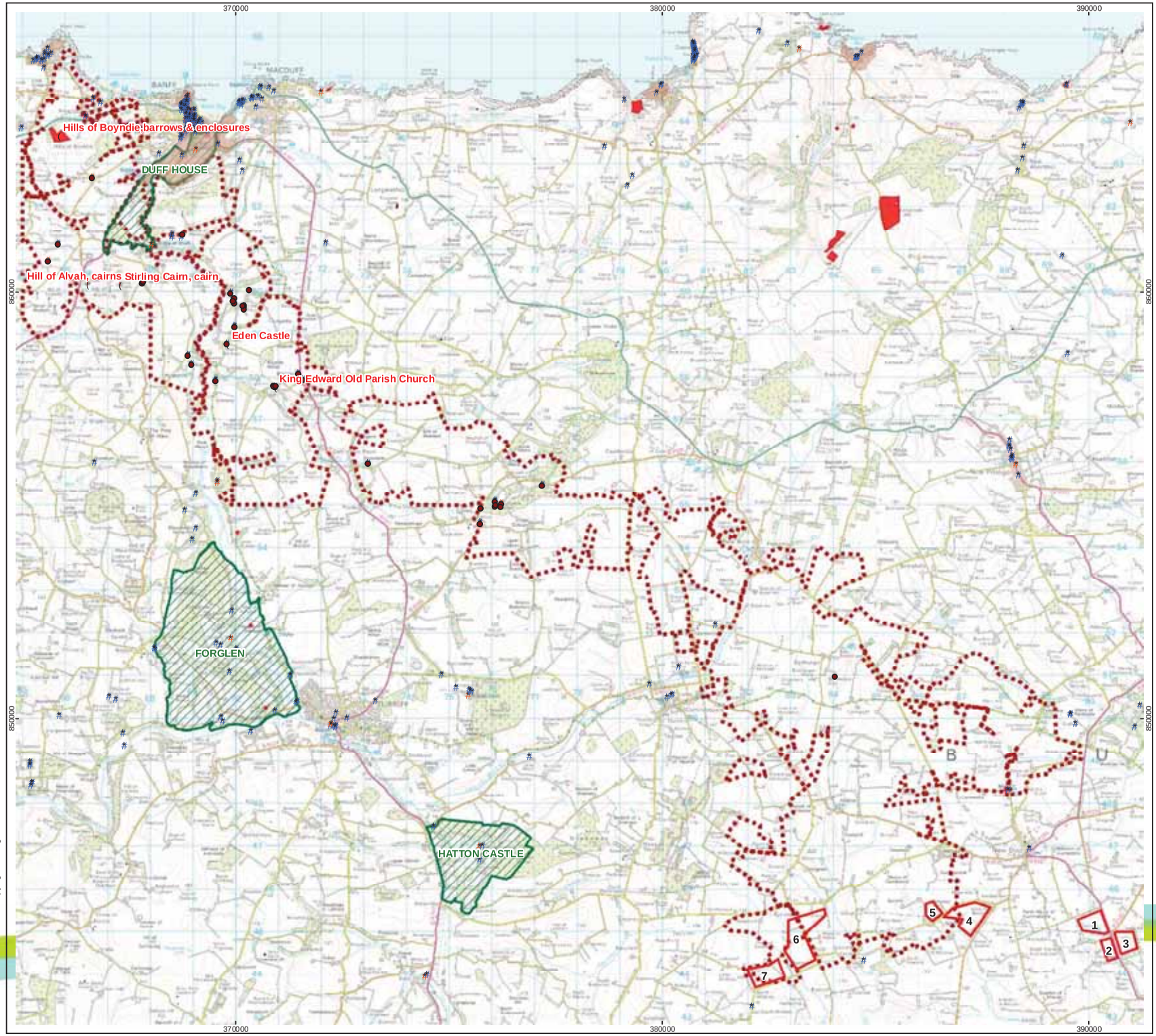

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KEY

- CKDG Land Referenced Area (Sept 2013)
- Substation Option Areas
- Scheduled monuments
- Garden and Designed Landscapes
- Conservation Areas
- Listed Building Cat A
- Listed Building Cat B
- Listed Building Cat C(S)

Dataset source - Historic Scotland

Horizontal Scale: 1:85,000 A3 Chart

0 2,000 4,000 Meters

Geodetic Parameters: British National Grid

Produced: KAG
Reviewed: MF
Approved: AP

Date:31/10/2013 | Revision: -

REF: RPS-SAP7748_008B

MORL Onshore Feasibility Study

Archaeology & Cultural Heritage Constraints

Figure 3b

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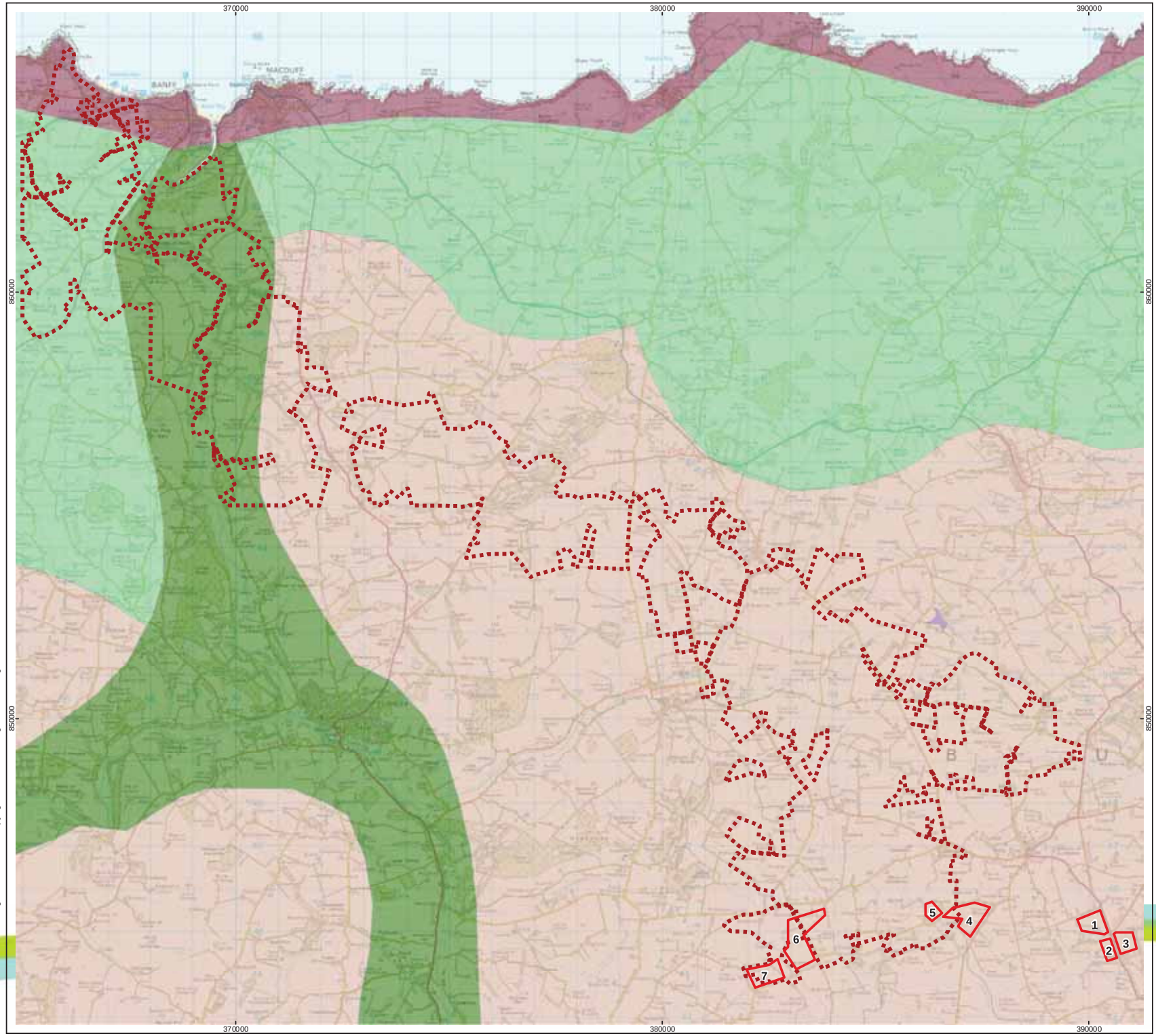

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REPSOL

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KEY

- CKDG Land Referenced Area (Sept 2013)
- Substation Option Areas

SNH Landscape Character Areas

- Agricultural Heartland
- Coastal Farmland
- Inland Loch
- River Valleys
- The Coast

Dataset source - Scottish Natural Heritage

Horizontal Scale: 1:85,000 A3 Chart

0 2,000 4,000 Meters

Geodetic Parameters: British National Grid

Produced: KAG
Reviewed: MF
Approved: AP

Date: 31/10/2013 | Revision: -

REF: RPS-SAP7748_009B

MORL Onshore Feasibility Study
Landscape Character Areas
Figure 3c

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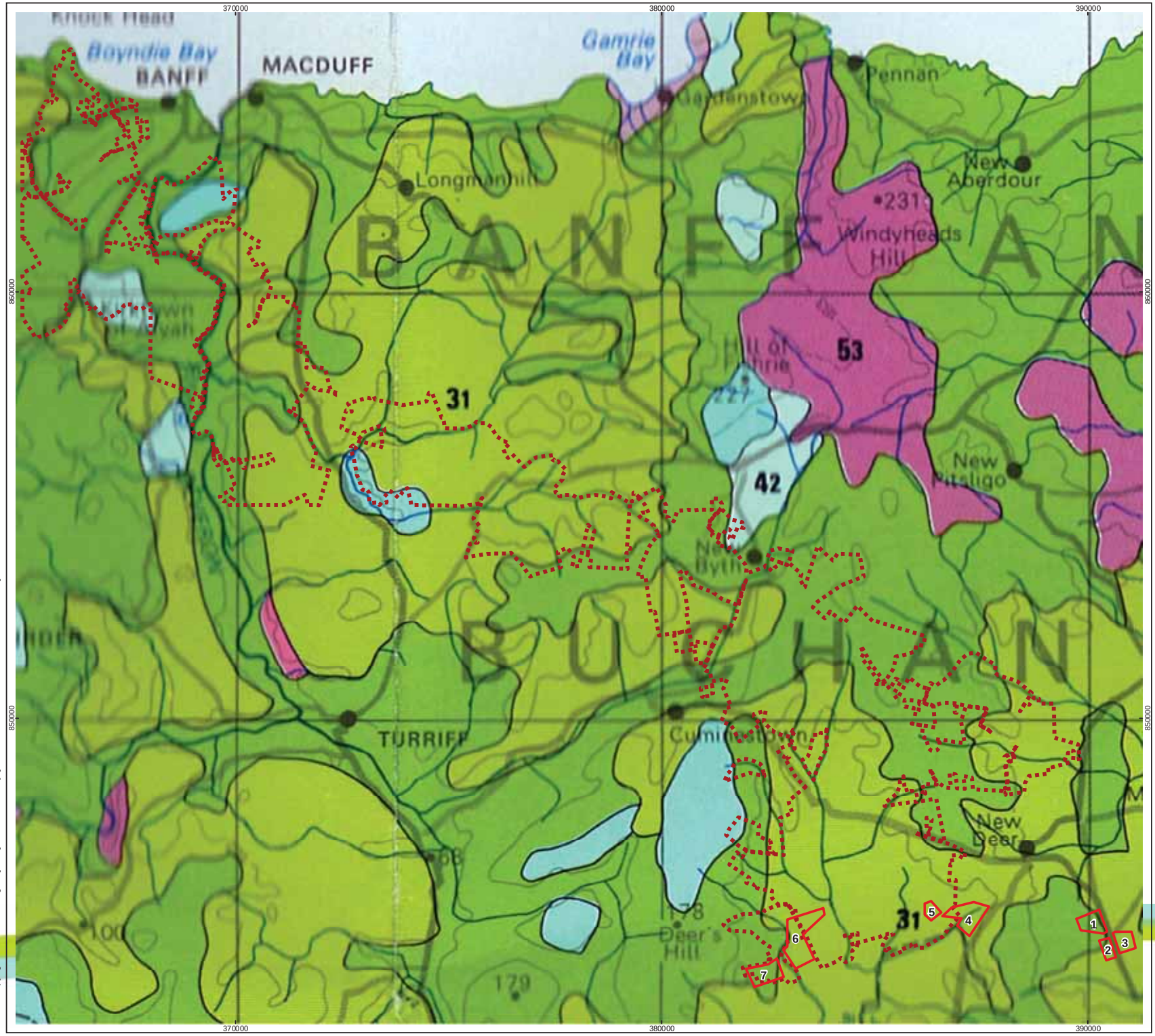

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REPSOL

Moray Offshore Renewables Ltd

KEY

- CKDG Land Referenced Area (Sept 2013)
- Substation Option Areas

Land Capability for Agriculture

- 3-1: Land capable of producing a moderate range of crops
- 3-2: Land capable of producing a moderate range of crops
- 4-1: Land capable of producing a narrow range of crops
- 4-2: Land capable of producing a narrow range of crops

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Horizontal Scale: 1:85,000 A3 Chart

0 2,000 4,000 Meters

Geodetic Parameters: British National Grid

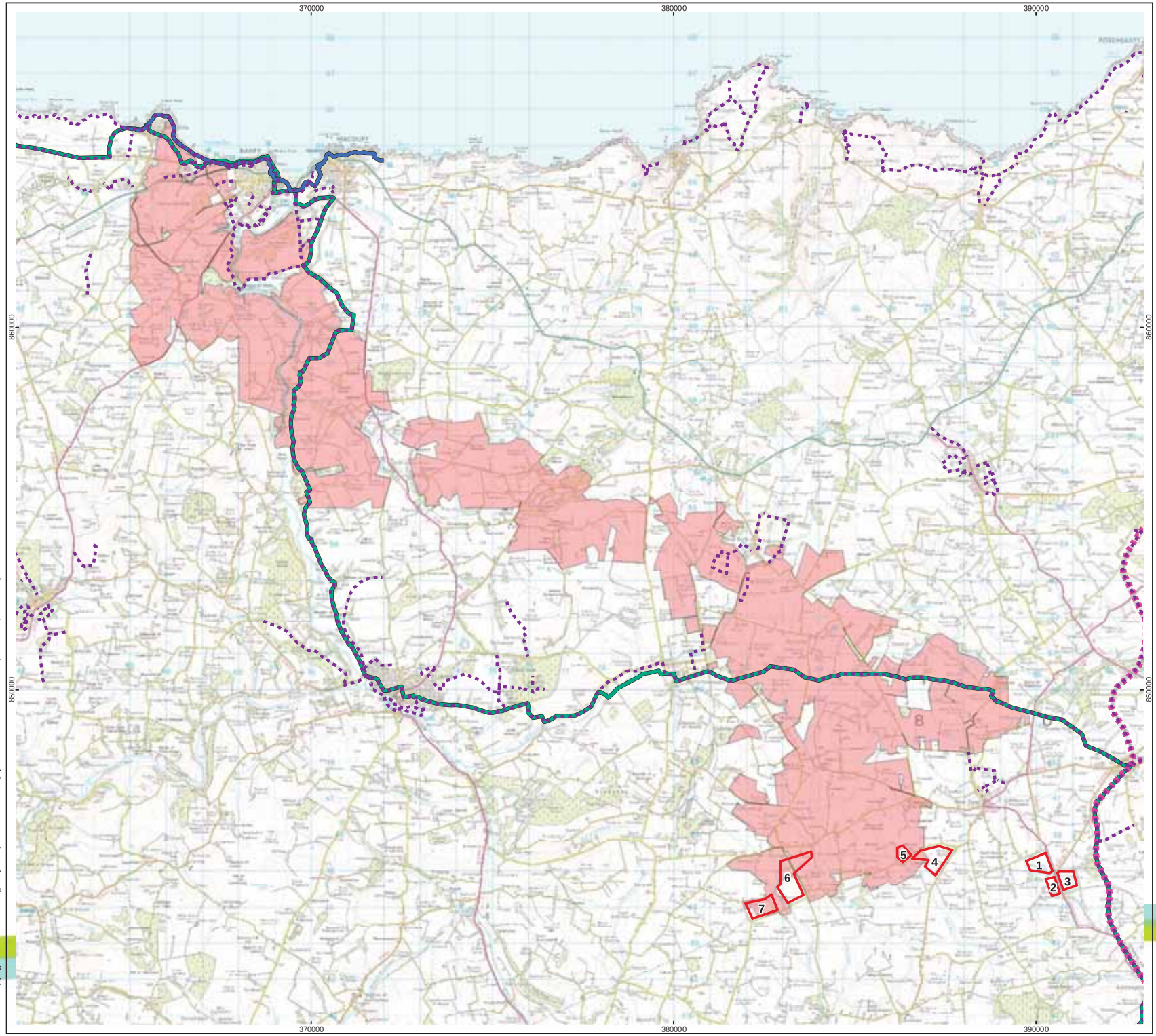
Produced: KAG
Reviewed: MF
Approved: AP

Date: 31/10/2013 | Revision: -

REF: RPS-SAP7748_005B

MORL Onshore Feasibility Study
Agricultural Land Classification
Figure 3d

Moray Offshore Renewables Ltd



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REPSOL

Moray Offshore Renewables Ltd

KEY

- CKDG Land Referenced Area (Sept 2013)
- Substation Option Areas
- Formartine & Buchan_Way
- Aberdeenshire Coastal Path
- SUSTRANS Route 1
- Core Paths

Dataset source - Aberdeenshire Council

Horizontal Scale: 1:100,000 A3 Chart

0 2,500 5,000 Meters

Geodetic Parameters: British National Grid

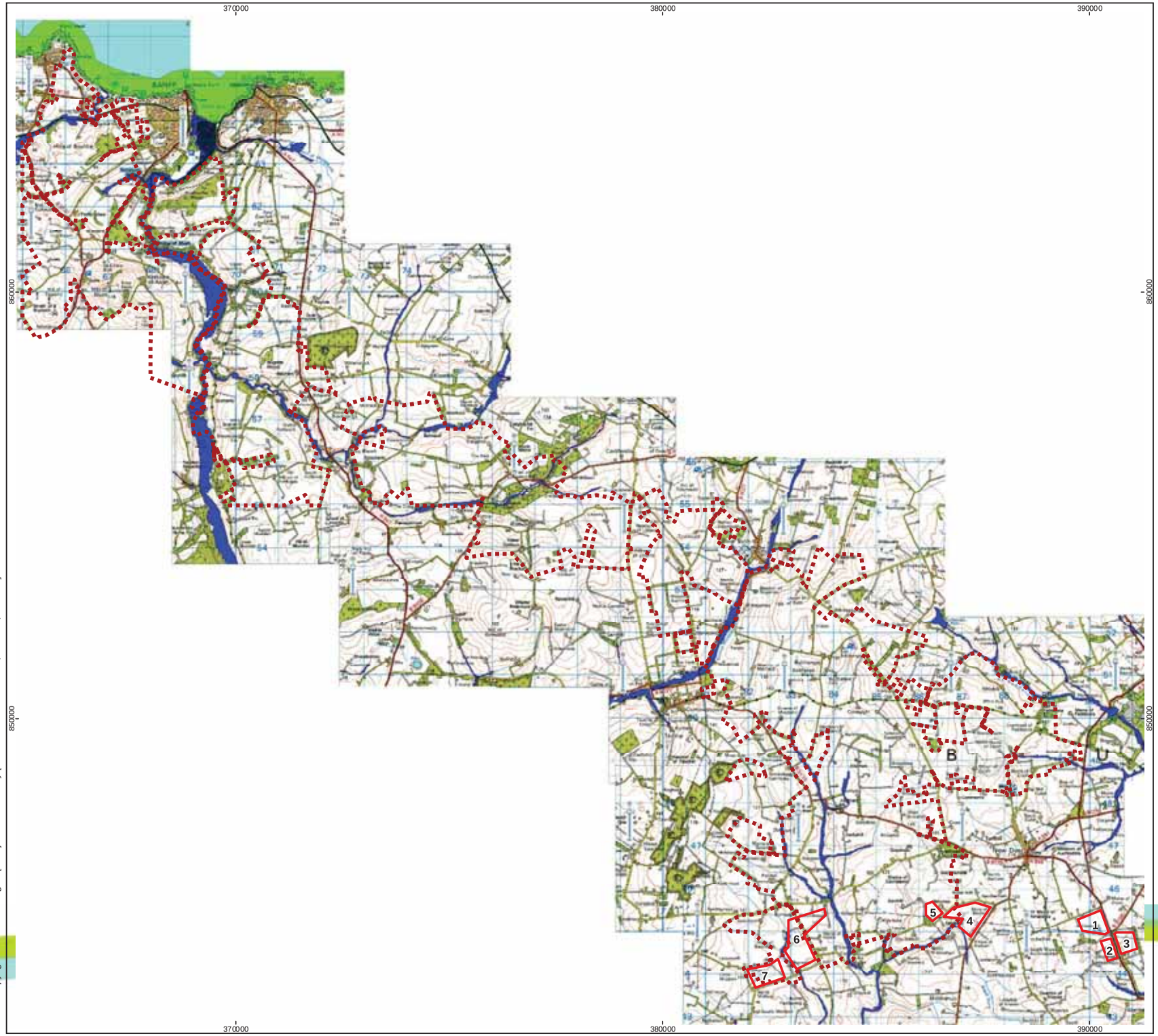
Produced: KAG
Reviewed: MF
Approved: AP

Date: 31/10/2013 | Revision: -

REF: RPS-SAP7748_011B

MORL Onshore Feasibility Study
Tourism & Recreation Constraints
Figure 3e

Moray Offshore Renewables Ltd



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REPSOL

Moray Offshore Renewables Ltd

KEY

CKDG Land Referenced Area (Sept 2013)

Substation Option Areas

SEPA Indicative Flood Map

Areas at risk of flooding from rivers

Areas at risk of flooding from the sea

Areas at risk of flooding from both

Extract reproduced from SEPA River & Coastal Flood Map, Crown copyright

Internal use only - not for external publication.

Horizontal Scale: 1:85,000 A3 Chart

0 2,000 4,000 Meters

Geodetic Parameters: British National Grid

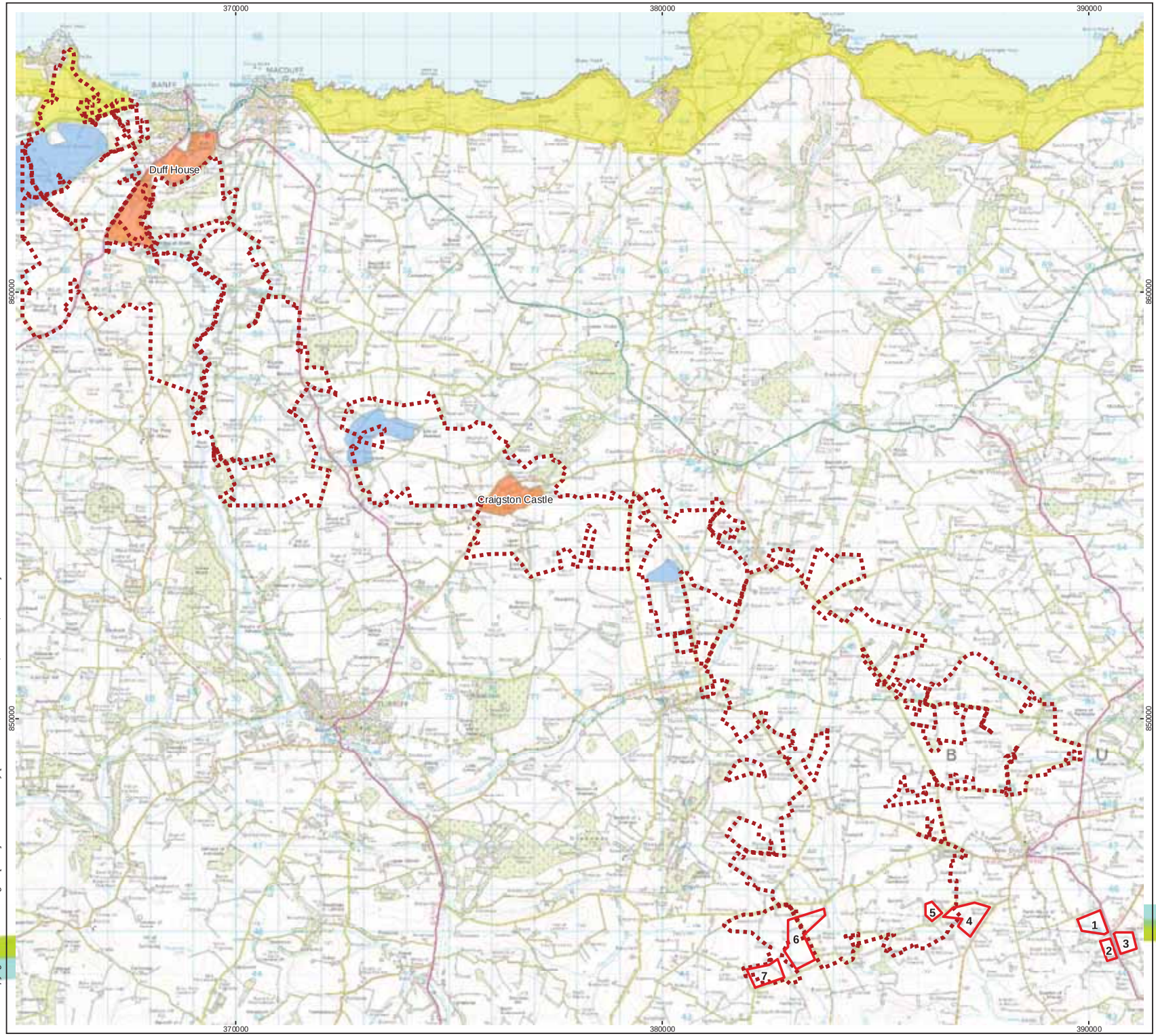
Produced: KAG
Reviewed: MF
Approved: AP

Date: 31/10/2013 | Revision: -

REF: RPS-SAP7748_006B

MORL Onshore Feasibility Study
Indicative Flood Risk
Figure 3f

Moray Offshore Renewables Ltd



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REPSOL

Moray Offshore Renewables Ltd

KEY

- CKDG Land Referenced Area (Sept 2013)
- Substation Option Areas
- Designed Landscape (Policy 13)
- Coastal Zone (Policy 4)
- Area of search for Minerals (Policy 14)

Planning Policy designations from Aberdeenshire Local Development Plan

Horizontal Scale: 1:85,000 A3 Chart

0 2,000 4,000 Meters

Geodetic Parameters: British National Grid

Produced: KAG
Reviewed: MF
Approved: AP

Date: 31/10/2013 | Revision: -

REF: RPS-SAP7748_010B

MORL Onshore Feasibility Study
Planning Policy Constraints
Figure 3g

Moray Offshore Renewables Ltd

APPENDIX 1 – BASELINE DATA INFORMATION SOURCES

Appendix 1 – Baseline Data Sources

Topic	Features	Source	Web link
Nature Conservation Designations	Special Protection Agency	Scottish Natural Heritage	http://www.snh.gov.uk/
	Special Areas of Conservation	Scottish Natural Heritage	http://www.snh.gov.uk/
	Ramsar	Scottish Natural Heritage	http://www.snh.gov.uk/
	Sites of Special Scientific Interest	Scottish Natural Heritage	http://www.snh.gov.uk/
	National Nature Reserves	Scottish Natural Heritage	http://www.snh.gov.uk/
	Local Nature Reserves	Aberdeenshire Council	http://www.aberdeenshire.gov.uk/
	Sites of Interest to Natural Science	North East Scotland Biological Records Centre	http://www.nesbrec.org.uk/
	Scottish Wildlife Trust Reserves	Scottish Wildlife Trust	http://scottishwildlifetrust.org.uk/
	Ancient Woodlands	Scottish Natural Heritage	http://www.snh.gov.uk/
Protected Habitats and Species Records	Protected Species	National Biodiversity Network	https://data.nbn.org.uk/
Archaeology and Cultural Heritage Designations	Scheduled Monuments	Historic Scotland	http://www.historic-scotland.gov.uk/
	Listed Buildings	Historic Scotland	http://www.historic-scotland.gov.uk/
	Gardens and Designed Landscapes	Historic Scotland	http://www.historic-scotland.gov.uk/
	Conservation Areas	Aberdeenshire Council	http://www.aberdeenshire.gov.uk/
	Non statutory listed features	Royal Commission on the Ancient and Historical Monuments of Scotland	http://www.rcahms.gov.uk/
Landscape	National Scenic Areas	Scottish Natural Heritage	http://www.snh.gov.uk/
	Wild Land	Scottish Natural Heritage	http://www.snh.gov.uk/
	Areas of Landscape Significance	Aberdeenshire Council	http://www.aberdeenshire.gov.uk/
	Protected views	Aberdeenshire Council	http://www.aberdeenshire.gov.uk/
	Landscape Character	Scottish Natural Heritage	http://www.snh.gov.uk/
Land Use	Agricultural Land Classification	Macaulay Institute	http://www.macaulay.ac.uk/

	Historic Land Use Assessment	Royal Commission on the Ancient and Historical Monuments of Scotland	http://www.rcahms.gov.uk/
Tourism and Recreation	Country Parks	Scottish Natural Heritage	http://www.snh.gov.uk/
	Regional Parks	Scottish Natural Heritage	http://www.snh.gov.uk/
	Longer distance routes	Aberdeenshire Council	http://www.aberdeenshire.gov.uk/
	National Cycle Network	Sustrans	http://www.sustrans.org.uk/
	Core Paths	Aberdeenshire Council	http://www.aberdeenshire.gov.uk/
Flood Risk	Indicative River and Coastal Flood Map	Scottish Environment Protection Agency	http://www.sepa.org.uk/
Planning Policy Designations	Aberdeenshire Local Development Plan	Aberdeenshire Council	http://www.aberdeenshire.gov.uk/
Planning Developments	Planning Applications	Aberdeenshire Council	http://www.aberdeenshire.gov.uk/

APPENDIX 2 – SUBSTATION OPTION AREAS PLANNING AND ENVIRONMENTAL AND CHECKLIST

MORL FEASIBILITY STUDY– PLANNING & ENVIRONMENTAL CHECKLIST	
Site Reference and Location	Site 1 – Mile End Drum (390167, 845311) Site 1 is located approximately 2 km to the south east from the settlement of New Deer. The site is bounded by the A948 (New Deer – Auchengatt) public road to the east; a C Class road to the north; and a mix of agricultural land and woodland to the south and west.
Planning	
Current designation in Development Plan	The Development Plan for the site currently comprises the Aberdeen City and Shire Structure Plan 2009 and the Aberdeenshire Local Development Plan (2012) There are no specific policy designations in the Development Plan for this site. However the following general development policies will apply from the Aberdeenshire Local Development Plan: • Policy 3 - Development in the Countryside; • Policy 8 – Layout, siting and design of new development; • Policy 11 – Natural Heritage; • Policy 12 – Landscape Conservation; and • Policy 13 – Protecting, improving and conserving the historic environment.
Land Use	
Land Use	The site is currently agricultural land and comprises both arable land and semi-improved poor grassland. There are a number of residential properties in close proximity to the north of the site, whilst the property at Mile End Burn to the north east of the site is used as commercial garage and workshop. The property at Clockhill to the west of the site provides boarding for cats and dogs.
Agricultural Land Classification	The site falls within the Macaulay Land Capability for Agriculture Category 3 – Land capable of producing a moderate range of crops. The land falls mostly within sub category 3_2 with a small part of the eastern side of the site falling within category3_1. The sub categories are detailed further below: • Category 3_1 – Land capable of producing consistently high yields of a narrow range of crops (principally cereals and grass) and/or moderate yields of a wider range (including potatoes, field beans and other vegetables and root crops). Shot grass leys are common. • Category 3_2 – Land capable of average production but high yields of barely oats and grass are often obtained. Other crops are limited to potatoes and forage crops. Grass leys are common and reflect the increasing growth limitations for arable crops and degree of risk involved in their production
Rights of Way / Core Paths	There are no core paths on or within close proximity to the site. No footpaths crossing the site were identified during the field visit. Nevertheless, it may be that there are alleged rights of way running within or adjacent to the site. This would need to be confirmed through consultation with Aberdeenshire Council and ScotWays.
Landscape and Visual	
Nature of Landscape	The landscape character of the site is defined as 'Agricultural Heartland'. The site is set in undulating arable land with the topography of the land sloping gently down from north to south. Due to the large field size and the use of post and wire fencing around the site, the site is largely open in views from the A8948 public road and forms part of the approach to the settlement of New Deer from the south. There is some tree and shrub planting along the northern boundary of the site which provides limited visual screening. Although there are a number of man-made features within the surrounding landscape, including the existing overhead electricity pylons to the south, a number of large steel agricultural sheds at Clockhill and Mile-End Drum and a wind turbine to the north east of the site, these features have not significantly impacted upon the key characteristics of the landscape which remains predominantly rural in nature.
Possible receptors	There are a number of properties, in particular along the northern boundary of the site, that are potentially sensitive receptors to the development of a substation on this site. Potential impacts upon these properties are discussed below: • Mile End Burn (390211, 845541) comprises a single storey residential bungalow and a commercial car garage and workshop. Open views of the site would only be experienced from the south of the property. • Drumlea (390062, 845615) comprises a single storey bungalow with an open front garden to the south, enabling extensive views out across the majority of the site in views from the front of the property. • Da-Bhinn (389853, 845388) is a single story bungalow whose views of the site are partly screened by a mature existing conifer hedge to the east of the property. The property does however still experience views over the western part of the proposed site. • Auchmaliddie Croft (389707, 845518) is a two story property that is relatively well set back

	from the C class road. The property is surrounded by large agricultural sheds to the north and east, but would still experience more distant views of the western part of the site from the front of the property. • Clockhill (389714, 845147) appears to be largely screened from views out towards the site by a combination of the large agricultural sheds which surround the property and some existing mature tree planting associated with the farmstead. • Little Drum (390575, 845290), lies to the east of the A8948. Views of the site would be predominantly screened by the existing planting around the property.
Ecology	
International and national nature conservation designations	N/A
Local nature conservation designations	There are no local nature conservation designations within the site. An area of Ancient and Long-established woodland is located within 100m of the site boundary to the south east. Several patches of Semi-natural woodland cover exist within 500m of the site to the west and north of the site. It is considered that these designations will be unaffected by works within the site boundary.
Protected species records	Otter, red squirrel, brown hare, and water vole records exist within 1km of the site dated between 2003 to 2013.
Primary habitats on site	The site is located on improved agricultural land (stubble field) and semi-improved poor grassland. The western boundary of Site 1 extends into a patch of mixed conifer and broadleaved woodland, adjacent to Clockhill. There is a small patch of tall ruderals and scattered scrub to the north of the site. The road drain within the northern buffer of Site 1, which flows north from the Lang Stracht minor road was almost dry at the time of the survey, with no flow. The ditch has long stretches of bare peat with some patches of soft rush (*Juncus effusus)*. A second ditch to the west of Site 1, running south from Lang Stracht was found to be overgrown with rosebay willowherb (*Epilobium angustifolium*). There are no water features within the site.
Protected species potential	Site 1, as with all of the option areas, is suitable for winter foraging and roosting of waterfowl. It is recommended that consultation is urgently undertaken with Scottish Natural Heritage (SNH) to determine if the site is a known important wintering area for waterfowl. The outcome of the consultation will determine the need for targeted winter bird surveys. Both ditches within the buffer of Site 1 are considered to have low to negligible potential for water voles and otters. The patch of mixed conifer and broadleaved woodland, adjacent to Clockhill is considered suitable for badgers.
Confirmation of surveys required	The following surveys are recommended for Site 1: • Depending on the outcome of SNH consultation there may be the requirement to undertake winter walkover surveys for ornithological interests. The survey, if required, would involve three visits spread between November and March. • Badger survey of suitable habitat within 100m of the site, particularly within the patch of mixed conifer and broadleaved woodland, adjacent to Clockhill. • A walkover to identify squirrel dreys within any woodland affected at Site 1.
Noise	
Nearest receptors	There are a number of residential/ commercial properties surrounding the site, namely: • Mile-End Drum (approximately 40m to the north) • Drumlea (approximately 120m to the north) • Da-Bhinn(approximately 30m to the north) • Clockhill (approximately 30m to the west) • Little Drum (approximately 200m to the east on the opposite site of the A968) There are 11 other properties within 500m of the site boundary on all sides of the site.
Background observation (noise)	The most noticeable sources of noise at the time of the site visit was vehicle noise from the A8948 and loud barking from the kennels at Clockhill.
Archaeology and Cultural Heritage	
Scheduled Monuments	There are no Scheduled Monuments in close proximity to the site.
Listed buildings	There are no listed buildings within or in close proximity to the site
Other designations (designed landscape etc)	There are no landscape designations affecting the site.
Notable features on site	There are no notable features on site.
Setting/aspect of protected features of interest	Agricultural landscape setting, historic land use of 'fields and farming'.

MORL FEASIBILITY STUDY– PLANNING & ENVIRONMENTAL CHECKLIST	
Hydrology, Hydrogeology & Soils	
Nearest watercourse	There are no watercourses in close proximity to the site.
Transport and Access	
Access arrangements	Access could be gained from the A948 which runs along the east of the site or from the C class road that runs along the north of the site. There is also a private access track running to the south of the site which provides access to two farmsteads, Ebriehead and Coulterna. It is considered that the access from the C class road would provide the most suitable access point to the site.
Surfaced road	A948 to the east of the site and C class road to the north.
Distance of joining to public road	Site 1 is approximately 20m from the A948 and 60m from the C class road to the north. The private access track is approximately 30m at the nearest point to the site boundary.
Other comments	The large physical extent of the site is capable of accommodating both the proposed MORL and SHE-T substations. Given the relatively flat and open nature of the site, it is considered that the proposed substations would result in a significant effect on the character and appearance of this existing predominantly rural landscape. Although there are some large existing farm buildings in the landscape, it is considered that the scale of the proposed substations would not enable them to be integrated with these buildings. The scale of the proposed substations, combined with the lack of shelter belts, hedgerows and trees on the site, would mean that the proposed substations would also be visually prominent from the A948 and a number of residential properties to the north of the site.

MORL FEASIBILITY STUDY– PLANNING & ENVIRONMENTAL CHECKLIST	
Site Reference and Location	Site 2 – Ebriehead (390474, 844659) Site 2 is located approximately 2.7 km to the south of the settlement of New Deer. It is bounded by the A948 to the east; and agricultural land to the north, south and west. The properties within the small hamlet of Nethermuir are located to the south with Ebriehead Farm lying to the west of the site.
Planning	
Current designation in Development Plan	The Development Plan for the site currently comprises the Aberdeen City and Shire Structure Plan 2009 and the Aberdeenshire Local Development Plan (2012) There are no specific policy designations in the Development Plan for this site. However the following general development policies will apply from the Aberdeenshire Local Development Plan: ▪ Policy 3 - Development in the Countryside ▪ Policy 8 – Layout, siting and design of new development ▪ Policy 11 – Natural Heritage ▪ Policy 12 – Landscape Conservation ▪ Policy 13 – Protecting, improving and conserving the historic environment.
Land Use	
Land Use	The site is currently agricultural land and is predominantly improved grassland.
Agricultural Land Classification	The site falls within the Macaulay Land Capability for Agriculture Category 3 – Land capable of producing a moderate range of crops. The land falls mostly within sub category 3_1 with part of the site falling within category 3_2. The sub categories are detailed further below; ▪ Category 3_1 – Land capable of producing consistently high yields of a narrow range of crops (principally cereals and grass) and/or moderate yields of a wider range (including potatoes, field beans and other vegetables and root crops). Shot grass leys are common. ▪ Category 3_2 – Land capable of average production but high yields of barely oats and grass are often obtained. Other crops are limited to potatoes and forage crops. Grass leys are common and reflect the increasing growth limitations for arable crops and degree of risk involved in their production
Rights of Way / Core Paths	There are no core paths on or within proximity of the site. No footpaths crossing the site were identified during the field visit. Nevertheless, it may be that there are unclassified rights of way running within or adjacent to the site but this would need to be confirmed through consultation with Aberdeenshire Council and Scotways.
Landscape and Visual	
Nature of Landscape	The landscape character or the area is defined as 'Agricultural Heartland'. The site is set in undulating agricultural land with the topography of the land sloping gently down from north to south. The site is bounded by post and wire fencing and hence is relatively open in views from the A948. To the east of the site, beyond the A8948, runs a line of mature broadleaved woodland which provides effective screening of the site from the east. The existing overhead electricity pylons which cross the site and can be seen into the distance to the west of the site from the A948 are a significant feature in the landscape but do not undermine the rural character of the area.
Possible receptors	There are several potentially sensitive properties in close proximity to the site. Potential impacts upon these properties are discussed below: ▪ Ebriehead (390156, 844509) lies to the west of the site but existing planting around the property means that views of the site are predominantly screened. ▪ Carpenters Croft (390744, 844265) lies to the south of the site on the northern edge of Nethermuir. The upper storey of this house currently experiences out across the site. ▪ Whynieton Hollow (390186, 844222) lies to the south west of the site. However, due to intervening topography the site experiences only partial views of the site. ▪ Whynieton Farm (389918, 844088) lies approximately 515m to the south west of the site. Views of the site are relatively well screened by the intervening Ebriehead property and associated planting.
Ecology	
International and national nature conservation designations	N/A
Local nature conservation designations	There are no local nature conservation designations within the site. An area of Ancient and Long-established woodland is located within 100m of the site boundary to the east, along the A948. It is considered that this designation will be unaffected by works within the site boundary. If access to the site is taken via the A948, there is the potential for this local designation to be impacted.

MORL FEASIBILITY STUDY– PLANNING & ENVIRONMENTAL CHECKLIST	
Protected species records	Otter, red squirrel, brown hare, and water vole records exist within 1km of the site dated between 2003 to 2013.
Primary habitats on site	Site 2 is sited on improved grassland which has recently been sown and is being grazed by a small number of sheep. There is a small field drain to the west of the site, and access restrictions prevented this from being investigated. There is a conifer plantation, interspersed with single broadleaved trees, 150m north west of the site. There is a narrow strip of woodland running to the east of the A948 which is within 100m of the eastern boundary of Site 2. There is no woodland or water features within Site 2.
Protected species potential	There is potential for otter and water vole within the field drain, running north to south, within the buffer to the west of the site. The patch of conifer plantation, interspersed with single broadleaved trees, north west of the site has moderate badger potential. This woodland is within 150m of the north west boundary of Site 2. Site 2, as with all of the option areas, is suitable for winter foraging and roosting waterfowl. See the recommendations within Site 1.
Confirmation of surveys required	The following surveys are recommended at Site 2: ▪ Otter and water vole survey of suitable habitat within 250m of the site ▪ Badger walkover survey of suitable habitat within 100m of the site ▪ Depending on the outcome of SNH consultation there may be the requirement to undertake winter walkover surveys for ornithological interests. The survey, if required, would involve three visits spread between November and March.
Noise	
Nearest receptors	There are a number of residential/ commercial properties surrounding the site, namely: ▪ Ebriehead (approximately 110m to the east ▪ Whynieton Hollow (approximately 250m to the south-west) ▪ Nethermuir settlement (approximately 100m to the south) ▪ Woodside (approximately 250m to the east on the opposite site of the A968) There are 4 other properties within 500m of the site boundary on all sides of the site.
Background observation (noise)	The most notable sources of noise at the time of the site visit was vehicle noise from the A948.
Archaeology and Cultural Heritage	
Scheduled Monuments	There are no Scheduled Monuments in close proximity to the site.
Listed buildings	There are no listed buildings within or in close proximity to the site
Other designations (designed landscape etc)	There are no landscape designations affecting the site.
Notable features on site	There are no notable features on site.
Setting/aspect of protected features of interest	Agricultural landscape setting, historic land use of 'fields and farming'.
Hydrology, Hydrogeology & Soils	
Nearest watercourse	There are no watercourses in close proximity to the site.
Transport and Access	
Access arrangements	Access could be gained from the A948 which runs along the east of the site. There are also private access tracks running to the south and north of the site which provide access to private properties. There is also a private access track running through the site which provides access to Ebriehead. It is considered that access from the A948 may be difficult due to fast vehicle speeds on this stretch of road.
Surfaced road	A948 to the east of the site.
Distance of joining to public road	Site is approximately 20m from the A948 and 20m from the access track to the south and 100m from the access track to the north.
Other comments	The site boundary as provided by MORL is not physically capable of accommodating both the proposed MORL and SHE-T substations. However it is considered that there is scope to extend the identified site boundary in order to accommodate both substations, albeit that this would likely result in the larger SHE-T substation being in relatively close proximity to Ebriehead. Development of both substations would also likely require the private access to Ebriehead to be rerouted. Given the relatively flat and open nature of the site, it is considered that the proposed substations would result in a significant effect on the character and appearance of this existing predominantly rural landscape. The scale of the proposed substations, combined with the lack of shelter belts, hedgerows and trees on the site would mean that the proposed substation

	would be visually prominent from the A948. However, it is recognised that there are relatively few properties in comparison to the other substation option areas considered that would experience a significant visual impact should the proposed substations be constructed.

MORL FEASIBILITY STUDY– PLANNING & ENVIRONMENTAL CHECKLIST	
Site Reference and Location	Site 3 – Woodside (390888, 844756) Site 3 is located approximately 2.8 km to the south east of the nearby settlement of New Deer. It is bounded by a mature woodland belt to and the A948 to the west; the B9106 and agricultural land to the north; and mature woodland and agricultural land to the south and east.
Planning	
Current designation in Development Plan	The Development Plan for the site currently comprises the Aberdeen City and Shire Structure Plan 2009 and the Aberdeenshire Local Development Plan (2012) There are no specific policy designations in the Development Plan for this site. However the following general development policies will apply from the Aberdeenshire Local Development Plan: ▪ Policy 3 - Development in the Countryside ▪ Policy 8 – Layout, siting and design of new development ▪ Policy 11 – Natural Heritage ▪ Policy 12 – Landscape Conservation ▪ Policy 13 – Protecting, improving and conserving the historic environment.
Land Use	
Land Use	Agricultural grazing land. There are two residential properties to the south of the site, namely Woodside and Morven Cottage. Badnyrieves Farm lies to the north east of the site.
Agricultural Land Classification	The site falls within the Macaulay Land Capability for Agriculture Category 3 – Land capable of producing a moderate range of crops, and within sub category 3_1:; ▪ Category 3_1 – Land capable of producing consistently high yields of a narrow range of crops (principally cereals and grass) and/or moderate yields of a wider range (including potatoes, field beans and other vegetables and root crops). Shot grass leys are common.
Rights of Way / Core Paths	There are no core paths on or within close proximity to the site. No footpaths crossing the site were identified during the field visit. Nevertheless, it may be that there are alleged rights of way running within or adjacent to the site. This would need to be confirmed through consultation with Aberdeenshire Council and ScotWays. The Formartine and Buchan Way runs to the east of the site approximately 750m away.
Landscape and Visual	
Nature of Landscape	The landscape character of the area is defined as 'Agricultural Heartland'. Long narrow mature tree belts provide effective screening of the site when viewed from the A948 (including its junction with the B9106) and from the east. This tree belt is identified as ancient and long-established woodland. A tree belt running along the south of the site is also identified as ancient and long-established woodland. There is also some recent broadleaved planting running through the middle of the site which provides some low level visual screening. The topography of the site slopes gently down from north to south. Due to the existing mature woodland belt to the north, west and south the site is relatively well self contained and feels quite secluded. Although there are several man made features within the landscape, including the existing overhead electricity pylons, overhead electricity lines on wooden poles, and a telecommunications mast and wind turbine to the north west of the site, the site retains its rural landscape character. The properties of Badnyrieves, Woodside, Morven Cottage and the hamlet of Nethermuir lie in close proximity to this site.
Possible receptors	Given the screening provided by the existing woodland tree belt, potential landscape and visual effects upon residential properties would be primarily confined to the following three properties: ▪ Woodside (390902, 844510) lies to the immediate south of the site. The primary views of this two storey property are southwards and westwards towards the A948. Views to the rear of the building would be partly screened by a combination of outbuildings and existing planting. ▪ Morven Cottage (391067, 844515) lies to the immediate south of the site. the primary views of this single storey property are westwards towards Woodside and eastwards to the rear garden of the property. However, there would be oblique views north westwards towards the site. ▪ Badnyrieves Farm (391048, 845092) lies to the north west of the site. The property is orientated towards the site and sits at an elevated position above the site. Although the property has open views towards the site, the existing overhead power lines and associated pylons form prominent features within this existing view.

MORL FEASIBILITY STUDY– PLANNING & ENVIRONMENTAL CHECKLIST	
Ecology	
International and national nature conservation designations	N/A
Local nature conservation designations	There are no local nature conservation designations within the site. An area of Ancient and Long-established woodland is located within 100m of the site boundary to the west, along the A948. It is considered that this designation will be unaffected by works within the site boundary. If access to the site is taken via the A948 or the first 150m of the B9106, there is the potential for this local designation to be impacted. Instead, it is recommended that access is taken from the existing minor track immediately north of the site so as to avoid the need for any tree felling. There is a patch of Semi-natural woodland cover within 100m of the site to the east and south of the site. It is considered that these designations will be unaffected by works within the site boundary.
Protected species records	Otter, red squirrel, brown hare, and water vole records exist within 1km of the site dated between 2003 to 2013.
Primary habitats on site	Site 3 is located on poor semi-improved grassland which was being grazed by cattle at the time of the survey. There has been recent planting of a mix of tree species through the middle of the site, presumably in an effort to connect the two narrow woodland strips located to the east and west of Site 3. The woodland strip to the west of the site, along the A948, is mature sycamore on flat, stony ground. The woodland strip to the east of Site 3 is mature broadleaved woodland of mixed species. The patch of woodland south of the site is young broadleaved woodland with a dense understory. The large woodland to the north east of the site is young conifer plantation (approximately 5m high and densely planted). It was not possible to fully investigate the drains to the east and north east of the site. Investigations from the B9106 indicated that the ditch to the east of the site is heavily overgrown with tall grasses and gorse. An area of marshy grassland, dominated by soft rush, exists to the east of the site. There are stone outbuildings at Badnyrieves.
Protected species potential	Site 3, as with all of the option areas, is suitable for winter foraging and roosting waterfowl. See the recommendations within Site 1. The steep banks of the ditch to the east of Site 3 provide some suitability for water voles but the ditch has low suitability for otters. The woodland strip to the east of the site and the patch of woodland to the south are considered suitable for badgers, whilst the strip to the west showed no sign of badgers during the survey from the A948. The large woodland to the north east of the site has low potential for badgers as it appears densely planted. The area of marshy grassland to the east of the site provides potential foraging habitat for bird species, such as barn owl and bat species. The stone outbuildings at Badnyrieves provides potential roosting and nesting habitat for barn owl and bat species.
Confirmation of surveys required	The following surveys are recommended at Site 3: ▪ Depending on the outcome of SNH consultation there may be the requirement to undertake winter walkover surveys for ornithological interests. The survey, if required, would involve three visits spread between November and March. ▪ Badger walkover survey of suitable habitat within 100m of the site. ▪ Otter and water vole surveys of suitable habitat within 250m of the site. ▪ A walkover survey of all buildings within 500m of the site to assess their potential for roosting (and nesting) bat and bird species.
Noise	
Nearest receptors	There are a number of residential/ commercial properties surrounding the site, namely: ▪ Woodside (approximately 10m to the south) ▪ Morven Cottage (approximately 60m to the south) ▪ Badnyrieves (approximately 50m to the north-east) There are 7 other properties and the hamlet of Nethermuir within 500m of the site boundary on all sides of the site.
Background observation (noise)	The existing mature woodland which surrounds the site means the site is relatively well screened from traffic noise from the A948. This was confirmed by the site visit which identified relatively low background noise levels at the site.
Archaeology and Cultural Heritage	
Scheduled Monuments	There are no Scheduled Monuments in close proximity to the site.
Listed buildings	There are no listed buildings within or in close proximity to the site
Other designations (designed	There are no landscape designations affecting the site.

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landscape etc)	
Notable features on site	There are no notable features on site
Setting/aspect of protected features of interest	Agricultural landscape setting, historic land use of 'fields and farming'.
Hydrology, Hydrogeology & Soils	
Nearest watercourse	There are no watercourses on or in close proximity to the site.
Transport and Access	
Access arrangements	Access could be gained from the A948 which runs along the west of the site or the B9106 which runs along the north of the site. Access to the site can be gained off the B9106 via the track serving Badnyrieves Farm steading. Ancient woodland is considered a sensitive receptor and there is the potential for loss of ancient woodland to allow access to the site. There is also a private access track which provides access to Woodside and Morven Cottage.
Surfaced road	A948 to the west of the site and B9016 to the north.
Distance of joining to public road	Site is approximately 70m from the A948 and 50m from the B9016 to the north. The unclassified access track is approximately 130m at the nearest point to the site boundary.
Other comments	The site is physically capable of accommodating both the proposed MORL and SHE-T substations, albeit that given the size of the site this would require the proposed substations to be located in very close proximity to both Woodside and Morven Cottage. On this basis it is considered that this site is unlikely to be acceptable given potential impacts upon residential amenity.

MORL FEASIBILITY STUDY– PLANNING & ENVIRONMENTAL CHECKLIST	
Site Reference and Location	Site 4 – Myre of Bedlam (387381, 845491) Site 4 is located approximately 1.6 km to the south west of the nearby settlement of New Deer. It is bounded by the B9170 and a small buffer strip comprising agricultural land to the east; an unclassified rural road and a similar buffer strip to the north; and by agricultural land to the south and west. The properties of Tanmara, Moss-side, Hardbedlam, Myre of Bedlam, Knaps of Bedlam, Blackhouse, Eastfield and Benview lie in close proximity to this site.
Planning	
Current designation in Development Plan	The Development Plan for the site currently comprises the Aberdeen City and Shire Structure Plan 2009 and the Aberdeenshire Local Development Plan (2012) There are no specific policy designations in the Development Plan for this site. However the following general development policies will apply from the Aberdeenshire Local Development Plan: ▪ Policy 3 - Development in the Countryside ▪ Policy 8 – Layout, siting and design of new development ▪ Policy 11 – Natural Heritage ▪ Policy 12 – Landscape Conservation ▪ Policy 13 – Protecting, improving and conserving the historic environment.
Land Use	
Land Use	The site is currently agricultural land and is predominantly semi-improved grassland. There are a number of residential properties scattered around the site, albeit that two of the nearest properties to the north east of the site are currently uninhabited.
Agricultural Land Classification	The site falls within the Macaulay Land Capability for Agriculture Category 3 – Land capable of producing a moderate range of crops, and within sub category 3_1:; ▪ Category 3_1 – Land capable of producing consistently high yields of a narrow range of crops (principally cereals and grass) and/or moderate yields of a wider range (including potatoes, field beans and other vegetables and root crops). Shot grass leys are common.
Rights of Way / Core Paths	There are no core paths on or within close proximity to the site. No footpaths crossing the site were identified during the field visit. Nevertheless, it may be that there are alleged rights of way running within or adjacent to the site. This would need to be confirmed through consultation with Aberdeenshire Council and ScotWays.
Landscape and Visual	
Nature of Landscape	The landscape character of the area is defined as 'Agricultural Heartland'. The site is set in rolling agricultural farmland which sits relatively low in relation to the surrounding landscape, overlooked by the B9170 and Myre of Bedlam to the east. Consequently the site is relatively well screened from the surrounding more distance landscape on all sides. There is very little tree planting on or in the vicinity of the site, and the site is surrounded by post and wire fencing only. Although the existing overhead electricity pylons run across the site, the site still retains its rural landscape character. A number of the neighbouring farms, including Myre of Bedlam, Benview, Eastfield and Knaps of Bedlam have large agricultural shed units associated with them. There is a variation in the landscape between these farmsteads and other residential dwellings which lie along the C class road to the north of the site.
Possible receptors	There are a number of properties to the north, east and west of the site that are potentially sensitive receptors to the development of a substation on this site. Potential impacts upon these properties are discussed below: ▪ Moss-side (387329, 845929) is orientated towards the site but is relatively well screened due to planting to the front of the property, albeit the upper storey of the front of the house would likely experience open views of the site. ▪ Tanmara (387087, 845682) currently experiences open views out across the site. ▪ Benview (386547, 845606) has open views out across the site, albeit that there is some screening provided by planting around the property. ▪ Eastfield (386569, 845159) is orientated in an east west direction and consequently primary views are to the north and south and not towards the site. ▪ Knaps of Bedlam (387197, 844813) is well screened from the site by existing planting and farm buildings to the north and east. Consequently key views are westwards away from the site. ▪ Myres of Bedlam (387765, 845545) sits on an elevated position to the east of the site and overlooks out across the site. Some large mature trees provide screening of the site from the front of the property. No residential properties were identified associated with Blackhouse Farm (386809, 844912).

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Ecology	
International and national nature conservation designations	N/A
Local nature conservation designations	There is a patch of Semi-natural woodland cover immediately north of the site and within 400m south west of the site. It is considered that these designations will be unaffected by works within the site boundary.
Protected species records	Otter, red squirrel, brown hare, and water vole records exist within 1km of the site dated between 2003 to 2013.
Primary habitats on site	The site is located on a mix of improved (sown) grassland, poor semi-improved grassland and marshy grassland. There are a number of drains flowing through the site into Black Burn to the west of the site. Black Burn had shallow, slow flowing water at the time of the survey and had a good covering of vegetation. The banks are steep in places. There are a number of buildings (farm outbuildings and ruined residences) within the buffer areas. There are no significant patches of woodland in the site or within the buffer area for the site. A number of small areas of conifer plantations are located south and north of the site, with one small patch located within the site (to the south west).
Protected species potential	Site 4, as with all of the option areas, is suitable for winter foraging and roosting waterfowl. See the recommendations within Site 1. The small patches of conifer plantations in the survey area are not considered suitable for badgers, but may provide bird nesting habitat. Black Burn is considered suitable for water voles and potentially foraging otters. The minor drains have varying levels of water vole suitability. A female or juvenile sparrowhawk was observed hunting along a ditch to the north east of the site. The buildings within the buffer area have varying levels of suitability for roosting and nesting bird species (such as barn owls) and bats. There is low potential for badgers within the site.
Confirmation of surveys required	The following surveys are recommended at Site 4: ▪ Depending on the outcome of SNH consultation there may be the requirement to undertake winter walkover surveys for ornithological interests. The survey, if required, would involve three visits spread between November and March. ▪ Otter and water vole survey of all suitable habitat within 250m of the site. ▪ A walkover survey of all buildings within 500m of the site to assess their potential for roosting (and nesting) bat and bird species. ▪ A badger survey of all suitable habitat within 100m of the site.
Any other comments	There is a sedimentation risk to Black Burn for any works within Site 3. Appropriate pollution prevention measures would be required to mitigate this potential risk.
Noise	
Nearest receptors	There are a number of residential/ commercial properties surrounding the site, namely: ▪ Myre of Bedlam (approximately 80m to the east) ▪ Knaps of Bedlam (approximately 50m to the south) ▪ Springfield (approximately 200m to the south) ▪ Blackhouse (approximately 220m to the south-west) ▪ Eastfield (approximately 160m to the south) ▪ Tanamara (approximately 50m to the north) ▪ Moss-side (approximately 200m to the north) ▪ Benview (approximately 180m to the north-west) There are 4 other properties within 500m of the site boundary on all sides of the site
Background observation (noise)	The site visit identified relatively low background noise levels at the site.
Archaeology and Cultural Heritage	
Scheduled Monuments	There are no Scheduled Monuments in close proximity to the site.
Listed buildings	There are no listed buildings within or in close proximity to the site
Other designations (designed landscape etc)	There are no landscape designations affecting the site.
Notable features on site	There are no notable features on site.
Setting/aspect of protected features of interest	Agricultural landscape setting, historic land use of 'fields and farming'.
Hydrology, Hydrogeology & Soils	
Nearest watercourse	There is a watercourse (The Black Burn) running to the south/ south-west of the site approximately 40 m at the nearest point from the south western boundary of the site. The watercourse is identified within the SEPA 1 in 200 year flood map (5% probability), however the area identified as having the potential for flooding is just outwith the site boundary. There are

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	also several small watercourses which run through the site.
Transport and Access	
Access arrangements	The B9170 runs to the south of the site and a C class road runs to the north of the site. Potential access to the site can be gained off the B class or the C class rural road.
Surfaced road	The B9170 to the south and category C road to the north.
Distance of joining to public road	The B9170 is approximately 60m from the site boundary and the category C road is approximately 10m from the site boundary at the closest point.
Other comments	Given the large physical extent of this identified site, the site is capable of accommodating the proposed MORL and SHE-T substations in several different potential locations. It is considered that the proposed substations would result in a significant effect on the character and appearance of this rural landscape, albeit this effect would be reduced slightly given the sites lowly position in relation to the surrounding topography. The proposed substations would be visually prominent from the properties along the C class road to the north of the site, in particular from Tanamara.

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Site Reference and Location	Site 5 – Moss-side (386315, 845380) Site 5 is located approximately 2.6 km to the south west of the closest settlement New Deer. It is bounded by a C class rural road and a buffer strip comprising agricultural land to the south and by agricultural land on all other sides. The properties of Pitaig, Benview, Eastfield, Moss-side Cottage and Moss Croft lie in close proximity to this site which topographically slopes at a steeper gradient down from north to south when compared to the other substation option areas considered.
Planning	
Current designation in Development Plan	The Development Plan for the site currently comprises the Aberdeen City and Shire Structure Plan 2009 and the Aberdeenshire Local Development Plan (2012) There are no specific policy designations in the Development Plan for this site. However the following general development policies will apply from the Aberdeenshire Local Development Plan: ▪ Policy 3 - Development in the Countryside ▪ Policy 8 – Layout, siting and design of new development ▪ Policy 11 – Natural Heritage ▪ Policy 12 – Landscape Conservation ▪ Policy 13 – Protecting, improving and conserving the historic environment.
Land Use	
Land Use	The site is currently predominantly agricultural grazing land, with the eastern part of the site used for growing hay. The south west corner of the site, which is more wetland in characteristics, does not appear to be well used for agricultural grazing.
Agricultural Land Classification	The site falls within the Macaulay Land Capability for Agriculture Category 3 – Land capable of producing a moderate range of crops, and within sub category 3_1:; ▪ Category 3_1 – Land capable of producing consistently high yields of a narrow range of crops (principally cereals and grass) and/or moderate yields of a wider range (including potatoes, field beans and other vegetables and root crops). Shot grass leys are common.
Rights of Way / Core Paths	There are no core paths on or within close proximity to the site. No footpaths crossing the site were identified during the field visit, albeit the access track to Piltaig is signed as a footpath and may therefore be a right of way. This would need to be confirmed through consultation with Aberdeenshire Council and ScotWays.
Landscape and Visual	
Nature of Landscape	The landscape character of the area is defined as 'Agricultural Heartland'. The site is rolling undulating farmland with relatively few properties in close proximity in relation to the other substation option areas considered. The site slopes up from the C class road to the south of the site towards Piltaig. The south west corner of the site is relatively enclosed, being screened from Moss-side Cottage and Moss Croft by mature vegetation associated with these properties. Although the existing overhead electricity pylons cross the site, the site remains rural in character.
Possible receptors	There are relatively few properties who may potentially sensitive receptors to the development of a substation on this site. Potential impacts upon these properties are discussed below: ▪ Moss-side Cottage (386244, 845167) has no potential views out to the site due to existing dense coniferous tree screening and outbuildings. ▪ Moss Croft (386144, 845197) is currently uninhabited but appears to be being renovated. The rear of the property which is orientated towards the site is screened from the site by dense coniferous trees and shrubs. ▪ Benview (386536, 845591) is orientated with views predominantly to the south and consequently only experiences oblique views towards the site. ▪ Piltaig (386017, 845749) experiences partial views towards the site. The existing overhead power lines and associated pylons are visually prominent within this view. ▪ Eastfield (386576, 845176) has limited potential views of the site due to existing vegetation screening along the C class road.
Ecology	
International and national nature conservation designations	N/A
Local nature conservation designations	There is a patch of Semi-natural woodland cover within 100m of the site to the south and within 400m west of the site. It is considered that these designations will be unaffected by works within the site boundary. It is recommended that access to the site is planned so as to avoid the need for any tree felling.
Protected species records	Otter, red squirrel, brown hare, and water vole records exist within 1km of the site dated between 2003 to 2013.

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Primary habitats on site	Site 5 is located on improved grassland (managed for hay production) and marshy grassland, dominated by soft rush. The ground in Site 5 is wet, with an area of open standing water in the buffer area south west of the site.
Protected species potential	Site 5, as with all of the option areas, is suitable for winter foraging and roosting waterfowl. See the recommendations within Site 1. Marshy grassland within the site and the associated standing water provides suitable foraging habitat for bird species (including kestrel and barn owl), bats and to a lesser extent, otters. Ditches to the east and north of the site have water vole potential.
Confirmation of surveys required	The following surveys are recommended at Site 5: ▪ Depending on the outcome of SNH consultation there may be the requirement to undertake winter walkover surveys for ornithological interests. The survey, if required, would involve three visits spread between November and March. ▪ Otter and water vole survey of all suitable habitat within 250m of the site. ▪ A walkover survey of all buildings within 500m of the site to assess their potential for roosting (and nesting) bat and bird species. ▪ A badger survey of all suitable habitat within 100m of the site.
Any other comments	N/A
Noise	
Nearest receptors	There are a number of residential/ commercial properties surrounding the site, namely: ▪ Benview (approximately 60m to the north-east) ▪ Moss-side cottage(approximately 110m to the south) ▪ Moss Croft (approximately 160m to the south west) ▪ Piltaig (approximately 160m to the north-west) ▪ Eastfield (approximately 200m to the south-east) There are 3 other properties within 500m of the site boundary on all sides of the site.
Background observation (noise)	The site visit identified relatively low background noise levels at the site.
Archaeology and Cultural Heritage	
Scheduled Monuments	There are no Scheduled Monuments in close proximity to the site.
Listed buildings	There are no listed buildings within or in close proximity to the site.
Other designations (designed landscape etc)	There are no landscape designations affecting the site.
Notable features on site	There are no notable features on site.
Setting/aspect of protected features of interest	Agricultural landscape setting, historic land use of 'fields and farming'.
Hydrology, Hydrogeology & Soils	
Nearest watercourse	A small watercourse is located to the north west corner of the site.
Transport and Access	
Access arrangements	A C class road runs to the south of the site and there is an access track running along the west of the site which provides access to Piltaig.
Surfaced road	C class road to the south.
Distance of joining to public road	C class road is 50m from the site boundary at the closest point.
Other comments	The site is not physically capable of accommodating both the MORL and SHE-T substations. The site is visually well screened and in this regard would offer a generally acceptable location for a substation location. The relatively enclosed nature of the site would help to reduce the significance of the impact of the proposed substations on the existing rural character and appearance of the site.

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Site Reference and Location	Site 6 – East Swanford (382971, 845112) Site 6 is located 4.9 km to the south west of the nearest settlement, New Deer. It is partly dissected by a C class rural road in its northern section and bounded by the same road to the east as it relates to the southern half of the site. Potential access can be gained form this road. To the north, south and west the site is surrounded by rolling agricultural land. Nine properties lie in close proximity to the site as well as one derelict property (to the north).
Planning	
Current designation in Development Plan	The Development Plan for the site currently comprises the Aberdeen City and Shire Structure Plan 2009 and the Aberdeenshire Local Development Plan (2012) There are no specific policy designations in the Development Plan for this site. However the following general development policies will apply from the Aberdeenshire Local Development Plan: • Policy 3 - Development in the Countryside • Policy 8 – Layout, siting and design of new development • Policy 11 – Natural Heritage • Policy 12 – Landscape Conservation • Policy 13 – Protecting, improving and conserving the historic environment.
Land Use	
Land Use	The site is a mix of arable farmland and agricultural grazing land.
Agricultural Land Classification	The site falls within the Macaulay Land Capability for Agriculture Category 3 – Land capable of producing a moderate range of crops, and within sub category 3_1:; • Category 3_1 – Land capable of producing consistently high yields of a narrow range of crops (principally cereals and grass) and/or moderate yields of a wider range (including potatoes, field beans and other vegetables and root crops). Shot grass leys are common.
Rights of Way / Core Paths	There are no core paths on or within close proximity to the site. No footpaths crossing the site were identified during the field visit. Nevertheless, it may be that there are alleged rights of way running within or adjacent to the site. This would need to be confirmed through consultation with Aberdeenshire Council and ScotWays.
Landscape and Visual	
Nature of Landscape	The landscape character of the area is defined as 'Agricultural Heartland'. The site is a gently rolling landscape, although there are small areas to the north-east and west of the site where the landform drops more sharply away. The landscape is largely open, with occasional woodland planting found associated with properties and farmsteads. The site is predominantly surrounded by post and wire fencing, with occasional shrub hedges and woodland planting. Although the existing overhead electricity pylons cross the site, the landscape remains rural in character.
Possible receptors	There are a number of scattered rural properties and farms scattered around this site who may be potentially sensitive to the development of a substation on this site. However, the majority of these properties have either been located in the lower undulating parts of the landscape or have boundary treatments which partly screen views of the site. Potential impacts upon properties are discussed below: • Upper Burnside and Burnside (382693, 845540) are single storey properties which currently experience oblique views out in a south easterly direction towards the site. Views from Burnside are also partly screened be vegetation to the front of the property. • Maryhill House (382686, 845653) does not appear to be in use as a residential property and experiences limited views towards the site. • Cragganmore (382905, 845660) is a one and a half storey house which faces southwards towards the site. Some planting to the front of the property provides partial screening. • Maryhill (382943, 845653) is a derelict property. • The Neuk (383129, 845533) appears to be uninhabited. • Abbotshaugh (383489, 845540) is a one and a half storey house. Although the property has some asoicated outbuildings and boundary tree planting, the property does experience relatively open views to the south towards the site. However the existing overhead power lines and associated pylons lie in close proximity to the site and form prominent features within this existing view. • Netherton of Greens (383560, 845750) lies to the north east of the site. However, the intervening topography and vegetation surrounding this property effectively screens views of the site. • Laurelston (383793, 845648) lies to the north east of the site where the land falls away more steeply from the identified site option boundary. Nevertheless, the property does experience uphill views towards the site, particularly from the upper storey of the property.

	• East Swanford (382830, 844996) is relatively well screened from views of the site by mature trees which surround the property. • Oakwood (383897, 8454119), although relatively distant in relation to the other properties, faces westwards towards the site and has relatively uninterrupted views south-westwards from the front of the property across the site. • Mains of Asleid (383664, 844871) comprises one single storey property which is orientated towards the site and a second two storey property which is orientated southwards away from the site. The single storey property is relatively well screened from the site by some mature planting the south west and due to its lower position in the undulating landscape. • Upper Mains of Asleid (383680, 844405) is a one and a half storey property whose primary views are south eastwards away from the site. • Asleid Cottages (383711, 844179) comprises a one and a half storey property whose primary views are westwards towards Rowan Brae. However, given the open nature of the intervening landscape, the property would experience oblique views north westwards towards the site. • Burnside Milbrex (382952, 844231) lies to the south west of the site. The front of the property faces southwards towards the road, whilst views towards the site from the rear and side of the property are well screened by surrounding mature trees.
Ecology	
International and national nature conservation designations	N/A
Local nature conservation designations	There is a patch of Semi-natural woodland cover within 100m of the site to the east and four small isolated patches to the west of the site. It is considered that these designations will be unaffected by works within the site boundary. It is recommended that access to the site is planned so as to avoid the need for any tree felling.
Protected species records	Otter, red squirrel, brown hare, and water vole records exist within 1km of the site dated between 2003 to 2013.
Primary habitats on site	Site 6 is located on a mix of arable farmland (including stubble fields, hay fields and sown crops) and high density cattle and sheep grazing. There are small patches of conifer plantations and broadleaved woodland within the buffer area. Ditches to the east of the site appear to flow into Little Water, which is a fast flowing stream between 50cm and 1.5m wide. A large area of the western buffer was not accessible and could not be seen from the road. Open water 400 to 500m north east of the site supports mallards and teal. In additional to these larger waterbodies, four smaller waterbodies are visible within the buffer area, from the mapping. There are a number of old outbuildings within the buffer area which are in varying states of repair.
Protected species potential	Site 6, as with all of the option areas, is suitable for winter foraging and roosting waterfowl. See the recommendations within Site 1. The small patches of conifers and broadleaved woodland are considered to offer low to negligible potential for protected species, although they may provide nesting bird habitat. Waterfowl using the open water over 400m north east of the site are unlikely to be effected by the works. The smaller waterbodies are likely to support amphibians, but given the northern latitude of the site, great crested newts are considered unlikely to be present. The old outbuildings within the buffer area provides potential for roosting and nesting bird species (such as barn owl) and bat species. Ditches within the buffer area provide potential for water vole but minimal otter potential.
Confirmation of surveys required	The following surveys are recommended at Site 6: • Depending on the outcome of SNH consultation there may be the requirement to undertake winter walkover surveys for ornithological interests. The survey, if required, would involve three visits spread between November and March. • Otter and water vole survey of all suitable habitat within 250m of the site. • A walkover survey of all buildings within 500m of the site to assess their potential for roosting (and nesting) bat and bird species. • A badger survey of all suitable habitat within 100m of the site.
Any other comments	
Noise	
Nearest receptors	There are a number of residential/ commercial properties surrounding the site, namely: • The Neuk (approximately 110m to the north) • Abbotshaugh (approximately 20m to the north) • Oakwood (approximately 250m to the south east) • North Mains of Asleid (approximately 250m to the south east) • Mains of Asleid (approximately 250m to the south east) • Upper Mains of Asleid (approximately 60m to the east) • Asleid Cottages (approximately 200m to the south-east)

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	• Burnsite (approximately 60m to the south-west) • East Swanford (approximately 100m to the west) There are 10 other properties within 500m of the site boundary on all sides of the site.
Background observation (noise)	The site visit identified relatively low background noise levels at the site.
Archaeology and Cultural Heritage	
Scheduled Monuments	There are no Scheduled Monuments in close proximity to the site.
Listed buildings	There are no listed buildings within or in close proximity to the site. The nearest listed building is approximately 750 m to the south of the site.
Other designations (designed landscape etc)	There are no landscape designations affecting the site.
Notable features on site	There is one non-statutory listed features (Royal Commission on the Ancient and Historic Monuments of Scotland) just to the north of the site boundary. • Listed as 'term pending' http://canmore.rcahms.gov.uk/en/site/174242/details/abbotshaugh/
Setting/aspect of protected features of interest	Agricultural landscape setting, historic land use of 'fields and farming'.
Hydrology, Hydrogeology & Soils	
Nearest watercourse	There is a watercourse (Burn of Asleid) running to the west of the site approximately 150m at the nearest point from the north- eastern boundary of the site. The watercourse is identified within the SEPA 1 in 200 year flood map (5% probability), however the area identified as having the potential for flooding is outwith the site boundary.
Transport and Access	
Access arrangements	There are C class to the north, south and east of the site and there are a number of private access tracks to properties running throughout the site.
Surfaced road	C class roads running to the north, south and east of the site.
Distance of joining to public road	Approximately 40m to C class roads.
Other comments	The large physical extent of the site is capable of accommodating both the proposed MORL and SHE-T substation in several potential locations. Given the extent and relatively open nature of the site, it is considered that the proposed substations would result in a significant effect on the character and appearance of this rural landscape. Although there are a number of properties and farmsteads scattered in close proximity to the site, due to a combination of the undulating topography of the site and the greater number of properties that benefit from mature planting around them, the majority of properties do not experience wide open panoramic views across the whole site. From a visual amenity perspective, it is considered that locating both the substations to the south of the site would be the preferred location.

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Site Reference and Location	Site 7 - Millbrex Site 7 is located approximately 6.3 km from the nearest settlement, New Deer. It is bounded by C Class rural roads to the west and south both with intervening buffer strips of agricultural land. To the north and east agricultural land surrounds the site. The properties of Blackpool, Lean-Ar-Arghaidh, Sunnybank Farm, Burnside, Rowan Brae and North Millbrex lie in close proximity to this site which is located in typically undulating countryside. Topographically the land slopes down from west to east.
Planning	
Current designation in Development Plan	The Development Plan for the site currently comprises the Aberdeen City and Shire Structure Plan 2009 and the Aberdeenshire Local Development Plan (2012) There are no specific policy designations in the Development Plan for this site. However the following general development policies will apply from the Aberdeenshire Local Development Plan: ▪ Policy 3 - Development in the Countryside ▪ Policy 8 – Layout, siting and design of new development ▪ Policy 11 – Natural Heritage ▪ Policy 12 – Landscape Conservation ▪ Policy 13 – Protecting, improving and conserving the historic environment.
Land Use	
Land Use	The site is predominantly agricultural grazing land.
Agricultural Land Classification	The site falls within the Macaulay Land Capability for Agriculture Category 3 – Land capable of producing a moderate range of crops. The land falls mostly within sub category 3_2 with part of the site falling within category3_1. The sub categories are detailed further below; ▪ Category 3_1 – Land capable of producing consistently high yields of a narrow range of crops (principally cereals and grass) and/or moderate yields of a wider range (including potatoes, field beans and other vegetables and root crops). Shot grass leys are common. ▪ Category 3_2 – Land capable of average production but high yields of barely oats and grass are often obtained. Other crops are limited to potatoes and forage crops. Grass leys are common and reflect the increasing growth limitations for arable crops and degree of risk involved in their production
Rights of Way / Core Paths	There are no core paths on or within close proximity to the site. No footpaths crossing the site were identified during the field visit. Nevertheless, it may be that there are alleged rights of way running within or adjacent to the site. This would need to be confirmed through consultation with Aberdeenshire Council and ScotWays.
Landscape and Visual	
Nature of Landscape	The landscape character or the area is defined as 'Agricultural Heartland'. The site is set in undulating agricultural land with the topography of the site sloping gently down from west to east. The site also falls away beyond the north of the site. The site is relatively open, with post and wire fencing to the east, west and south of the site. To the north the site is bounded by gorse hedging and scrub. Although the site is crossed by the existing overhead pylons, the site feels relatively remote with the exception of the properties at North Millbrex which overlook the site. The site is rural in character.
Possible receptors	The properties to the north of the site at Blackpool (381909, 844236), Lean Ar Aghaidh (382147, 844214) and Smiddybank Farm (382406, 844351) are all effectively screened from the site by scrub vegetation along the northern boundary of the site. Burnside Millbrex (382952, 844231) lies to the east of the site. The front of the property faces southwards towards the road, whilst views from the western side of the property and well screened by intervening outbuildings. The key potential sensitive receptors are therefore confined to the properties at North Millbreck (382114, 843642) which overlook the site. These include a traditional two storey farmhouse which faces south eastwards over the site, and three steading conversions which partly overlook the site.
Ecology	
International and national nature conservation designations	N/A

MORL FEASIBILITY STUDY– PLANNING & ENVIRONMENTAL CHECKLIST	
Local nature conservation designations	There is a patch of Semi-natural woodland cover within 250m of the site to the west and five small patches within 500m to the south and east of the site. It is considered that these designations will be unaffected by works within the site boundary. It is recommended that access to the site is planned so as to avoid the need for any tree felling.
Protected species records	Otter, red squirrel, brown hare, and water vole records exist within 1km of the site dated between 2003 to 2013.
Primary habitats on site	The site is predominantly poor grassland, grazed by cattle. The field in the north of the site is ploughed and sown with grass. A hedge has been planted through the site and along the northern boundary. It is not yet well established and provides low value. A large area of the northern buffer was not accessible and could not be seen from the road. There are a number of old outbuildings within the buffer area which are in varying states of repair.
Protected species potential	Site 7, as with all of the option areas, is suitable for winter foraging and roosting waterfowl. See the recommendations within Site 1. Flocks of herring gull and common gull were feeding in fields to the south and north west of the site, within the buffer area. This habitat is locally abundant so is unlikely to be of particular importance to these species. A dead hare was identified on the road immediately south of the site and this species is likely to be present across the entire local area. The old outbuildings within the buffer area provides potential for roosting and nesting bird species (such as barn owl) and bat species. Ditches within the buffer area provide potential for water vole but minimal otter potential. There are no water or woodland features within the site.
Confirmation of surveys required	The following surveys are recommended at Site 7: ▪ Depending on the outcome of SNH consultation there may be the requirement to undertake winter walkover surveys for ornithological interests. The survey, if required, would involve three visits spread between November and March. ▪ Otter and water vole survey of all suitable habitat within 250m of the site. ▪ A walkover survey of all buildings within 500m of the site to assess their potential for roosting (and nesting) bat and bird species.
Any other comments	N/A
Noise	
Nearest receptors	There are a number of residential/ commercial properties surrounding the site, namely: ▪ North Milbrex (approximately 50m to the south) ▪ Blackpool (approximately 100m to the north-west) ▪ Lean-Ar-Arghaidh (approximately 40m to the north) ▪ Smiddybank Farm (approximately 120m to the north) There are various other rural properties scattered in the landscape within 1km.
Background observation (noise)	The site visit identified relatively low background noise levels at the site.
Archaeology and Cultural Heritage	
Scheduled Monuments	There are no Scheduled Monuments in close proximity to the site.
Listed buildings	There are no listed buildings within or in close proximity to the site.
Other designations (designed landscape etc)	There are no landscape designations affecting the site.
Notable features on site	There are two non-statutory listed features (Royal Commission on the Ancient and Historic Monuments of Scotland) within or close to the site boundary: ▪ Cairn (Canmore ID 1990) Blue Cairn has supposed to have been about 40yds in diameter, and 15ft high. Its stones were removed for building purposes, particularly some 15 years ago (c.1856) for a local road. No finds were noted when the site was dug over to a foot in depth. Name Book 1871. No trace – visited by OS (ISS) 30 January 1973 http://canmore.rcahms.gov.uk/en/site/19910/details/burnside+blue+cairn/ ▪ Cairn (Canmore ID 19911) A cairn about 40yds in diameter and 15ft high, has formerly situated about 15 chains ESE of Blue Cairn (NJ84SW 4). The stones were removed some 15 years ago (c. 1856) for the building of a road, and the site cultivated to the depth of a foot. No relics were found. Name Book 1871. No trace. Visited by OS (ISS) 30 January 1973. http://canmore.rcahms.gov.uk/en/site/19911/details/burnside/
Setting/aspect of protected features of interest	Agricultural landscape setting, historic land use of 'fields and farming'.
Hydrology, Hydrogeology & Soils	
Nearest watercourse	There is a watercourse (Burn of Asleid) running to the east of the site approximately 100m at the nearest point from the north- eastern boundary of the site. The watercourse is identified within the SEPA 1 in 200 year flood map (5% probability), however the area identified as

MORL FEASIBILITY STUDY– PLANNING & ENVIRONMENTAL CHECKLIST	
	having the potential for flooding is outwith the site boundary.
Transport and Access	
Access arrangements	There is a C class road to the south of the site. There is also an access track running along the west of the site which provides access to a number of properties but this route is unlikely to be suitable for construction vehicles.
Surfaced road	C class road to the south of the site.
Distance of joining to public road	Less than 50m at closest point from site boundary.
Other comments	The site is physically capable of accommodating both the proposed SHE-T and MORL substations. It is considered that the proposed substation would result in a significant effect on the character and appearance of this rural landscape. However, the visual impact of the proposed development would be predominantly confined to the farmhouse and steading conversions at North Millbrex which overlook the site. Consequently the preference would be to locate the substation to the north east of the site as far as possible.

APPENDIX 3 – ECOLOGY SURVEYS CALENDAR

A guide to optimal ( ) and sub-optimal ( ) survey periods is presented below for the surveys identified in relation to the seven sub-station option areas and potentially the land referenced area.

	J	F	M	A	M	J	J	A	S	O	N	D
Extended Phase 1 Habitat Survey												
Birds – winter bird survey												
Birds – breeding bird surveys and nest searches												
Bat – activity surveys												
Bat – building inspections												
Squirrels – search for dreys in woodland												
Water vole												
Otter												
Badger												

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Environmental Statement

Modified Transmission Infrastructure for
Telford, Stevenson and MacColl Wind Farms

Technical Appendix 2.1 A

Technical Grid Connection Study
(PCS, 2013)

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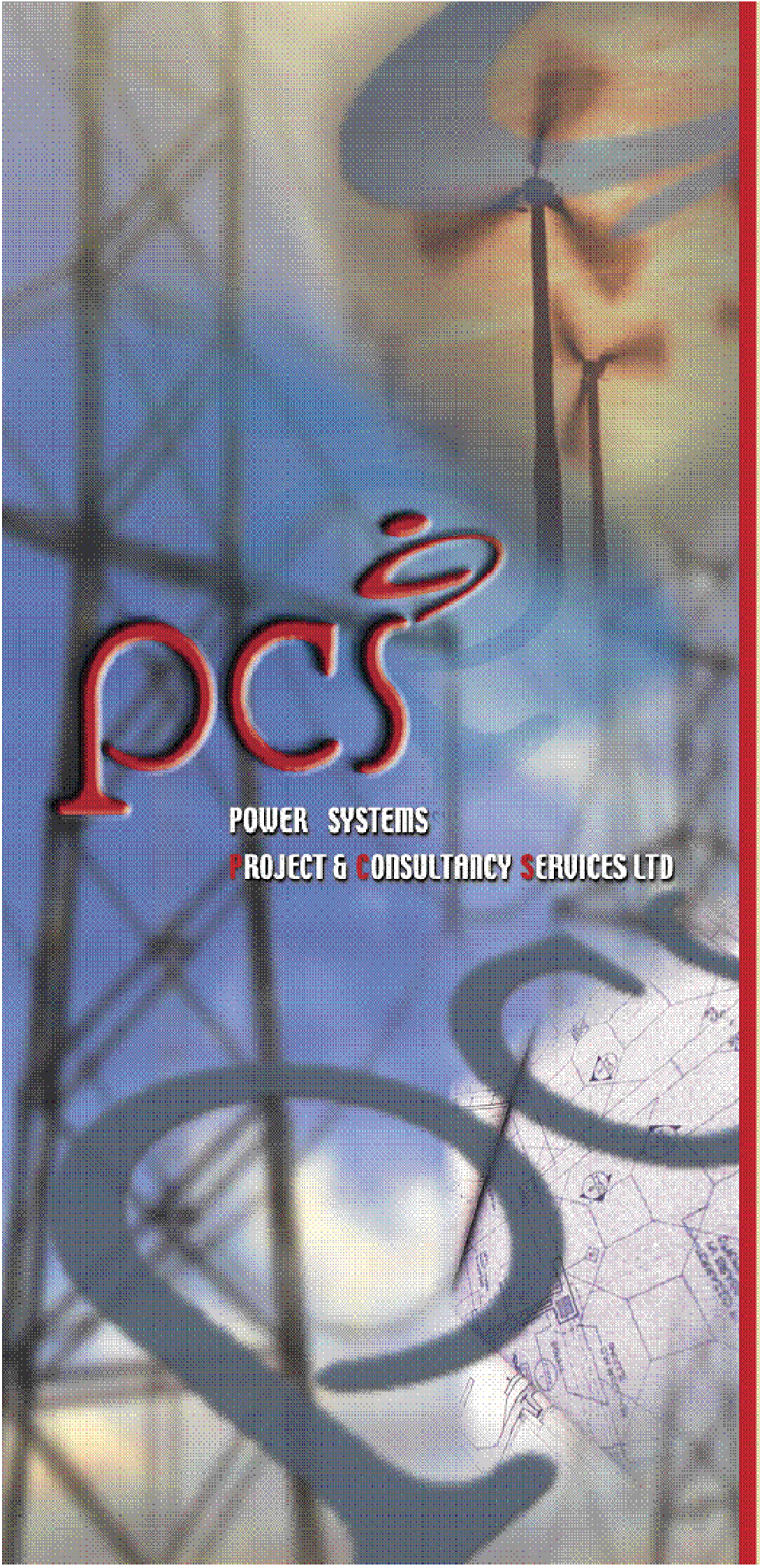


Report

MORL substation Proposed location assessment

5 August 2013

PCS Document No:
6132/001/R/LM/01
Issue: A

Power Systems Project and Consultancy Services (PCS) Ltd
The Torus Building
Rankine Avenue
Scottish Enterprise Technology Park
East Kilbride
G75 0QF
Telephone: 01355 813322 (Office)
Fax: 01355 813320
Email: lorne.mccallum@pcs-scot.co.uk
URL: www.pcs-scot.co.uk

REPORT No:	6132/001/R/LM/01	ISSUE:	A
TITLE:	MORL substation support		

SUMMARY

EDP Renewables requested Power Systems Project and Consultancy Services (PCS) Ltd to undertake an assessment of the grid connection options for a proposed new substation in the vicinity of New Deer for the Moray Offshore windfarm

The assessments undertaken by Power Systems PCS has identified a potential area to locate a new grid connection substation based on the information available (though subject to the formal SSE connection application/offer process),

- A preferred location to consider building a new substation would be close to the existing OHL near Burnside (WSW of New Deer)
- The site would be required to accommodate a new 400kV GIS switchroon and a new 400/220kV OFTO substation compound.
- Approximate dimensions are estimated as :
  - 80m x 80m for the SSE 400kV GIS compound
  - 270m x 190m for OFTO 400/220kV AIS compound (AC option)
  - 340m x 200m for OFTO 400kV converter compound (DC option)

CLIENT:	Damien McCool
ADDRESS:	EDP Renewables 4th Floor, 40 Princes Street Edinburgh EH2 2BY

DISTRIBUTION:	Final: Client 2 copies	File: 1 copy	DATE	5 August 2013

	Name	Job Title	Signature
Prepared By	N. Macdonald	Electrical Engineer	
Checked by	J. Evans	Senior Engineer	
Authorised For Issue	L. McCallum	Director	

AMENDMENT RECORD			
Issue	**Date Issued**	**Date Effective**	**Purpose of Issue or Description of Amendment**
A	05/08/13		First Issue

TABLE OF CONTENTS

1 Introduction

EDP Renewables requested Power Systems Project and Consultancy Services (PCS) Ltd to undertake an assessment of potential locations and sites of interest for a new 400/220kV grid connection substation for the MORL offshore windfarm.

Based on proposed 220kV export cable route guidance from EDP (Inverboyndie to New Deer), a number of potential locations were identified on Ordinance Survey maps. These were then visited to establish proximity to the existing 275kV Peterhead to Kintore / Keith tower line. This was advised as being uprated to 400kV with a future 400kV GIS substation being proposed in the area of New Deer.

Typical dimensions for both AC and DC compounds were determined and a general survey was undertaken to note any access restrictions or obstacles that will require detailed heavy load transport route examination to be conducted (swept path analysis, bridges, utility services).

The findings of the assessments are presented in this report

The conclusions and recommendations arising from the assessments are given in section 6 with the reference photographs taken in the course of the assessments listed in section 7.

2 Aim and Objectives

The aim and objectives of the assessments are outlined below.

2.1 Aim

The aim of the assessments was to provide an indication of the potential grid connection sites and proposed the most suitable location able to accommodate the required compound areas.

2.2 Objectives

The objectives of the studies were:

i) Determine the size of compound required for both AC and DC options.

ii) Identify potential grid connection sites for the proposed substation.

iii) Assess the area surrounding the potential grid connection site for transporting heavy loads from Peterhead.

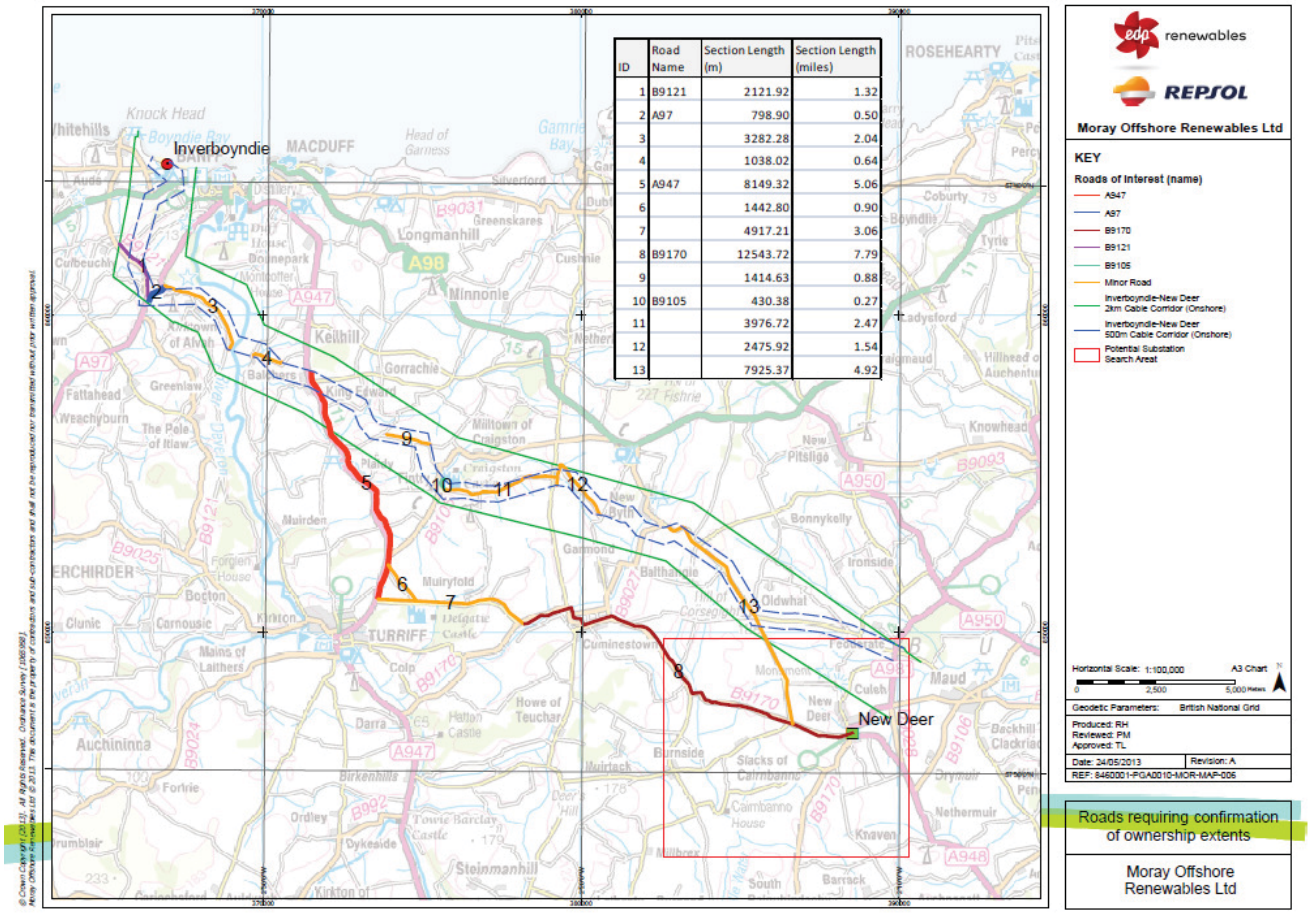
3 Scope of Work

The Power Systems PCS scope of work for the substation support works :

i) Identify and review potential substation locations.

ii) Identify potential dimensions for substation compound options

iii) Based on the preferred location carry out an initial assessment of heavy load route limitations.



ID	Road Name	Section Length (m)	Section Length (miles)
1	B9121	2121.92	1.32
2	A97	798.90	0.50
3		3282.28	2.04
4		1038.02	0.64
5	A947	8149.32	5.06
6		1442.80	0.90
7		4917.21	3.06
8	B9170	12543.72	7.79
9		1414.63	0.88
10	B9105	430.38	0.27
11		3976.72	2.47
12		2475.92	1.54
13		7925.37	4.92

Fig 1

4 Overview of Substation Location and Dimensions

An overview of the potential substation locations is provided below.

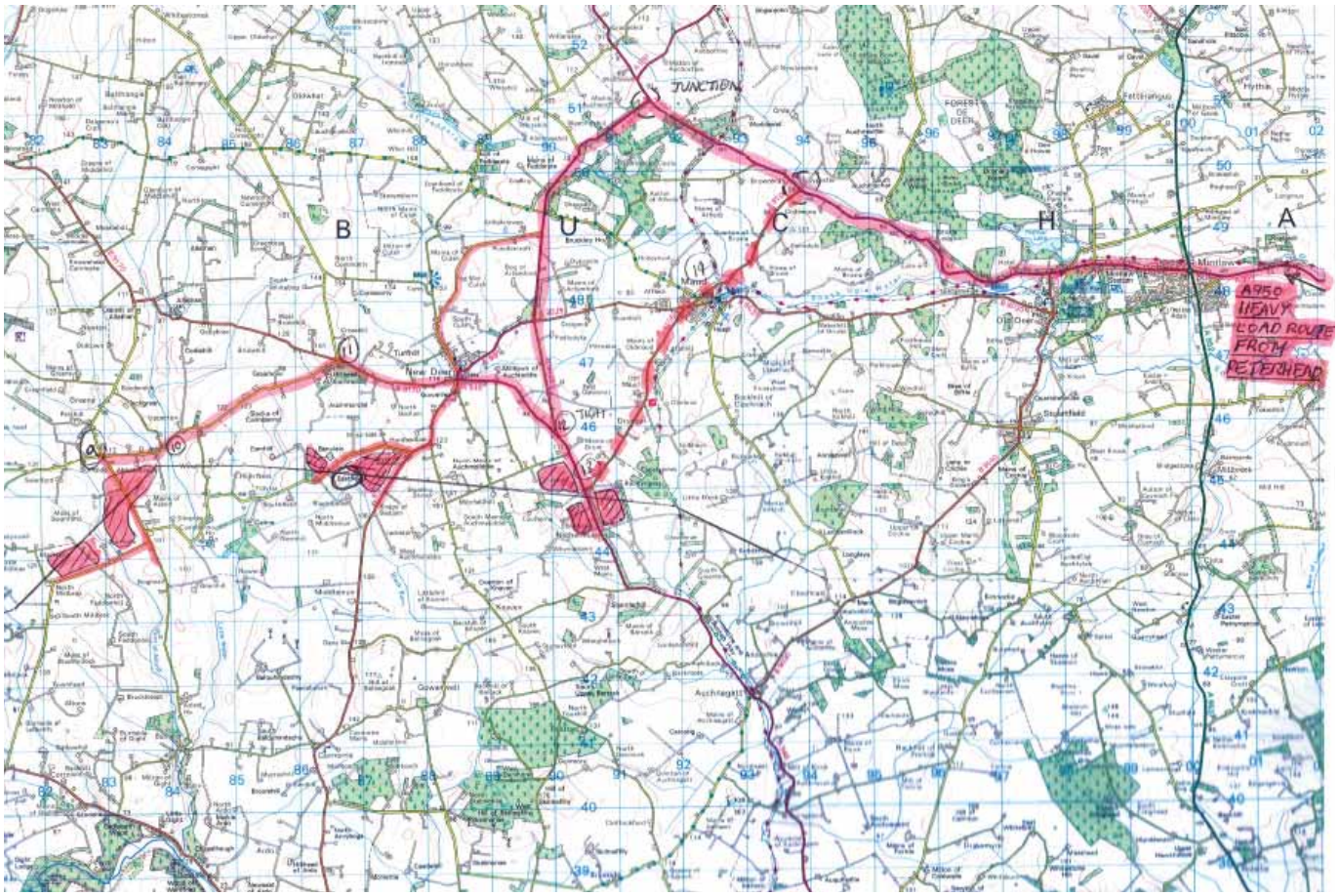


Fig 2

4.1 Location of preferred site

The consensus based on access and proximity to the existing OHL identified the area below as a preferred location to develop further as the grid connection / OFTO substation.

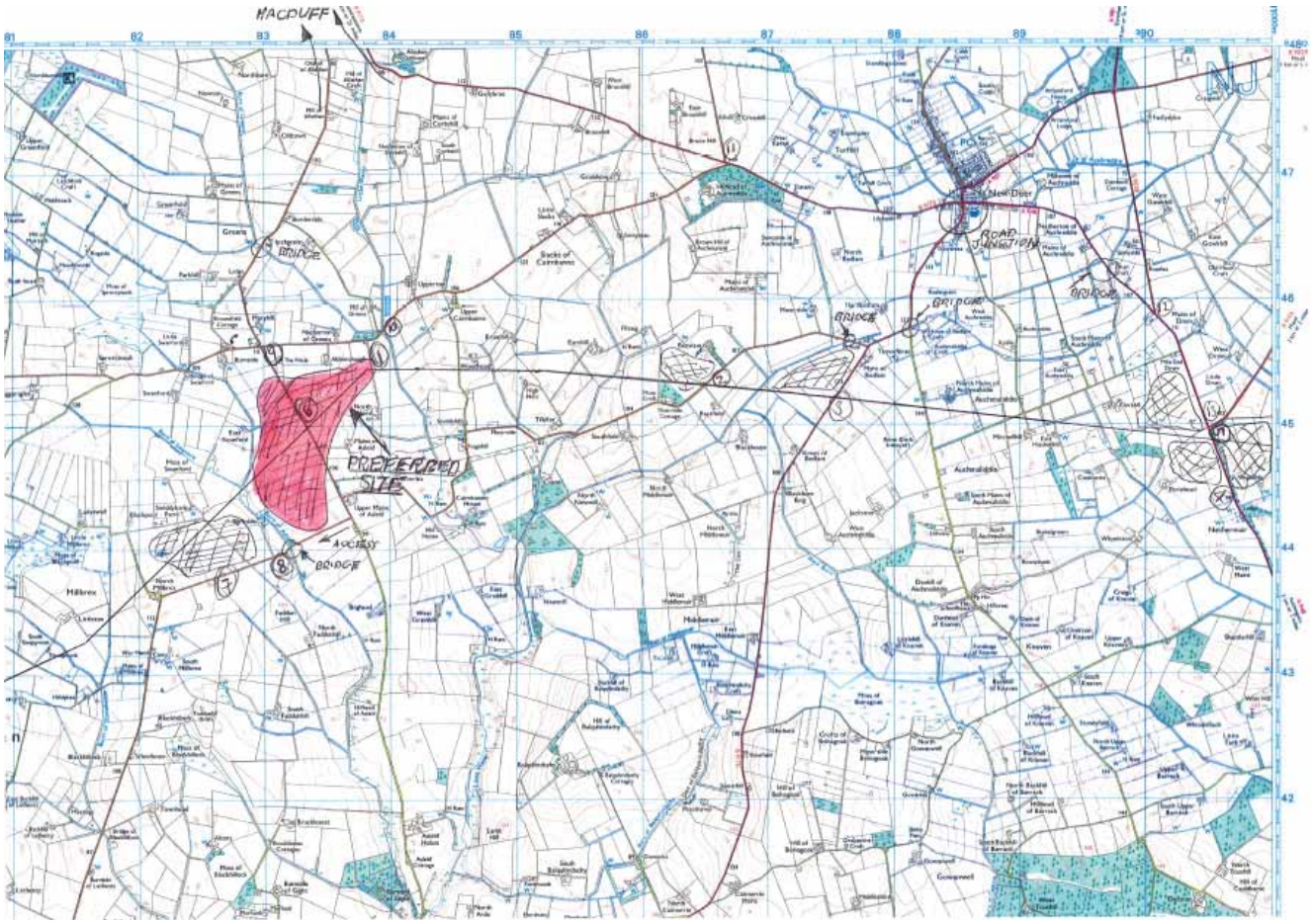


Fig 3

4.2 Preferred Connection Voltage

The preferred grid connection voltage for the generation is taken as 400kV based on proposed upgrades to the 275kV Peterhead line for a new substation at Rothienorman and New Deer

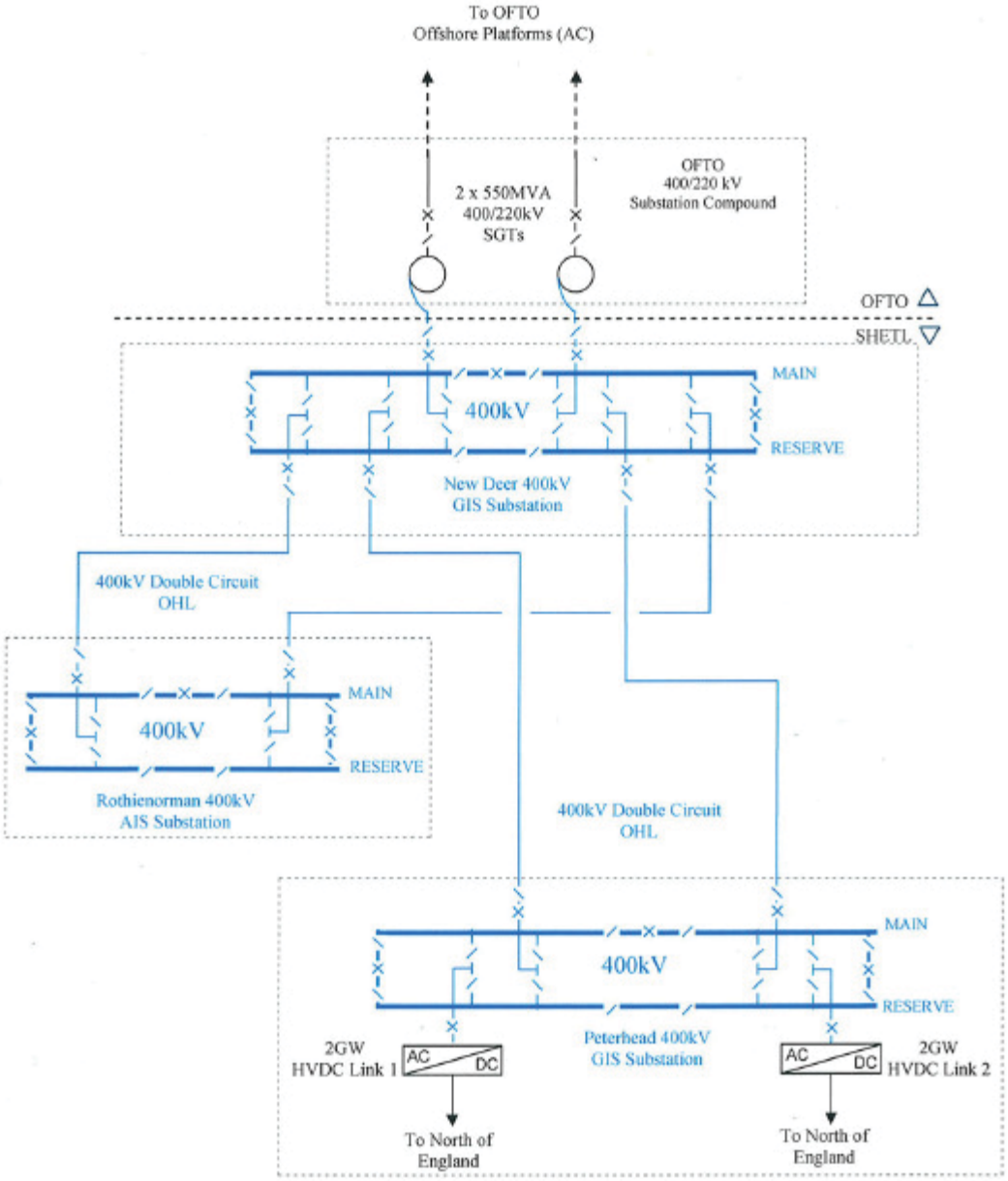


Fig 4

5 Grid Connection Options

It is assumed that the existing 275kV OHL will be upgraded to 400kV and in turn will connect to a new GIS substation located adjacent to the MORL 400/220kV substation compound. The single line diagram below has been used as the basis to determine the outline dimensions required

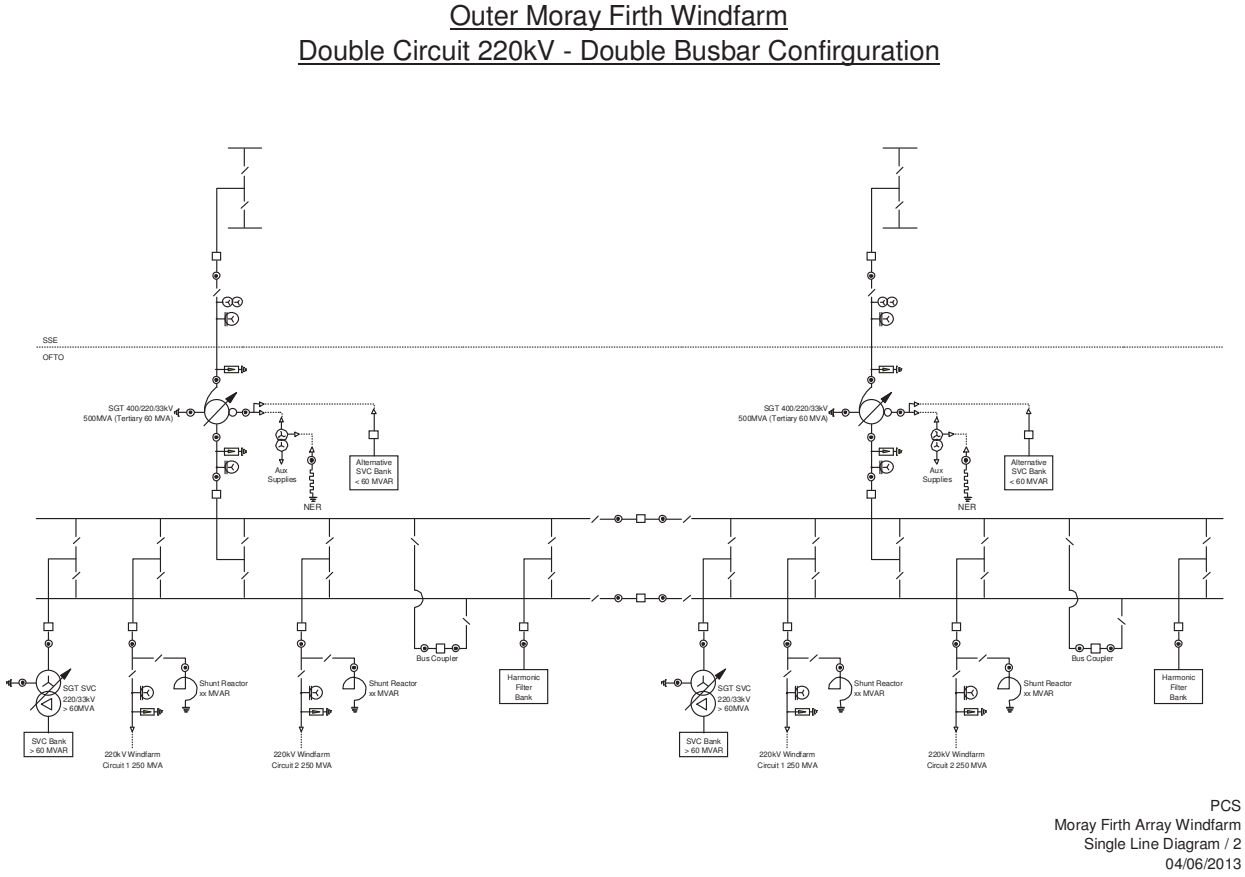


Fig 5

5.1 Compound Dimensions

5.1.1 It is anticipated that a 400kV GIS switchroom building would be approximately 40m x 25m. To allow for downleads and gantries from the 400kV towers, an area of 50m x 80m would be reasonable at this stage, giving an overall compound of 80m x 80m (subject to detail design and specific GIS, GIL or cable sealing end equipment and layout options).

5.1.2 It has been assumed that a typical AC solution for the OFTO compound will be required to accommodate:

- 2 x 500MVA SGTs
- 220kV main and reserve busbar AIS switchgear arrangement
- 4 x windfarm export cable feeder circuits (250MVA each)
- SVC and harmonic filter bank equipment

Subject to a more detailed design assessment, the preliminary dimensions are estimated as 270m x 190m

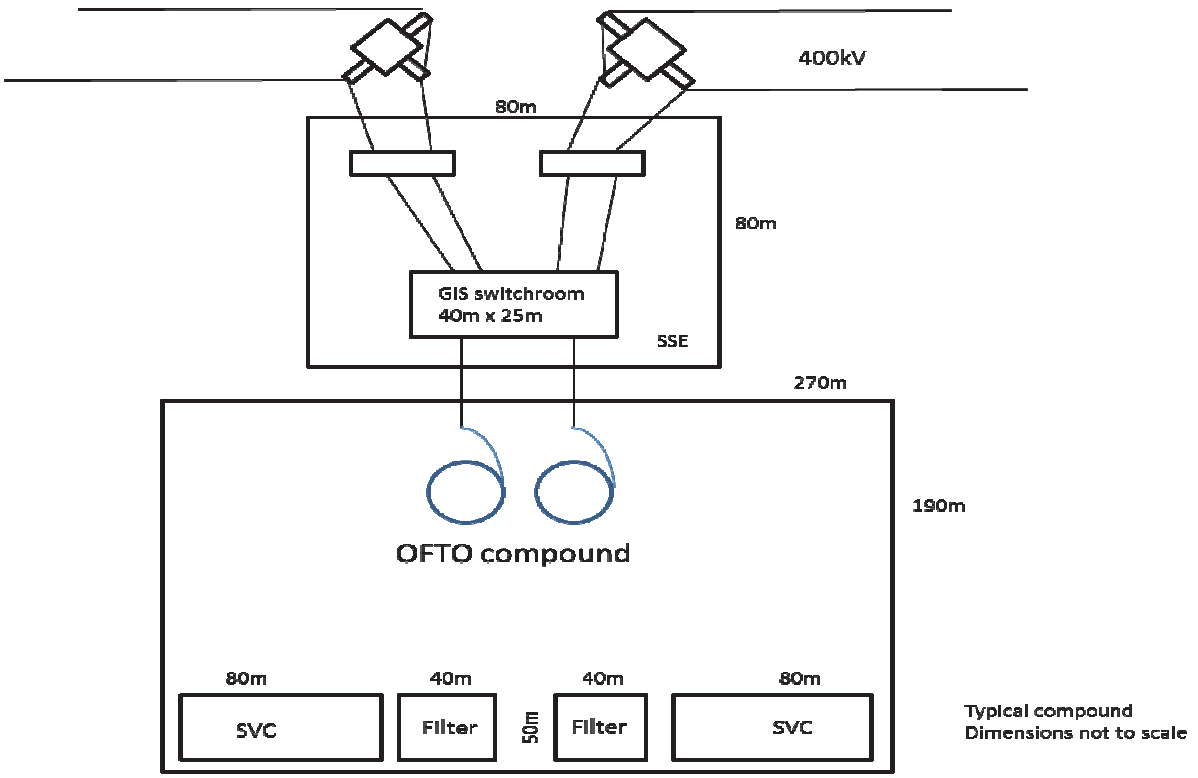


Fig 6

5.1.3 It has been assumed that a typical DC solution for the OFTO compound will be required to accommodate:

- 400kV switchgear
- Valve / converter halls
- Filter halls
- SVC reactors and auxiliary services equipment

Subject to a more detailed design assessment, the preliminary dimensions are estimated as 340m x 200m

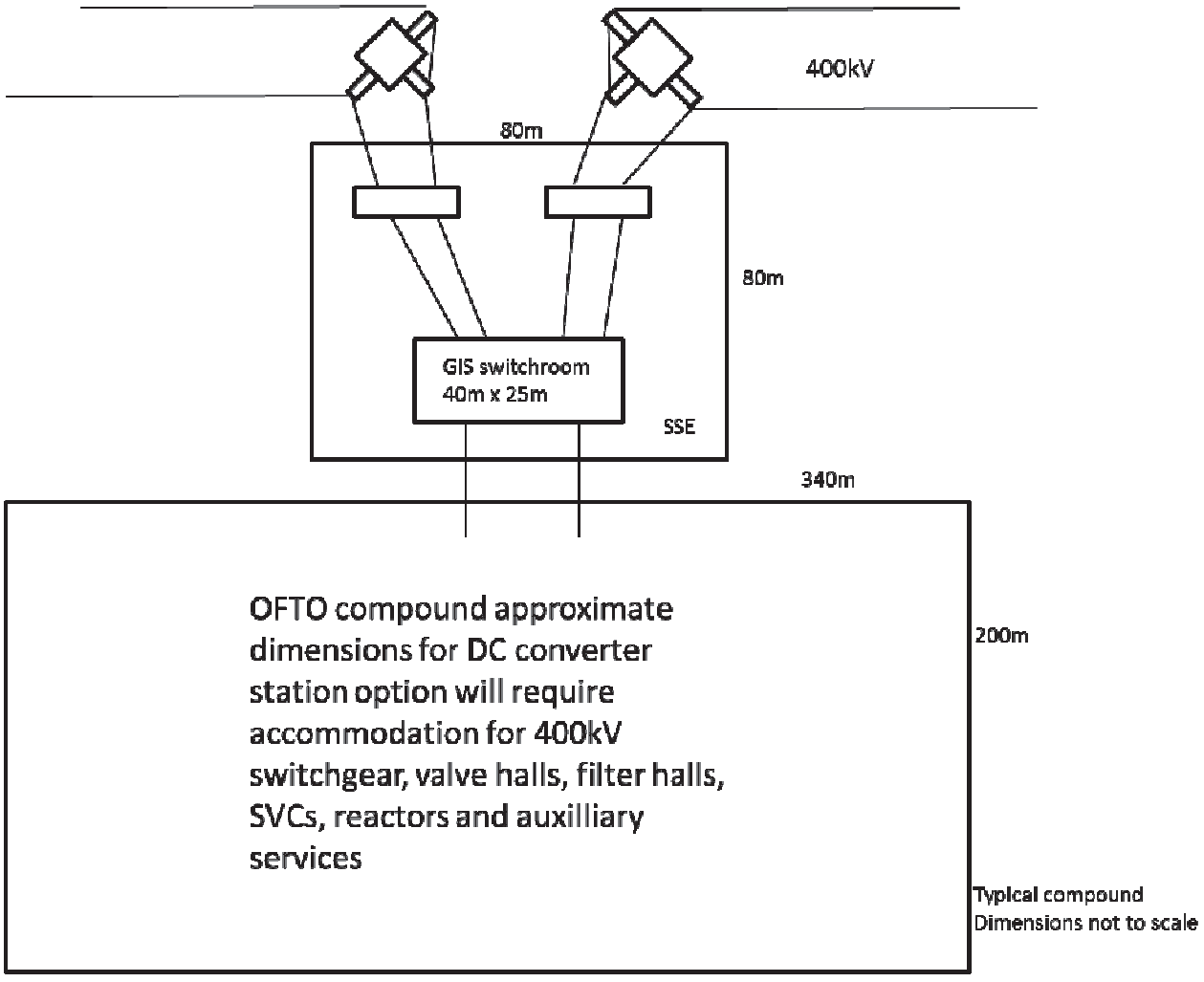


Fig 7

5.2 Road Access Observations

With reference to the Fig 2 on page 4, it is assumed at this stage that the A950 will be the heavy load route from Peterhead. This road was driven along from Mintlaw to the proposed site at Burnside with the options of the B910 via Maud and the A981 toward New Deer being checked. No major concerns or restrictions were observed up and including New Deer.

The route from New Deer consists of the B9170 then onto the unclassified road heading South West signposted for Greens. No immediate issues were identified in terms of junctions or major restrictions till the area close to the proposed site near Burnside where there is a narrow bridge over the Littler Water Burn, and a tight left hand turn onto the South signposted for Fyvie. This junction also has over sailing 11kV wood pole conductors which could restrict height.

6 Conclusions and Recommendations

The conclusions and recommendations from the grid connection assessments for the proposed substation site are :

6.1 Conclusions

The area close to Burnside and existing angle tower on the 275kV Peterhead to Kintore / Keith OHL would be the preferred location to develop for the MORL substation location.

6.2 Recommendations

It is recommended that a detailed heavy load transport study is undertaken to confirm swept path requirements for the supergrid transformer deliveries together with structural assessment of the small bridge on the potential delivery route.

6 Reference photographs

1. **Preferred site area looking NE toward angle tower**

2. **Tight junction with wood pole OHL at Burnside**

3. **Narrow Bridge on unclassified road looking SW to angle tower**

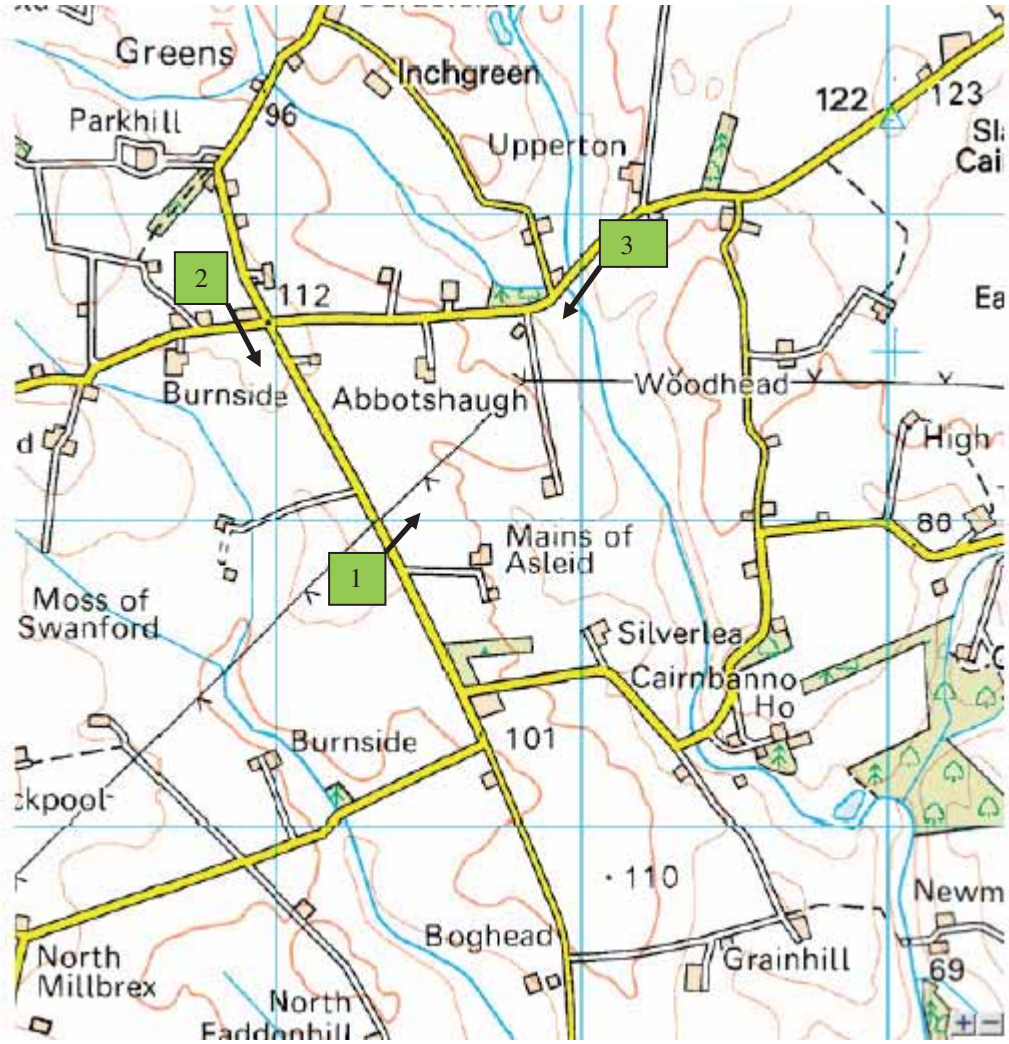


Fig 8

Preferred site area looking NE toward angle tower

Tight junction with wood pole OHL at Burnside

Narrow Bridge on unclassified road looking SW to angle tower

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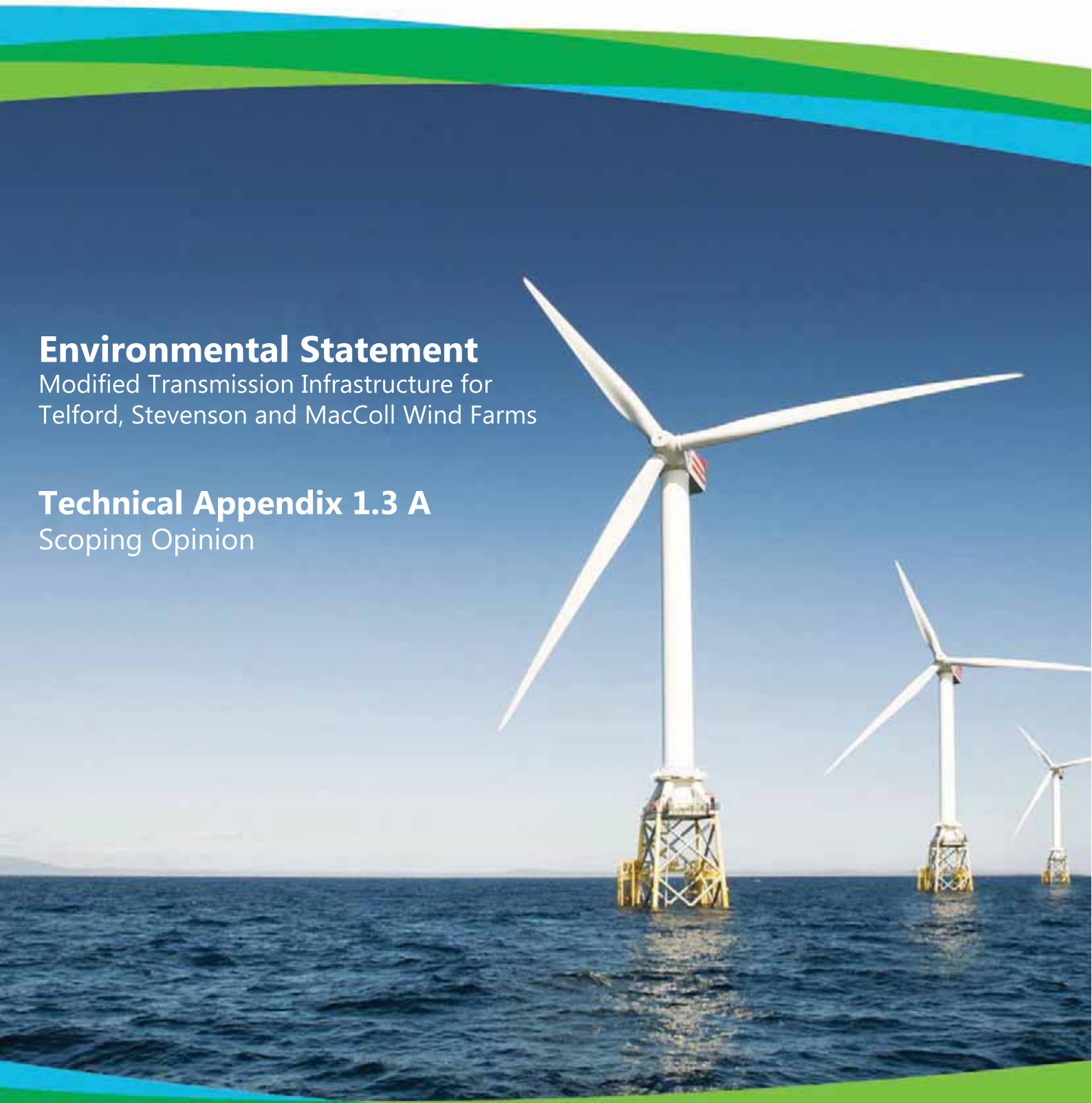

Environmental Statement

Modified Transmission Infrastructure for
Telford, Stevenson and MacColl Wind Farms

Technical Appendix 1.3 A

Scoping Opinion

edp renewables

marinescotland

The Scottish Government

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E: MS.MarineLicensing@scotland.gsi.gov.uk

Mr. Peter Moore
OFTO Consents Manager
Moray Offshore Renewables Ltd
4th Floor, 40 Princes Street
Edinburgh
EH2 2BY

13 June 2014

Dear Mr Moore,

THE MARINE (SCOTLAND) ACT 2010, PART 4 MARINE LICENSING
THE MARINE AND COASTAL ACCESS ACT 2009, PART 4 MARINE LICENSING
THE MARINE WORKS (ENVIRONMENTAL IMPACT ASSESSMENT) REGULATIONS 2007 (AS AMENDED)

SCOPING OPINION FOR MODIFIED OFFSHORE TRANSMISSION INFRASTRUCTURE, MORAY FIRTH

Thank you for your letter of 11 April 2014 requesting a scoping opinion for the proposed Modified Offshore Transmission Infrastructure, Moray Firth.

I attach the response to your request made under Regulation 13 of The Marine Works (Environmental Impact Assessment) Regulations 2007 ("the regulations") to the Scottish Ministers for a scoping opinion on the proposed Modified Offshore Transmission Infrastructure, Moray Firth.

The Scottish Ministers have consulted with the appropriate bodies and other persons who were likely to be concerned by the proposed development by reasons of their environmental responsibilities. Having regard to the responses received from all parties, it is the Scottish Ministers opinion that in accordance with Part 1 of Schedule 4 of the regulations, in addition to your submitted proposal, your environmental statement should address these further concerns.

Paragraph 7 of Schedule 4 of the regulations requires that a copy of this response is forwarded to such of the consultation bodies as it considered in accordance with paragraph 6. For the purposes of this request, a copy of this response has been duly forwarded to Aberdeenshire Council.

Aberdeenshire Council shall take steps to ensure that this document is made available for public inspection at all reasonable hours at the place where its Register is kept. If an application is subsequently made, the opinion and related documents should be transferred to Part 1 of the Register together with the application.

You should note that this opinion is based on information available to the Scottish Ministers as of 13 June 2014. You should have regard to subsequent proposals which are submitted to Planning Authorities or the Scottish Ministers prior to the determination of any future

marinescotland

The Scottish Government

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application. To this end, we would encourage you to approach both the Planning Authority and the Scottish Ministers at the point of application to ascertain whether further proposals have come forward which may have a bearing on the information you have been asked to provide.

If you have any queries please do not hesitate to contact me.

Yours sincerely,

Alexander Ford
Marine Scotland Licensing Operations Team

Our Ref: B/ENQ/2014/1264
Your Ref:

Ask for: Alan Davidson
Direct Dial: 01224-664740
Email: alan.davidson@aberdeenshire.gov.uk

Peter Moore
Moray Offshore Renewables Ltd
4th Floor
40Princes Street
Edinburgh
EH2 2BY

Date: 16 June 2014

Dear Sir

The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2011
Proposal: Installation of MORL Underground Cable Corridor and Erection of 2 no. Electricity Substations
Address: Landing At Sandend Or Inverboyndie, Banff Travelling To The South Of, New Deer, Turriff

I refer to your request for a scoping opinion for the above proposal received on 14 April 2014. I am now in receipt of all the necessary consultation responses and I can now offer a scoping opinion under Regulation 14 of The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2011 (the Regulations).

Schedule 4 of the Regulations states the information which should be included in an Environmental Statement (ES). These guidelines offer the backbone to the structure of an ES and should be used as the basis for your submission.

In order to make an assessment of the above information there are specific criteria and guidance set out in Schedule 4 of the Regulations. In particular these include characteristics of the development, an outline of any alternative options/sites and the main reasons for the options/sites chosen. Environmental issues are of obvious key importance such as those aspects of the environment that would be likely to be significantly affected. Detailed survey work would be required to inform the ES. Following analysis of the aspects of the environment which would be likely to be significantly affected, a detailed assessment of the effects themselves would be required along with mitigation measures proposed.

The issues that should be addressed include:

- Climate change
- Local Economic Effect

- Landscape Resource
- Soils and geology
- Visual Amenity
- Ornithology
- Visual Amenity
- Ecology
- Nature Conservation
- European Protected Species
- Hydrology and Water Supplies
- Forestry and Tree Felling
- Transport and Traffic including road safety issues and impact on local road network during and after construction work
- Noise
- Cultural Heritage and archaeology
- Land Use
- Land Ownership
- Tourism and Recreation, including footpaths
- Proposed mitigation measures

Please note that the above list is by no means exhaustive and that other issues might become obvious following public consultations and consultations with statutory consultees.

This advice is based on the Regulations and the consultation responses of the following:

Historic Scotland

There is general agreement with methodology involved however a few minor points were raised. Figure 5.20 refers to SMR as Scheduled Monuments Record as opposed to Sites and Monuments Record. It should be noted therefore that the majority of the sites recorded and not scheduled monuments. It should also be noted that Scottish Planning Policy 23: *Planning and the Historic Environment* has been superseded by the consolidated Scottish Planning Policy.

SEPA

While all of the issues below should be addressed in the Environmental Statement (ES), there may be opportunities for several of these to be scoped out of detailed consideration. The justification for this approach in relation to specific issues should be set out within the ES. We would welcome the opportunity to comment on the draft ES. Please note that SEPA can process files only of a maximum size of 25MB and therefore, when the ES is submitted, it should be divided into appropriately sized and named sections.

1. Disruption to wetlands including peatlands

1.1 SEPA note from page 37 of the Scoping Report that you state that there is no evidence of peat. We are also unable to find any reference to wetlands as a whole within the report. We would ask that you specifically address any disruption to wetlands within the finalised Environmental Report.

1.2 If there are wetlands or peatland systems present, the ES or planning submission should demonstrate how the layout and design of the proposal, including any associated borrow pits, hard standing and roads, avoid impact on such areas.

1.3 A Phase 1 habitat survey should be carried out for the whole site and the guidance A Functional Wetland Typology for Scotland should be used to help identify all wetland areas. National Vegetation Classification should be completed for any wetlands identified. Results of these findings should be submitted, including a map with all the proposed infrastructure overlain on the vegetation maps to clearly show which areas will be impacted and avoided.

1.4 Groundwater dependent terrestrial ecosystems, which are types of wetland, are specifically protected under the Water Framework Directive. The results of the National Vegetation Classification survey and Appendix 2 (which is also applicable to other types of developments) of our Planning guidance on windfarm developments should be used to identify if wetlands are groundwater dependent terrestrial ecosystems.

1.5 The route of roads, tracks or trenches within 100 m of groundwater dependent terrestrial ecosystems (identified in Appendix 2) should be reconsidered. Similarly, the locations of borrow pits or foundations within 250 m of such ecosystems should be reconsidered. If infrastructure cannot be relocated outwith the buffer zones of these ecosystems then the likely impact on them will require further assessment. This assessment should be carried out if these ecosystems occur within or outwith the site boundary so that the full impacts on the proposals are assessed. The results of this assessment and necessary mitigation measures should be included in the ES.

1.6 For areas where avoidance is impossible, details of how impacts upon wetlands including peatlands are minimised and mitigated should be provided within the ES or planning submission. In particular impacts that should be considered include those from drainage, pollution and waste management. This should include preventative/mitigation measures to avoid significant drying or oxidation of peat through, for example, the construction of access tracks, dewatering, excavations, drainage channels, cable trenches, or the storage and re-use of excavated peat. Detailed information on waste management is required as detailed below. Any mitigation proposals should also be detailed within the Construction Environmental Management Document, as detailed below.

2. Disturbance and re-use of excavated peat

2.1 Where the proposed infrastructure will impact upon peatlands, it is now best practice for developers to produce a Peat Management Plan within the Environmental Statement which sets out the principles as to how any surplus peat will be managed within the site. It is important this is done prior to the application gaining consent to ensure all opportunities to minimise peat disturbance are considered within the site design and that acceptable proposals to re-use the surplus peat can be accommodated within the site layout without significant environmental impact.

2.2 We would expect all these proposals to be in accordance with Guidance on the Assessment of Peat Volumes, Reuse of Excavated Peat and Minimisation of Waste and our Regulatory Position Statement – Developments on Peat. Any proposals for road shoulders should follow the best practice guidance detailed in Pages 14 and 15 of the Scottish Renewables Guidance on the Assessment of Peat Volumes, Reuse of Excavated Peat and Minimisation of Waste, Page 27 of the Scottish Natural Heritage (SNH) and Forestry Commission (FCS) Floating Roads on Peat guidance and Pages 38 and 39 of SEPA, SNH and Scottish Renewables and FCS guidance Good practice during windfarm construction. Please note that only fibrous peat is likely to be suitable for battering road verges. Any landscaping or road batters should be limited to the areas of ground already disturbed.

3. Existing groundwater abstractions

3.1 We note on page 64 of the Scoping Report that an extensive desk study will be undertaken to establish the baseline hydrological conditions within the cable corridor search area, at the substations and landfall point once selected, which is very much welcomed.

3.2 As you may already know, roads, foundations and other construction works associated with large scale developments can disrupt groundwater flow and impact on groundwater abstractions. To address this risk a list of groundwater abstractions both within and outwith the site boundary, within a radius of i)100 m from roads, tracks and trenches and ii) 250 m from borrow pits and foundations) should be provided.

3.3 If groundwater abstractions are identified within the 100 m radius of roads, tracks and trenches or 250 m radius from borrow pits and foundations, then either the applicant should ensure that the route or location of engineering operations avoid this buffer area or further information and investigations will be required to show that impacts on abstractions are acceptable. Further details can be found in Appendix 2 (which is also applicable to other types of developments) of our Planning guidance on windfarm developments.

4. Engineering activities in the water environment

4.1 In order to meet the objectives of the Water Framework Directive of preventing any deterioration and improving the water environment, developments should be designed to avoid engineering activities in the water environment wherever possible. The water environment includes burns, rivers, lochs, wetlands, groundwater and reservoirs. We require it to be demonstrated that every effort has been made to leave the water environment in its natural state. Engineering activities such as culverts, bridges, watercourse diversions, bank modifications or dams should be avoided unless there is no practicable alternative. Paragraph 211 of SPP deters unnecessary culverting. Where a watercourse crossing cannot be avoided, bridging solutions or bottomless or arched culverts which do not affect the bed and banks of the watercourse should be used. Further guidance on the design and implementation of crossings can be found in our Construction of River Crossings Good Practice Guide. Other best practice guidance is also available within the water engineering section of our website.

4.2 If the engineering works proposed are likely to result in increased flood risk to people or property then a flood risk assessment should be submitted in support of the planning application and we should be consulted as detailed below.

4.3 A site survey of existing water features and a map of the location of all proposed engineering activities in the water environment should be included in the ES or planning submission. A systematic table detailing the justification for the activity and how any adverse impact will be mitigated should also be included. The table should be accompanied by a photograph of each affected water body along with its dimensions. Justification for the location of any proposed activity is a key issue for us to assess at the planning stage.

4.4 Where developments cover a large area, there will usually be opportunities to incorporate improvements in the water environment required by the Water Framework Directive within and/or immediately adjacent to the site either as part of mitigation measures for proposed works or as compensation for environmental impact. We encourage applicants to seek such opportunities to avoid or offset environmental

impacts. Improvements which might be considered could include the removal of redundant weirs, the creation of buffer strips and provision of fencing along watercourses. Fencing off watercourses and creating buffer strips both helps reduce the risk of diffuse water pollution and affords protection to the riparian habitat.

5. Water abstraction

5.1 Where water abstraction is proposed we request that the ES, or planning submission, details if a public or private source will be used. If a private source is to be used the information below should be included. Whilst we regulate water abstractions under The Water Environment (Controlled Activities) (Scotland) Regulations 2011 (as amended), the following information is required at the planning stage to advise on the acceptability of the abstraction at this location:

- Source e.g. ground water or surface water;
- Location e.g. grid reference and description of site;
- Volume e.g. quantity of water to be extracted;
- Timing of abstraction e.g. will there be a continuous abstraction;
- Nature of abstraction e.g. sump or impoundment;
- Proposed operating regime e.g. details of abstraction limits and hands off flow;
- Survey of existing water environment including any existing water features;
- Impacts of the proposed abstraction upon the surrounding water environment.

5.2 If other development projects are present or proposed within the same water catchment then we advise that the applicant considers whether the cumulative impact upon the water environment needs to be assessed. The ES or planning submission should also contain a justification for the approach taken.

6. Pollution prevention and environmental management

6.1 One of our key interests in relation to major developments is pollution prevention measures during the periods of construction, operation, maintenance, demolition and restoration. The construction phase includes construction of access roads, borrow pits and any other site infrastructure.

6.2 We advise that the applicant should, through the EIA process or planning submission, systematically identify all aspects of site work that might impact upon the environment, potential pollution risks associated with the proposals and identify the principles of preventative measures and mitigation. This will establish a robust environmental management process for the development. A draft Schedule of Mitigation should be produced as part of this process. This should cover all the environmental sensitivities, pollution prevention and mitigation measures identified to avoid or minimise environmental effects. Details of the specific issues that we expect to be addressed are available on the Pollution Prevention and Environmental Management section of our website.

6.3 A Construction Environmental Management Document is a key management tool to implement the Schedule of Mitigation. We recommend that the principles of this document are set out in the ES outlining how the draft Schedule of Mitigation will be implemented. This document should form the basis of more detailed site specific Construction Environmental Management Plans which, along with detailed method statements, may be required by planning condition or, in certain cases, through environmental regulation. This approach provides a useful link between the principles of development which need to be outlined at the early stages of the project and the method statements which are usually produced following award of contract (just before

development commences).

6.4 We would refer you to best practice advice prepared by SNH, SEPA and the windfarm industry Good Practice During Windfarm Construction. Additionally, the Highland Council (in conjunction with industry and other key agencies) has developed a guidance note Construction Environmental Management Process for Large Scale Projects.

7. Borrow pits

7.1 Detailed investigations in relation to the need for and impact of such facilities should be contained in the ES or planning submission. We note from the Scoping Report that there is currently no reference to borrow pits. Where borrow pits are proposed, information should be provided regarding their location, size and nature. In particular, details of the proposed depth of the excavation compared to the actual topography and water table should be submitted. In addition details of the proposed restoration profile, proposed drainage and settlement traps, turf and overburden removal and storage for reinstatement should be submitted.

7.2 The impact of such facilities (including dust, blasting and impact on water) should be appraised as part of the overall impact of the scheme. Information should cover, in relation to water; at least the information set out in Planning Advice Note PAN 50 Controlling the Environmental Effects of Surface Mineral Workings (Paragraph 53). In relation to groundwater, information (Paragraph 52 of PAN 50) only needs to be provided where there is an abstraction or groundwater dependent terrestrial ecosystem within 250 m of the borrow pit. Additional information on groundwater is provided above.

8. Flood risk

8.1 The cable routes and substation sites should be assessed for flood risk from all sources in line with Scottish Planning Policy (Paragraphs 196-211). Our Indicative River & Coastal Flood Map (Scotland) is available to view online and further information and advice can be sought from your local authority technical or engineering services department and from our website.

8.2 If a flood risk is identified then a Flood Risk Assessment should be carried out following the guidance set out in our "Technical flood risk guidance for stakeholders" and (if relevant) "Technical Guidance Revision Note 1 - the Estimation of Coastal Sea Levels" both of which can be found on the planning and flood risk section of our website.

9. Regulatory advice for the applicant

9.1 Details of regulatory requirements and good practice advice for the applicant can be found on our website at www.sepa.org.uk/planning.aspx. If you are unable to find the advice you need for a specific regulatory matter, please contact a member of the operations team in your local SEPA office (details of which can be found on our website).

If you have any queries relating to this letter, please contact me by telephone on 01224 266655 or e-mail at planning.dingwall@sepa.org.uk

SNH

Terrestrial Ecology

Adequate detail of the cable laying technique(s) should be provided, including timing, rate and duration of work so that the potential impacts to sensitive species and habitats during the construction phase can be assessed.

Desk Based Assessment

In addition to the data sources indicated in section 5.2.6, following organisations, individuals and databases should be contacted:

RSPB Scotland
County Bird Recorder
The BTO in relation the Wetland Bird Surveys
The North Sea Bird Club
The local Raptor Study Group
Saving Scotland's Red Squirrels
District Salmon Fishery Boards
Aberdeenshire Council Planning Authority

Sites of Special Scientific Interest for Coastal Geomorphology and Geology

Consideration will need to be given to the geological interests of **Cullen to Stake Ness Coast SSSI** and **Whitehills to Melrose Coast SSSI** (page 55), which are adjacent to both of the potential landfall sites of Sandend Bay & Boyndie Bay. Although the precise location and route of the cables have yet to be developed, further discussions would be welcomed about the designated interests, which generally occur on and adjacent to the rocky foreshore, to further inform the development cable routes and laying options.
The scoping report does not indicate whether impacts to the geological interest along this coast can be avoided or what mitigation is proposed – all of which will need to be addressed in the EIA.
It is advised that employing an experienced coastal geomorphologist should help in the assessment of the suitability of potential landfall options and detailed routing / micro-siting options, particularly if geological SSSI interests may be affected.
The potential effects of sea level rise (amongst other climate change variables) should be considered within the planning of this development (known as 'future-proofing'), particularly in respect of the cable landfall.
the aspects scoped in' and 'scoped out' as set out in the applicant's report on pages 60 – 62 of the scoping report are agreed. Aspects to be scoped in, include:

☐ Damage to geological features/designated sites namely:

Cullen to Stakeness Coast SSSI & **Whitelhills to Melrose Coast SSSI**

☐ alteration/modification of the hydrological/hydrogeological regime of the region and associated receptors.

☐ disturbance of contaminated materials / soil gases and the subsequent generation of potentially contaminated waste materials and effect upon construction materials and workers.

☐ Construction phase activities affecting the Water Environment (e.g. spillages, use of chemicals, sedimentation).

Ornithology

The MORL Scoping Report dated April 2014 was updated with Powerpoint slides provided to SNH on 12 May 2014, providing a more tightly defined cable route and a revised bird survey timetable, which now omits winter survey.
The route specified is not expected to impinge on any designated ornithological sites. The 10km cable corridor buffer includes **Troup Pennan & Lions Heads Special Protection Area (SPA)** and its component **Gamrie & Pennan Coast SSSI** designated for internationally important populations of breeding seabirds. These sites are not expected to be affected by the onshore works.
Recent studies of the **Loch of Strathbeg SPA** suggest that few geese forage beyond 10km of the site boundary, and in any case these works are scheduled outwith the period of goose occurrence at Strathbeg. We are satisfied that the proposals are unlikely to have a significant effect on the site in this case.
The bird survey methods appear to be broadly acceptable. The omission of winter bird surveys is acceptable given that the time-line for construction specifies that the winter months will be avoided. If this schedule changes, a program of winter walkover surveys should again be considered; there would appear to be ample opportunity to schedule this before 2018, when the on-land works are expected to begin.
For breeding birds a CBC methodology is specified; this is acceptable for a wider countryside case such as this. Sensitive breeding bird records should be provided in a confidential appendix in line with SNH guidance1. Our main concern is that a considerable time lag - several years - is indicated between surveys and construction. As the distribution and abundance of breeding birds may well change over this period, we recommend that an additional breeding bird survey should be carried out immediately prior to construction to identify nesting attempts, particularly those of Schedule 1 species. We would also recommend that a late summer /autumn construction schedule will avoid most, if not all, of the breeding bird sensitivities.
As the scheduling of works for spring and summer brings the likelihood of disturbance to breeding birds, mitigation measures will be required to minimize or avoid this by means of a Breeding Bird Protection Plan or similar.
We note that waders are scoped out in the 'Offshore' paragraphs (section 5.2.7), but should be included in surveys to the extent that they may use the landfall points both for feeding and for nesting.

Freshwater

We understand from discussions with the developer that directional drilling will be the preferred method employed for crossing watercourses along the cable route. The EIA will need to consider the potential impacts of noise and vibration upon salmonids and other fish where this activity is proposed.
We advise that the applicant consults with the relevant District Salmon Fishery Board regarding potential impacts to salmonids and other fish species at river crossings and in particular whether any
redd survey data is available for the areas where watercourse crossings are planned. If this data does not already exist then we advise that this data be collected during the spawning period later this year.
Noise propagation data associated with the drilling kit will also be required in order to adequately assess the impacts including noise and or vibration associated with drilling works.
The lubricants used in directional drilling can be toxic in freshwaters so it is important they are contained within the working area and during drilling under the river. Good practice is to undertake geotechnical assessment of the ground under the river in advance of works taking place. The use of boreholes can assist in estimating depth of gravel or bedrock type lies under the channel and inform the depth at which drilling should take place. Ideally the drilling should be through underlying rock to prevent the risk of the lubricant leaching up to the surface of the riverbed through gaps in the gravel. If the bedrock is very deep (in some situations it can be 50-100m below a riverbed) then good practice is to drill a precautionary distance under the

riverbed that will help prevent accidental escapes of lubricant. The entry and exit points of the drill should be set well back (>50m) from the river.
Drilling work should be timed to avoid the main spawning and egg incubation periods, avoiding the period November to May.
The EIA should include a detailed method statement describing the drilling operations, contingency plans for preventing and controlling pollution, the scale of works, consideration of the trenching needed at either end of the drilling etc. Method statements should also be supported with information from site investigation that should include information about the substrate under the riverbed, the depth under the river that drilling will take place at and the risk of pollution breaking through.
The scoping report outlines that a habitat scoping study will assess the river's potential to support freshwater pearl mussel (FWPM), and this would be followed by intensive survey in specific circumstances. We are satisfied that surveys for freshwater pearl mussel are not required provided adequate sediment management and pollution prevention plans are in place.
Should these proposals change for any reason and river engineering works are considered necessary then this may trigger a requirement for survey.

Protected Species

The scoping report identifies the potential for impacts to protected species along the onshore cable route and at the substation search area. There should also be consideration of impacts to these at the landfall site and how to mitigate any impacts. We are content with the proposed list of protected species surveys as outlined in section 5.2.6 of the scoping report.
Wildlife is not a static asset of our countryside and as we are not in a position to know when construction will take place and therefore what time may elapse between the current survey work and construction it is important that pre-construction survey work is completed to inform mitigation.
SNH recommends that pre-construction survey work is done to revisit the project footprint to ascertain any changes in the degree of wildlife activity as this could have implications for the level of mitigation required. A report summarising pre-construction survey results with a comprehensive list of mitigation should be submitted for approval. This should be carried out prior to construction but within an advance window sufficient to allow for any wildlife licence applications to be processed should any be required.
The Environmental Statement should provide details of appropriate mitigation and state whether or not licences are likely to be required. Our website provides information on the legislation applying to protected species2 and licensing3 for activities which could affect them.

Natural and Semi-natural Habitats

We support the proposal to undertake Phase I survey along the cable corridor routes and buffer with the understanding that follow up National Vegetation Classification work for important areas may be required. As set out in the scoping report we advise that this is also used to identify where protected species survey work is appropriate.
We advise that any areas of carbon rich soils are identified in the EIA and would refer the applicant to SEPA to provide further advice on this matter.

Landscape and Visual Impact Assessment

We do not consider the impact would raise any landscape concerns that would be of regional or national importance. We therefore defer the assessment of the landscape and visual impact of the project to Aberdeenshire Council.

In Combination & Cumlative Impacts

In addition to the types of large scale developments identified in the scoping report we recommend giving due strategic consideration to various other cable works planned or proposed in the vicinity of the Moray coast as proposed in chapter 2.28 in the National Planning Framework 3 (draft), including Peterhead.4

1 Environmental Statements and Annexes of Environmentally Sensitive Bird Information. Guidance for Developers,
Consultants and Consultees SNH (September 2009) http://www.snh.gov.uk/docs/A285693.pdf

2 http://www.snh.gov.uk/protecting-scotlands-nature/protected-species/

3 http://www.snh.gov.uk/protecting-scotlands-nature/species-licensing/mammal-licensing/

4 http://www.scotland.gov.uk/Publications/2013/04/2377/3

Aberdeenshire Council Environment Planner

Background:

This scoping response is based on these issues, and they were discussed in detail with representatives of the applicant at a meeting held in Inverurie on the 16th of May 2014.

It's appropriate to note that the project development process is yet to finalise the cable landfall site, the specific corridor for the cable link and the precise location for the sub stations although areas of search and several site options are currently known for these elements of the application.

Landscape and visual impact assessment:

In terms of a standard approach to the EIA process, for a full planning application, the applicant needs to carry out a landscape and visual impact assessment which should be produced in accordance with the Guidelines for Landscape and Visual Impact Assessment (third edition).

Sensitive viewpoints or receptors in the area of the development that should be assessed include local residences, transportation corridors, settlements, places of tourist, cultural, conservation and heritage interest etc. Principles of identifying sensitive viewpoints or receptors can be gained from the Guidelines previously identified in this memo.

In terms of locally significant viewpoints, the Culsh Monument, New Deer should be used as a more strategic viewpoint for the LVIA process.

In terms of development design best practice the EIA process should obviously contribute to the site development and design process, in terms of identifying site(s) opportunities and constraints and locating and designing the development to have minimal or ideally no adverse affects on valued aspects of the development site its landscape and setting.

Cumulative LVIA:

Regarding the assessment of cumulative affects, the LVIA assessor should review all recent publicly known planning applications and pre application enquiries with significant visual implications for the area. It's anticipated that wind energy projects will be the majority of such cases. As a guide the cumulative assessment, can extend to around 6km from the proposed development site, although that should be extended for significant development in the district and notably sensitive viewpoints such as the Culsh monument.

Detailed comments:

In terms of general locational and design principles relating to landscape and visual issues all elements of the proposed development should be designed to have minimal or no impact on the valued landscape character of the local area.

The initial indications are that the substation buildings may be of a very large scale for the locality. To minimise possible visual impacts, buildings should be placed as low in the local landform as possible with screening particularly from sensitive local receptors such as residences, transportation corridors and local settlements to minimise potential adverse visual affects.

A key mitigating factor for the site's general environment is the quality of design of the buildings and landscape. Quality design of both these elements would be significant in successfully assimilating the proposed development into its location. A development with an aesthetically positive/pleasing appearance would have a positive impact on the area's character. It is therefore requested that the applicant consider employing techniques to establish a development with bespoke and positive aesthetics unique to the location.

Detail principles include locating the buildings and infrastructure at as low a level in the site as practical and screening elements of the development with predicted adverse visual affects with earthworks and screen planting. All earthworks should be designed to appear organic and naturalistic. Screen planting should be based on the list of native plants appropriate to the Buchan area.

In terms of site assessment as far as practical existing woodland planting etc. should be conserved and incorporated into the development.

Maximising landscaping would be a major factor of mitigation across a development site, and in terms of landscape design should the site's baseline conditions be suited to other habitat development (with obvious biodiversity value) then that should be designed into the development proposal. Maximising the future conservation value of the development would be a worthy objective of the project.

With regard to access issues and general conservation assessment issues, as well as any issues relating to biodiversity Eleanor Munro should be contacted for further information.

For more detailed information on built conservation, historic monuments and archaeological issues, including designed landscapes, Shaun Norman should be consulted.

Regarding an initial planning application, the applicant is advised to submit as much information as available to them at that point in the planning process, in order to fully inform the process of determination. Particularly with regard to design, the location and dimensions of all aspects of the project should be submitted at this stage as well as information on colours and finishes. Regarding landscaping, the applicant needs to demonstrate their commitment to this element of the project indicating the location of all different elements of landscaping and related features from the outset. A landscape maintenance plan also should be submitted at the first opportunity to demonstrate the applicant's medium to long term commitment to the environmental design of the application.

Aberdeenshire Council Environmental Health

The proposed methodology is satisfactory.

Aberdeenshire Council Flood Prevention Unit

That the cable landfall location is still to be confirmed is noted. The impact of landfall location will need to be assessed by FPU. The Developer should be aware that if the cable route is to pass through any coastal structures then it is expected that they are reinstated to full strength. The landfall should be armoured for protection against erosion.

The locations of the two onshore substations should consider flood risk. The developer is directed to SEPA's indicative 1 in 200 year flood map to get an initial indication of whether or not there may be a flood risk for the chosen location(s).

If the proposed routes to transport components for construction required alterations FPU would have to consider the impacts of this, from a flooding perspective.

Aberdeenshire Council Contaminated Land

It is noted that the search corridor for the onshore transmission cable route and the onshore substations is some 270 square kilometres. There are 676 potentially contaminated sites within the search envelopes. The types of sites include landfills, a gasworks, filling stations, sundry small industrial/ commercial enterprises and potential infill such as former quarries and mill lades. A list of these sites has been previously provided.

If any potentially contaminated sites lie on the finalised cable route or the site of a substation then site investigation must be carried out in accordance with BS10175:2011, The investigation of potentially contaminated sites – code of practice. Findings of site investigation may dictate that remedial works are required prior to the commencement of development works.

Aberdeenshire Council Archaeology

Having reviewed Section 5.3.9 'Archaeology and Cultural Heritage' of the submitted Scoping Report it is confirmed that an EIA will be required for the historic environment given the scale, type and location of the proposed works and the potential that they have to impact upon archaeological remains.

The recommended methodology as detailed within Section 5.3.9. is agreed however note the following comment:

Page 149 - List of 'Best Practice Guidance' - replace Planning Advice Note 42 with the more up-to-date Planning Advice Note 2/2011

Aberdeenshire Council Natural Heritage

Terrestrial Ecology

The range and scope of the ecological surveys is acceptable. With regards to habitat surveys, details can be provided of any Tree Preservation Orders there may be within the search area, if required.

Recreation/Access/Tourism

It appears that much of the information in the socio-economic chapter may have been copied across from the EIA carried out for the Beatrice scheme. While much of the assessment of the impacts of the offshore element would still be relevant the onshore and inshore interests cited are not relevant this far to the east. This part of Aberdeenshire has a very different tourism market to that of the Highlands/Inverness and for the terrestrial element of the EIA it would not be appropriate to use a baseline based on data covering the Highlands. In terms of recreation it would also be more appropriate to consider facilities within the area of the search rather than discussing Lossiemouth Sailing Club or the Kincraig Wildlife Park.

Both Sandend and Inverboyndie are very popular and well used by people for walking, surfing etc. The most significant impact is likely to be disturbance/closure during construction and the installation of the cable and this should be addressed as part of the mitigation.

Information regarding core paths, long distance routes (specifically the coastal path in this case) and any known rights of way within the search area can be provided.

I hope the above information is of assistance as a formal scoping opinion in respect of the relevant ES. Obviously during the processing of any associated planning application other issues may become obvious following public consultation and consultations with statutory consultees.

This opinion will be held for public inspection for a two year period, or until a planning application is submitted at which time the opinion will be transferred to the planning register with the application.

;Yours faithfully

Head of Planning and Building Standards

MORAY OFFSHORE RENEWABLES LTD
Modified Offshore Transmission Infrastructure – Moray Firth

Scoping Opinion

Contents

THE MARINE (SCOTLAND) ACT 2010, PART 4 MARINE LICENSING

THE MARINE AND COASTAL ACCESS ACT 2009, PART 4 MARINE LICENSING

THE MARINE WORKS (ENVIRONMENTAL IMPACT ASSESSMENT) REGULATIONS 2007 (AS AMENDED)

SCOPING OPINION FOR THE PROPOSED MARINE LICENCE APPLICATION FOR MORAY OFFSHORE RENEWABLES LIMITED MODIFIED OFFSHORE TRANSMISSION INFRASTRUCTURE, MORAY FIRTH

1. Introduction

Moray Offshore Renewables Limited ("MORL") is seeking an Environmental Impact Assessment ("EIA") scoping opinion for the Modified Offshore Transmission Infrastructure ("MOfTI") from Marine Scotland ("MS"), on behalf of the Scottish Ministers, under Section 13 of the Marine Works (Environmental Impact Assessment) Regulations 2007 (as amended) (the EIA Regulations").

The MOfTI proposal is to connect the recently consented MORL Telford, Stevenson and MacColl Wind farms, under section 36 of the Electricity Act 1989 (19th March 2014) to the National Electricity Transmission System ("NETS"), close to New Deer in Aberdeenshire. MORL no longer has the option to connect to the NETS at Peterhead Power Station, therefore, the supporting Environmental Statement ("ES") for the recently issued marine licence (6th June 2014) for the original MORL Offshore Transmission Infrastructure will require to be amended for this revised route.

I refer to your letter of 11th April 2014, enclosing a scoping report, requesting a scoping opinion under the EIA Regulations. The outcomes of the EIA will result in the preparation of an Environmental Statement ("ES") to support the application, submitted 4th April 2014, for a marine licence under part 4 of the Marine (Scotland) Act 2010, and Part 4 of the Marine and Coastal Access Act 2009.

Please note that the EIA process is vital in generating an understanding of the biological and physical processes that operate in the area and those that may be impacted by the proposed transmission infrastructure. MS would however, state that references made within the scoping document with regard to the significance of impacts, should not prejudice the outcome of the EIA process.

It is important that any transmission infrastructure, in connection with any renewable energy devices, should be accompanied by a robust assessment of its environmental impacts. The assessment should also consider how any negative environmental impacts could be avoided or minimised, through the use of mitigating technologies or regulatory safeguards, so that the quality and diversity of Scotland's wildlife and natural features are maintained or enhanced. The Scottish Ministers welcome the commitment given in the report that the EIA process will identify mitigation measures in order to avoid, minimise or reduce any adverse impacts. Marine Scotland Licensing Operations Team ("MS LOT") would suggest that the range of options considered should be informed by the EIA process in order that these

objectives can be achieved. Consultation with the relevant nature conservation agencies is essential and it is advised that this is undertaken as appropriate.

2. Aim of this Scoping Opinion

The Scottish Ministers are obliged under the EIA regulations to respond to requests from developers for a scoping opinion on outline design proposals.

The purpose of this document is to provide advice and guidance to developers collated from expert consultees selected by MS. It provides clear advice enabling developers to address issues identified with the proposed project. The advice steers the developer as to the content required in the EIA and the ES in accordance with the EIA Regulations.

3. Description of development

The MOfTI will comprise of:

- Up to two OSPs located within the Eastern Development Area ("EDA"). These will house substations which will form the interface between the inter-turbine cables and the offshore transmission system;

- Transmission cables (up to four triplecore cables, separated by approximately four times water depth), buried to a target depth of one metre. Where this burial depth cannot be achieved, cable armouring will be implemented (e.g. rock placement or concrete mattressing).

Landfall for the transmission cables with either be at or near Inverboyndie or Sandend on the North coast of Aberdeenshire.

4. Land Use Planning

The Scottish Government's planning policies are set out in the National Planning Framework, Scottish Planning Policy, Designing Places and Circulars.

The National Planning Framework is the Scottish Government's Strategy for Scotland's long term spatial development.

Scottish Planning Policy ("SPP") is a statement of Scottish Government policy on land use planning and contains:

- The Scottish Government's view of the purpose of planning,
- the core principles for the operation of the system and the objectives for key parts of the system,
- statutory guidance on sustainable development and planning under Section 3E of the Planning etc. (Scotland) Act 2006,
- concise subject planning policies, including the implications for development planning and development management, and
- The Scottish Government's expectations of the intended outcomes of the planning system.

Other land use planning documents which may be relevant to this proposal include:

- Planning Advice Note ("PAN") 2/2011: Archaeology–Planning Process and Scheduled Monument Procedures

- PAN 50: Controlling the Environmental Effects of Surface Mineral Workings
- PAN 51: Planning, Environmental Protection and Regulation
- PAN 1/2011: Planning and Noise
- PAN 1/2013: Environmental Impact Assessment
- PAN 60: Planning for Natural Heritage
- PAN 62: Radio Telecommunications
- PAN 68: Design Statements
- PAN 69: Planning and Building Standards Advice on Flooding
- PAN 75: Planning for Transport
- PAN 79: Water and Drainage
- Marine Guidance Note 371 (M)
- Aberdeen City and Shire Structure Plan
- Aberdeen City and Shire Strategic Development Plan
- Aberdeenshire Local Development Plan
- Moray Structure Plan
- Moray Local Plan
- Moray Economic Strategy

5. Natural Heritage

Scottish Natural Heritage ("SNH") has produced a Service Level Statement ("SLS") for renewable energy consultation. This statement provides information regarding the level of input that can be expected from SNH at various stages of the EIA process. Annex A of the SLS details a list of references, which should be fully considered as part of the EIA process. A copy of the SLS and other vital information can be found on the renewable energy section of their website – http://www.snh.gov.uk/docs/A1070243.pdf

6. General Issues

Economic Benefit

The concept of economic benefit as a material consideration is explicitly confirmed in the consolidated SPP. This fits with the priority of The Scottish Government to grow the Scottish economy and, more particularly, with our published policy statement "Securing a Renewable Future: Scotland's Renewable Energy", all of which highlight the manufacturing potential of the renewables sector. The application should include relevant economic information connected with the project, including the potential number of jobs, and economic activity associated with the procurement, construction operation and decommissioning of the development.

7. Contents of the Environmental Statement

Guidance can be found in the Marine Works (Environmental Impact Assessment) Regulations 2007, Schedule 3

Format

Developers should be aware that the ES should also be submitted in a user-friendly PDF format which can be placed on The Scottish Government website. A description of the methodology used in assessing all impacts should be included.

It is considered good practice to set out the qualifications and experience of all those involved in collating, assessing or presenting technical information within the ES.

Non Technical Summary

This should be written in simple non-technical terms to describe the various options for the proposed development and the mitigation measures against the potential adverse impacts which could result. Within an ES it is important that all mitigating measures should be:

- clearly stated;
- fully described with accuracy;
- assessed for their environmental effects;
- assessed for their effectiveness;
- their implementation should be fully described;
- how commitments will be monitored; and
- if necessary, how they relate to any consents or conditions

Given that the layout and design of the proposals are still developing and evolving, the exact nature of the work that is needed to inform the EIA may vary depending on the design choices. The EIA must address this uncertainty so that there is a clear explanation of the potential impact of each of the different scenarios. It should be noted that any changes produced after the ES is submitted may result in the requirement of further environmental assessment and public consultation if deemed to be significant by the licensing authority.

Baseline Assessment and Mitigation

Refer to Annex 1 for consultee comments on specific baseline assessment and mitigation.

8. Archaeology and Cultural Heritage

General Principles

The ES should address the predicted impacts on both the marine historic environment and the potential for the onshore impacts of terrestrial elements of the development. It should also describe the mitigation proposed to avoid or reduce impacts to a level where they are not significant. Historic environment issues should be taken into consideration from the start of the site selection process and as part of the alternatives considered.

Codes of practice relating to heritage and seabed development;

- JNAPC Code of Practice for seabed development http://www.jnapc.org.uk/jnapc_brochure_may_2006.pdf
- COWRIE guidelines for offshore renewables and the historic environment http://www.offshorewind.co.uk/Assets/archaeo_guidance.pdf
- COWRIE guidelines on cumulative assessment of offshore renewables and the historic environment http://www.offshorewind.co.uk/Assets/cowrie_ciarch%20web.pdf
- Offshore Geotechnical Investigations and Historic Environment Analysis: Guidance for the Renewable Energy Sector, January 2011 http://www.offshorewindfarms.co.uk/Assets/Offshore%20Geotech%20Guidance%20web.pdf
- Model Clauses for Archaeological Written Schemes of Investigation: Offshore Renewables Projects http://www.wessexarch.co.uk/system/files/WSI%20Renewables_low%20res.pdf
- British Marine Aggregates Producers Association protocols for archaeological discoveries http://www.wessexarch.co.uk/files/projects/BMAPA-Protocol/BMAPA-EH-Guidance-Note-April-2003.pdf

- Protocol for Archaeological Discoveries: Offshore Renewables Projects http://www.wessexarch.co.uk/files/The%20Crown%20Estate_Offshore%20Renewables-PAD.pdf

National policy and advice for the historic environment is set out in:

- SPP http://www.scotland.gov.uk/Topics/Built-Environment/planning/National-Planning-Policy/newSPP
- The Scottish Historic Environment Policy ("SHEP") http://www.historic-scotland.gov.uk/shep-dec2011.pdf
- Planning Advice Note 02/2011 Planning and Archaeology (PAN 02/2011) http://www.scotland.gov.uk/Resource/Doc/355385/0120020.pdf

The Scottish Minister's policies for the historic environment are set out in paragraphs 110 – 124 of SPP. Amongst other things, SPP stresses that scheduled monuments should be preserved in situ and within an appropriate setting and states that developments must be managed carefully to preserve listed buildings and their settings to retain and enhance any special architectural or historic features of interest. Further information on setting can be found in the following document: Managing Change in the Historic Environment http://www.historic-scotland.gov.uk/setting-2.pdf. Impacts on undesignated aspects of the historic environment should also be taken into account as part of any EIA.

Historic Scotland recommend that you engage a suitably qualified archaeological/historic environment consultants to advise on, and undertake, the detailed assessment of impacts on the historic environment and advise on appropriate mitigation strategies.

Baseline Information

Information on the location of all archaeological/historic sites held in the National Monuments Record of Scotland, including the locations and, where appropriate, the extent of scheduled monuments, listed buildings and gardens and designed landscapes can be obtained from www.PASTMAP.org.uk

Data on scheduled monuments, listed buildings, Inventory gardens and designed landscapes, historic battlefields and properties in the care of Scottish Ministers can also be downloaded from Historic Scotland's Data Services website http://data.historic-scotland.gov.uk/pls/htmldb/f?p=2000:10:3234826639166657.

9. Navigation

The ES should include the following details on the possible impact on navigation for both commercial and recreational craft.

- Collision Risk
- Navigational Safety
- Visual intrusion and noise
- Risk Management and Emergency response
- Marking and lighting of Tidal Site and information to mariners
- Effect on small craft navigational and communication equipment
- Weather and risk to recreational craft which lose power and are drifting in adverse conditions
- Evaluation of likely squeeze of small craft into routes of larger commercial vessels.

10. Ecology, Biodiversity and Nature Conservation

Refer to Annex 1 for comments from advisors on ecology, biodiversity and nature conservation.

Species

The ES should show that the applicants have taken account of the relevant wildlife legislation and guidance, namely

- Marine (Scotland) Act 2010
- Marine and Coastal Access Act 2009 (as amended)
- Council Directives 92/43/EES on The Conservation of Natural Habitats and of Wild Flora and Fauna
- Conservation of Wild Birds (commonly known as the Habitats and Birds Directives)
- Wildlife & Countryside Act 1981
- Nature Conservation (Scotland) Act 2004
- Wildlife and Natural Environment (Scotland) Act 2011
- Protection of Badgers Act 1992
- Conservation (Natural Habitats, &c.) Regulations 1994
- Conservation of Habitats and Species Regulations 2010
- Offshore Marine Conservation (Natural Habitats, &c) Regulations 2007
- Scottish Government Interim Guidance on European Protected Species
- Development Sites and the Planning System and the Scottish Biodiversity Strategy and associated Implementation Plans

In terms of The Scottish Government Interim Guidance, applicants must give serious consideration to/recognition of meeting the three fundamental tests set out in this Guidance. **It may be worthwhile for applicants to give consideration to this immediately after the completion of the scoping exercise.**

It needs to be categorically established which species are present on and near the site, and where, before the application is considered for consent. The presence of protected species such as Schedule 1 Birds or European Protected Species must be included and considered as part of the application process, not as an issue which can be considered at a later stage. Any consent given without due consideration to these species may breach European Directives with the possibility of consequential delays or the project being halted by the European Commission. Likewise the presence of species on Schedules 5 (animals) and 8 (plants) of the Wildlife & Countryside Act 1981 should be considered where there is a potential need for a licence under Section 16 of that Act.

11. Water Environment

The Scottish Environment Protection Agency ("SEPA") encourages pre-application engagement to help the development process and to minimise risk of modifications later in the application process and avoidable delays or objections.

Information on energy proposals and issues that should be addressed in the ES can be found on the energy section of SEPA's website at www.sepa.org.uk/planning/energy.aspx. The webpage also contains a link to the marine environment section of SEPA's website which provides more specific guidance.

If the proposal includes both onshore and offshore components the applicant should be aware that the development may be subject to a range of different consenting regimes. SEPA is the regulatory body responsible for the implementation of The Controlled Activities Regulations (CAR). Further information specifically in relation to the water environment and SEPA's water related regulations can be found at;

www.sepa.org.uk/water/water_publications.aspx

and

www.sepa.org.uk/water/water_regulation.aspx.

Developers are strongly advised at an early stage to consult with SEPA to identify 1) if a CAR licence is necessary and 2) clarify the extent of the information required by SEPA to assess fully any licence application.

Construction contractors may be unaware of the potential for impacts such as those listed below but, when proper consultation with the local fishery board is encouraged at an early stage, many of these issues can be averted or overcome.

- increases in silt and sediment loads resulting from construction works.
- point source pollution incidents during construction.
- obstruction to upstream and downstream migration both during and after construction.
- disturbance of spawning beds during construction - timing of works is critical.
- drainage issues.
- sea bed and land contamination

The ES should identify location of, and protective/mitigation measures in relation to, all private water supplies within the catchments impacted by the scheme, including modifications to site design and layout.

Developers should also be aware of available Construction Industry Research and Information ("CIRIA") guidance on the control of water pollution from construction sites and environmental good practice (www.ciria.org). Design guidance is also available on river crossings and migratory fish (The Scottish Executive consultation paper, 2000) at www.scotland.gov.uk/consultations/transport/rcmf-00.asp.

12. Other Material Issues

Traffic Management

The ES should provide information relating to the preferred route options for delivering equipment etc. via the trunk road network. The EIA should also address access issues, particularly those impacting upon the trunk road network; in particular, potential stress points at junctions, approach roads, borrow pits, bridges, site compound and batching areas etc.

Where potential environmental impacts have been fully investigated but found to be of little or no significance, it is sufficient to validate that part of the assessment by stating in the report:

- the work has been undertaken, e.g. transport assessment;
- what this has shown i.e. what impact if any has been identified, and
- why it is not significant?

13. General ES Issues

In the application for consent the applicant should confirm whether any proposals made within the ES, e.g. for construction methods, mitigation, or decommissioning, form part of the application for consent.

Consultation

Developers should be aware that the ES should also be submitted in a user-friendly PDF format which can be placed on The Scottish Government website. Developers are asked to issue ES directly to consultees. Consultee address lists can be obtained from MS.

Where the developer has provided the Scottish Ministers with an ES, the developer must publish their proposals in accordance with Part 3 of the Marine Works (Environmental Impact Assessment) Regulations 2007 and as amended by the Marine Works (Environmental Impact Assessment) (Amendment) Regulations 2011. Licensing information and guidance, including the specific details of the adverts to be placed in the press, can be obtained from MS.

New requirement for Public Pre-Application Consultation

From 6th April 2014, applications received for certain activities will be subject to a public pre-application consultation requirement. Activities affected will be large projects with the potential for significant impacts on the environment, local communities and other legitimate uses of the sea. The new requirement will allow those local communities, environmental groups and other interested parties to comment on a proposed development in its early stages – before an application for a marine licence is submitted.

Guidance on public pre-application consultation can be found at the following: http://www.scotland.gov.uk/Resource/0043/00439649.pdf

Gaelic Language

Where applications are located in areas where Gaelic is spoken, developers are encouraged to adopt best practice by publicising the project details in both English and Gaelic.

Ordinance Survey ("OS") Mapping Records

Developers are requested at application stage to submit a detailed OS plan showing the site boundary and all turbines, access tracks and onshore supporting infrastructure in a format compatible with The Scottish Governments Spatial Data Management Environment ("SDME"), along with appropriate metadata. The SDME is based around Oracle RDBMS and ESRI ArcSDE and all incoming data should be supplied in ESRI shape file format. The SDME also contains a metadata recording system based on the ISO template within ESRI ArcCatalog (agreed standard used by The Scottish Government); all metadata should be provided in this format.

Difficulties in Compiling Additional Information

Developers are encouraged to outline their experiences or practical difficulties encountered when collating / recording further information supporting the application. An explanation of any necessary information not included in the ES should be provided, complete with an indication of when an addendum will be submitted. It should be noted that submission of an

addendum will increase the time taken to determine an application. Any addendum will be subject to the same advertising and consultation as the original ES.

Application and ES

A developer checklist is enclosed with this opinion to assist developers in consideration and collation of the relevant ES information to support their application. In advance of publicising the application, developers should be aware this checklist will be used by the licensing authority in consideration of formal applications.

Consent Timescale and Application Quality

Developers are advised to consider all aspects of this scoping opinion when preparing a formal application to reduce the need to submit further information in support of your application. The developer, in accordance with section 13 (3) of the EIA Regulations, must ensure that the ES contains all of the information specified in the scoping opinion, unless agreed with MS. The consultee comments presented in this opinion are designed to offer an opportunity to consider all material issues relating to the development proposals.

Upon receipt, the licensing authority will use the enclosed checklist and scoping opinion in assessing the quality and suitability of the application in the gate check process. Developers are encouraged to seek advice on the contents of ES prior to applications being submitted, although this process does not involve a full analysis of the proposals. In the event of an application being void of essential information, the licensing authority reserves the right not to accept the application. Developers are advised not to publicise applications in the local or national press, until their application has been accepted by the licensing authority.

Under the Marine Licensing Appeals (Scotland) Regulations 2011, a person who has applied for a marine licence may by summary application, appeal to the sheriff of any sheriffdom against a decision taken by the licensing authority under section 29 (1) of the Marine (Scotland) Act 2010, or section 71 (1) of the Marine and Coastal Access Act 2009.

Signed

XX

13th June 2014

Authorised by the Scottish Ministers to sign in that behalf

Enclosed - Developer Application Checklist

Annex 1

CONSULTEE COMMENTS RELATING TO THE MORL MODIFIED OFFSHORE TRANSMISSION INFRASTRUCTURE

The following organisations provided a response in relation to the consultation on the MOfTI scoping report:

Marine Scotland ("MS")
Marine Scotland Science ("MSS")

Statutory Consultees

Local Authorities:

1. Highland Council ("HC")
2. Aberdeenshire Council ("AC")

Scottish Natural Heritage and the Joint Nature Conservation Committee ("the SNCBs")

Non Statutory Consultees

British Telecom (Radio Network Protection Team) ("BT")
Health and Safety Executive ("HSE")
Highlands and Islands Airports Ltd. ("HIAL")
Historic Scotland ("HS")
Moray Firth and North Coast Inshore Fisheries Group ("IFG")
Moray Firth Partnership ("MFP")
NERL Safeguarding ("NATS")
Northern Lighthouse Board ("NLB")
Royal Society for the Protection of Birds Scotland ("RSPB Scotland")
Royal Yachting Association Scotland ("RYA Scotland")
Scottish Fisherman's Federation ("SFF")
Whale and Dolphin Conservation (WDC)

Marine Scotland

MS-LOT has reviewed the scoping report and has the following advice to offer along with comments which MORL should take note of:-

MS LOT would comment on the use of a Design Envelope for flexibility both in the EIA process and in the final ES. It is the developers responsibility to give due consideration to what changes might be necessary and to provide details as to what might be required. The developer must also be able to justify whether or not a change is material to the EIA process. Where flexibility is required the developer should define either the alternatives or ranges within which parameters might fall. In the EIA process the various effects should be quantified and consideration given to effects on potential receptors. The ES should clearly state the reasoning for requiring such flexibility, the criteria for selecting the "worst case scenario" and the impacts which would arise from such a scenario.

Failure to give such consideration or a major change to a parameter outside those considered may invalidate the ES submitted, requiring the marine licence consultation process to be repeated. Considering the tight timelines associated with the requirement for issue of a marine licence on this project, no cause for repetition can be afforded. It is expected that the EIA will reduce the degree of design flexibility required and that the ES provided for consent will be further refined as a condition of consent to be finalised in a construction statement, at least 6 months before construction commences. Information regarding the impacts from construction of the infrastructure and the types of vessels to be used will be required in the construction statement.

The ES will have to go through the gate check process as it has to be considered in proportion to other projects of a similar type. MS LOT offers a Gate Check prior to formal submission of applications and advises MORL to take full advantage of this service. The gate check is not designed as an in depth evaluation of the content of an ES. However it will allow MS LOT the confidence that minimum legislative requirements have been met prior to formal submission of the ES. To assist the gate check process, a thorough gap analysis of the issues listed here by MS LOT and the consultee comments that follow, should be drawn up by MORL for submission with the ES.

The ES must show a map of the cable route showing the exact positions where the cable is to be buried, unburied and what physical protection is proposed before MS LOT will issue any marine licence. MS LOT reiterates the need for early discussions and the need for the aforementioned information to be provided in support of the marine licence application. If MORL do not provide the detailed seabed information for the route in time for the consultation on the marine licence application, then objections will likely be raised and that the time taken to resolve any differences will delay any issue of any marine licence.

This project may require capital dredging, and if so an amendment to the application submitted on 4th April 2014 will be required. The dredged material will require to be chemically analysed to ensure that it is suitable for sea disposal. Guidance on pre-dredge sampling, along with the Action Levels MS use to determine suitability for sea disposal can be obtained upon request from MS LOT.

Please be aware that, dredging of harbours and disposal of spoils, and the removal of aggregates, are two separate activities entirely and should not be confused as on page 125 of the Scoping Report. Dredging in the quoted context and sea disposal are activities associated with the periodic removal of material from harbours. Aggregate dredging is a completely separate industry. Should dredging be required for the OSPs, MORL must identify suitable sites for dredge spoil (surplus and unsuitable material). MORL must provide

a list of all the existing sea disposal sites in the Moray Firth, on a single admiralty chart showing the quantities deposited at each site for each year for the last ten years.

Regardless of the method of installation used for the transmission cables from the OSPs to the landfall point, modelling of sediment release, as a result of the burial process, will be required.

The ES must include what measures are proposed to be in place to do a pre-sweep for Unexploded Ordnance ("UXO's"). If discovered, the time it takes to remove such an object may have detrimental effects on the project timelines. This is of particular importance as the cable route passes through a firing practice area. MS LOT recommend that MORL engage with the Ministry of Defence on this matter.

MORL must include in the ES a Reporting Protocol which sets out what the developer must do on discovering any marine archaeology during the construction, operation, maintenance and monitoring of the proposed transmission infrastructure.

The cable landfall point methodologies must be detailed in the ES, i.e. cable trenching or horizontal directional drilling ("HDD"), to name a few. MS LOT recommend the developer hold discussions with the local council (Aberdeenshire), the SNCBs and MSS to establish best options and any major consenting issues that may arise. These can be hosted by MS-LOT if required.

It is critical that MORL set up a meeting post scoping to engage with statutory consultees including stakeholders such as the SFF to run through the various scenarios which would include, but not be restricted to: cable envelope surveys, trenching and non-trenching options, post lay mitigation measures to reduce snagging hazards, dredging activity, scour protection and impact protection, long-term cable envelope monitoring programme, appointing Ecological Clerk of Works ("ECoW's) and Fisheries Liaison Officers ("FLO's").

MORL must ensure the safety of navigation is not compromised by the works. The navigable depth must not be altered by more than 5% of stated chart datum unless otherwise agreed, in writing, with MS, the Maritime Coastguard Agency ("MCA") and NLB. A Navigational Risk Assessment ("NRA") will be required for any location likely to infringe on the 5% threshold.

MS LOT requires clarification on the additional Data Sources listed on page 115. Do MORL mean the Marine Scotland District Fisheries Inspectors to be Marine Scotland Compliance? MS LOT suggest additional data sources as Scottish Renewables and the Scottish Salmon Netting Association. Care should be given to include any local harbour authorities.

The applicant should be made aware of the definition of disturbance and the legal provisions on European Protected Species ("EPS") and that an EPS Licence may be required. Therefore MS LOT recommends that an EPS risk assessment is submitted to MS LOT well in advance of any planned surveys or construction activities. Basking sharks are now subject to similar considerations through the Wildlife and Natural Environment (Scotland) Act 2011, with licensing requirements now applicable. MS is responsible for issuing these if required.

MS LOT require the developer to be aware of proposed new Marine Protected Areas ("MPAs") located nearby the proposed development area and take account of possible impacts on these within the EIA process and ES itself. MORL should be aware of the nearest search locations.

Piling noise should be modelled for the OSPs and assessed in combination with all other developments in the Moray Firth, and perhaps further afield. Discussions with MS LOT, the SNCBs and MORL will take place as soon as possible to determine the relevant projects.

The proposed revised landfall points for the transmission cables at or near Inverboyndie or Sandend, increase the possible interaction of the works with diadromous fish, as the works are now closer to the River Spey SAC and the River Deveron. Timing of construction of the works, as it comes into the intertidal area, will be important so as to try and avoid unnecessary impacts on diadromous fish.

The ES must include some calculations to demonstrate the degree of alteration of natural electromagnetic fields ("EMF") that would be caused by the cables. MS-LOT require MORL to model EMF under operational and shutdown conditions and relate this to fauna. This may have an effect on marine species directly (impact on species itself) or indirectly (impact on prey). Modelling the EMF will involve knowing the current in the cables, the degree of shielding inherent in the cable, the depth of burial and/or armouring, and the consequential alteration to natural fields at the sediment surface and in the water column. The predicted changes to fields should then be compared with what is known about sensitivity of mammals and fish to EMF. A cumulative consideration of other cables in the Moray Firth should be completed.

On review of the Cumulative and In-combination Impacts assessment (page 34), consideration of the projects under the National Renewables Infrastructure Plan will be required. Please add the projects of Nigg, Invergordon and Ardersier to the list.

MS LOT recommend that the applicant checks for Annex 1 habitats and Priority Marine Features ("PMF") during survey work as well as any Biodiversity Action Plan ("BAP") habitats and species.

MS LOT recommends that the assessment of any impacts on Fisheries in the ES be as robust as it can be.

Marine Scotland Science

1. Fish Ecology and Commercial fisheries

(i) Fish and Shellfish Ecology

Sandeels
Sandeel populations tend to be patchy in nature due to the reliance on a specific range of sediment. There are patches of sandeels present in and around the site and there is a strong possibility that there may be patches of sandeels along the cable route. Providing a patch is not completely within the cable route, there should be the opportunity for re-colonisation post disturbance. There may be some localised disturbance and suspended sedimentation but this should be limited due to the sediments involved.

Herring
It would be preferable to avoid works during the herring spawning period if possible (Aug-Sep). This becomes more of an issue towards the land fall end of the route where sediments become more suitable for herring spawning and this area is known to be important North East spawning ground. Not only are herring sensitive to disturbance from noise but their eggs and larvae may also be sensitive to noise.

Cod

The Moray Firth has a genetically distinct population of Cod. Little is known of the precise location of spawning grounds within the Firth but it is known that cod vocalize in spawning aggregations (key period is between Feb-Mar). The frequency range of these vocalisations is between 30-250 Hz and can travel 200-500m from the source. Additional cod spawning surveys recently undertaken by the developers in the Moray Firth should be used to inform this process.

(ii) Commercial Fisheries

There are substantial locally important shellfish fisheries for brown crab and lobster. These predominantly consist of small vessels (<15m in length) that do not have VMS aboard. However, ScotMap project should be used as primary source of information on the potential overlap of the spatial distribution of smaller vessels with the proposed site. In general, these vessels work mainly between 0-6 nm from the shore. There is a very active small boat fleet working in the area mainly potting, but also an active summer Handline fishery for mackerel. Please visit for more information and access to spatial layers:
http://www.scotland.gov.uk/Topics/marine/science/MSInteractive/Themes/ScotMap

VMS vessel fishery data indicates the key target species as Nephrops, (mainly in the eastern part of the Firth), scallops (both closer to the shore and within the development) and some demersal whitefish species (further offshore). There is an increasing importance of squid in the Moray Firth as there are fewer restrictions on vessels targeting this species. As a result more vessels have been moving to target squid seasonally to alleviate pressure on other stocks and save days at sea for other TAC species.

It would be worth ensuring good contact is made and consultation maintained with fisheries representatives in the area. This is especially important for the non-VMS vessels which are not represented by the VMS data plots. Points of contact other than the SFF, may include local fishery offices and the inshore fisheries group coordinator for the Moray Firth.

(iii) Liaising with the fishing industry

It is acknowledged that the developers have already seek to liaise with the fishing industry through Moray Firth Offshore Wind Developers Group (“MFOWDG”). Additionally, please consider appointing a Company Fishing Liaison Officer to act as the primary point of contact for the fishing industry. In addition, it is advised to establish Fishing Industry representative(s) to act as a single onshore trusted contact point within the fishing community. The developer may consider a dedicated International Maritime Mobile VHF working channel for the exchange of relevant information between contractors afloat and other vessels in the area during construction and maintenance.

All the above recommendation will facilitate efficient dissemination of information from the developer to the fishing community and vice versa, in a timely and all-inclusive manner. The developer may consider developing a Fisheries Liaison Plan which will include mitigation and coexistence plan. Please see more at the guidance produced by COWRIE on options for the mitigation of impacts of offshore wind farms on fishing activities. MSS would expect to see a specific chapter in the stakeholder section where potential concerns of the fishing community raised during consultation have been addressed.

(iv) Section specific comments

Section 2

Section 2.2.1, p. 20, §7: It is stated that 2 landfall location (Inverboyndie and Sandend) are considered the preferred options with minimal impact on the environment and the shortest overall cable route. This should change to "… relatively lower environmental impact when compared to the rest of the options".

Section 2.3.2, p. 28, §1: Proposed Transmission Cable Infrastructure comprise up to four submarine HVAC export cables in up to four separate trenches separated by four times the water depth apart. The overall footprint of the export cable might cause significant interactions with the fisheries in the area (see overall comments comments) especially during construction. Early engagement with the fishing industry is advised. Additional details (duration, installation methodology, local requirements of additional cable protection etc,) on the export cables installation plan should be made available and the plan should be consulted within MFOWDG – Commercial Fisheries Group to avoid cumulative impacts on fisheries from surrounding developments.

Section 2.3.3, p. 28, §1: The proposed target burial depth is 1 metre. In cases where this burial depth cannot be achieved, additional protection has been suggested. Potential options include rock placement or concrete mattressing. SFF has advised rock placement to be a favourable option in the past. However, this is less effective and increased gear interaction potential with the high intensity Scallop dredging in the Moray Firth.

Section 5

Section 5.2.3, p.81, Table 5-1: Green colour has been used for unknown intensity of spawning/ nursery grounds. You might want to consider replacing this colour as one might assume it suggests a positive interaction instead of spatial overlap.

Section 5.2.3, p.81, §2: Authors referred to sandeel surveys within the western development area and eastern development area. A map of the locations and sandeel counts of the sampling stations is advised.

Section 5.3.1, p.115, §1: Additional sources to provide information on the existing human environment may include local Inshore Fisheries Group.

Section 5.3.2, p.115, §1: Fisheries baseline assessment was based on relatively old data (2000-2009) on a course scale (ICES rectangle). MSS commercial fishing landings distribution maps relate to data from 2007-2011. MS may provide more up to date datasets in a greater scale for a more informed baseline assessment.

Section 5.3.2, p.115, §2: Although developers have identified ScotMap project as a potential data source in Section 5.3.1., baseline assessment of vessels under 15 m is very limited. Overlapping the development (including export cabling) with ScotMap layers is advised.

Section 5.3.2, p.115, §3: Sentence "As a result of vessels under 15 m not currently being required to be monitored, the activity of this fleet may not be represented" should be replaced with "… is not represented".

Section 5.3.2, p.115, §4: Please provide a table with landings breakdowns for both ICES rectangles.

Section 5.3.2, p.114, Effects Description Table: Displacement of fishing activities during construction should also be scoped in and discussed in the site-specific impact assessment methodology as part of the general effect of “Interference with fisheries activities”.

Section 5.3.2, p.118, §5: Proposed potential mitigation measures include cable burial where possible, additional cable protection measures where burial is not possible, consultation with the industry and ensuring integrity of the offshore export cable and fishing activities post-installation. You may consider co-existence options with the fishing sector e.g. fishing vessels could provide guard vessel services, or service boats for periodic overhauls (visual inspection and surveillance purposes)

(v) Additional guidance references and data sources

Section 5.3.2, p.118, §1: Check The Fishing Liaison with Offshore Wind and Wet Renewables Group (“FLOWW”) website for a copy of “FLOWW Best Practice Guidance for Offshore Renewables Developments: Recommendations for Fisheries Liaison” - http://www.thecrownestate.co.uk/energy-infrastructure/offshore-wind-energy/working-with-us/floww/

Subsea Cables UK guidance on overlaps with fishing - http://www.subseacablesuk.org.uk/guidelines/

Additional guidance Seafish’s Best Practice Guidance for Fishing Industry Financial and Economic Impact Assessments provides methods for calculating financial impacts as a result of areas closed or restricted for fishing: http://www.seafish.org/media/634910/ukfen%20ia%20best%20practice%20guidance.pdf

The KIS-ORCA interactive map of OREIs and subsea cables: http://www.kis-orca.eu/map

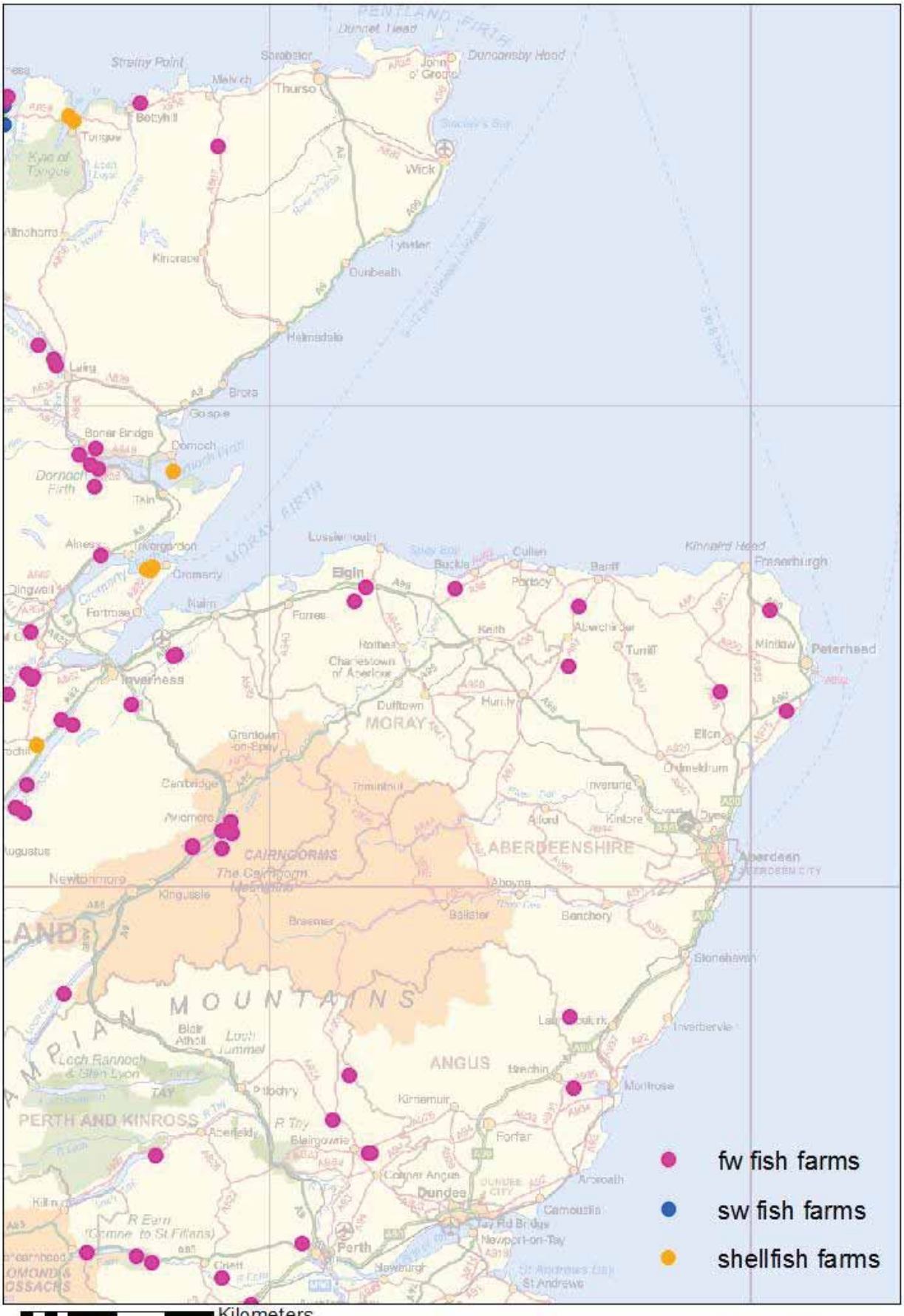
Visit MS Interactive website to get access to spatial data held by MS – http://www.scotland.gov.uk/Topics/marine/science/MSInteractive

2. Freshwater Fish Planning

There are currently no aquaculture sites registered with MSS located in the vicinity of the development proposed by Moray Offshore Renewables Ltd. (see map below).

The nearest aquaculture site is situated ~24 km west of the proposed development. It is a wild mussel site, currently active and operated by Highland Council.

Map of Fish Farms in the North East of Scotland



3. Diadromous Fish and Associated Fisheries

This is an application for a modified offshore transmission infrastructure for a wind farm which has been consented. The modification is to allow a different export cable route and landfall but the issues to consider and the general principles of risk assessment remain the same, as were considered in connection with the previous application. MSS would therefore hope that the new EIA can as far as possible use information that was submitted previously, updated where necessary.

The main change requiring consideration in relation to diadromous fish and associated fisheries is that the landfall is now likely to be in Boyndie Bay which lies immediately to the west of the mouth of the River Deveron, an important salmon and sea trout river, or Sandend Bay, further to the west, rather than at Fraserburgh beach. As at the previously proposed landfall site, large numbers of salmon and sea trout will be expected to be present at times at these new potential landfall locations too, and suitable precautions will need considered as previously. Any salmon and sea trout net fisheries close to the new proposed landfalls will also need identified and consulted with. Boyndie Bay is in the Deveron Salmon District and Sandend Bay in the Spey Salmon District so the Deveron and Spey District Salmon Fishery Boards will need to be consulted.

4. Benthos

Page 75, Impact Assessment Methodology

None of the proposed assessment methods along cable routes seem to include grab sampling. This should be undertaken to assess the populations of infaunal species such as *Arctica islandica* and *Maera loveni*. Given that the cable corridor might be up to 1.6 km wide MSS suggest that grab sampling should be considered.

Page 95, Intertidal Benthic Ecology

There is no mention of assessing the infaunal populations of soft sediments (beaches) – core or quadrat sampling perhaps. Also, it would be useful to monitor possible changes in beach dynamics caused by cable laying activities – beach profiles and PSA for example. Are there any algal or marine plant beds in the vicinity of the cable landfalls?

5. Marine Planning and Analysis

The socio-economic aspects of this scoping report are largely satisfactory. In summary, MSS would expect the EIA to include the gross and net employment impacts, and the gross and net GVA impacts. Both of these should be presented separately for the construction, Operation and Maintenance and Decommissioning phases. They should also be reported at a range of appropriate geographic scales. To assist with that, it would be helpful to see a clear definition of the labour market catchment area. Background info on the industry structure and employment structure would be useful. Clear consideration and use of the concepts of additionality, displacement and leakage should also be demonstrated. The same would be required regarding economic multipliers.

Local Authority

1. Highland Council

The HC made no comments on the scoping report for the Modified transmission Infrastructure.

2. Aberdeenshire Council

AC are generally content with the scope of the assessment, the environmental effects identified and the significant effects to be scoped in. Overall, it appears to cover the main environmental impacts and proposed accepted methodology.

The AC Natural heritage Team raised no issues in terms of their particular area of interest, considering that the scoping report is comprehensive and acceptable.

Scottish Natural Heritage and the Joint Nature Conservation Committee ("the SNCBs")

MORL ROUND 3 OFFSHORE WIND FARMS: REVISED TRANSMISSION WORKS.
THE SNCBs SCOPING ADVICE FOR OFFSHORE CABLE WORKS & SUBSTATIONS

Thank you for requesting comments from the SNCBs on the revised offshore transmission works for the MORL Round 3 wind farms – Telford, Stevenson and MacColl – proposed in the outer Moray Firth. SNH and the JNCC provide joint advice as the proposed export cables will cross both Scottish territorial and offshore waters. This letter supersedes the SNCBs previous scoping advice (14 December 2011) on the original proposals for the MORL grid connection.

An amended grid offer for the MORL wind farms (from Fraserburgh to a new location south of New Deer) has necessitated revisions to the offshore and onshore cable routes, and probable changes to the location(s) of the offshore substation(s). Further detail is provided in the introduction to the scoping report; the new grid connection point is shown on Figure 1-2 and the search area for the offshore cables is shown on Figure 2-2.

Appendix 1 of this letter provides the SNCBs scoping advice in relation to the offshore transmission works. The SNCBs has already been consulted on the geophysical and geotechnical surveys for the offshore cable and has provided advice to MS in this regard (letter dated 17 April 2014). SNH has also provided advice (14 May 2014) to Aberdeenshire Council on the onshore elements of the proposed transmission works.

APPENDIX 1

MORL TRANSMISSION WORKS: ADVICE IN RESPECT OF OFFSHORE CABLE WORKS
The SNCBs advice relates to the potential impacts from the offshore section of the revised MORL transmission works. The SNCBs provide advice on the following aspects:

1. Technical Information on Offshore Export Cable
2. Hydrodynamic Processes & Coastal Geomorphology
3. Benthic Ecology
4. Fish and Shellfish of Conservation Concern
5. Marine Mammals
6. Ornithology

7. Landscape, Seascape and Visual Impact Assessment.

There are a number of cables being proposed in the Moray Firth, including the Caithness / Moray subsea cable link, export cables for the Beatrice Offshore Wind Farm as well as these export cable(s) for the MORL Round 3 wind farms. The SNCBs continue to recommend liaison between the various parties involved, to try and take a more strategic approach to planning this work, including cable-laying and associated construction activity.

1. Technical Information on Offshore Export Cable

For the updated transmission works, the applicant confirms that an AC connection will be used (see section 2.3.2 of the scoping report). Four offshore export cables will be installed with a distance between them of four times the water depth (section 2.3.3). The SNCBs would welcome a detailed description of the route options (including proposed landfall) and construction phasing for these cables in order to reduce any potential impacts on sensitive habitats and species. This includes confirmed information on the following technical aspects, to be submitted in any ES supporting the marine licence application for the works:

- Method of cable-laying and burial (jetting or ploughing?).
- Installation method for cable landfall (trenching or directional drill?).
- Footprint of the area affected by the operations (i.e. cable laying and cable protection).
- Method and quantity of cable protection, if required (such as rock armouring or concrete mattresses).
- Duration, rate and timings of cable-laying.
- Direction of cable-laying (offshore in or inshore out?).
- Number and types of vessels (including propulsion systems) to be used in cable-laying operations.
- Estimation of electromagnetic fields ("EMF") potentially arising from cables both at exterior of cables and at surface of seabed above buried cables.
- Estimation of noise emissions from cable-laying works.
- Anticipated lifespan of the export cables in this location.

The SNCBs recommend that this technical information is included in any application for the offshore transmission works (in preference to use of a design envelope). The SNCBs would also welcome confirmed details on the location, design and installation methods for the offshore substation platform(s) – up to two are proposed.

2. Hydrodynamic Processes & Coastal Geomorphology

The SNCBs refer to sections 5.1.2 and 5.1.6 of the scoping report addressing 'Physical Environment (Offshore)' and 'Physical Environment (Onshore)' respectively. The SNCBs agree with the aspects 'scoped in' and 'scoped out' for the offshore assessment as set out on pages 45-47 of the scoping report.

The SNCBs consider it appropriate to focus attention on the two geological Sites of Special Scientific Interest ("SSSI") in the area – Cullen to Stake Ness Coast SSSI and Whitehills to Melrose Coast SSSI – adjacent to each of the potential landfall options at Sandend Bay and Boyndie Bay (p.55). the SNCBs advise that employing an experienced coastal geomorphologist will help in assessing the suitability of landfall options and in advising on detailed routing / micro-siting. The SNCBs would also welcome further discussion on these geological interests to help inform the development of cable routes and cable laying options.

3. Benthic Ecology

The SNCBs refer to section 5.2.2 in the scoping report on 'Benthic Ecology' and agree with the scope of impacts to be considered (pp.75 – 77):

- Smothering effects / suspended sediment: the applicant should consider the potential for benthic species to be smothered by sediment released from cable-laying, trench-digging and/or installation of the substation platforms. The potential for any buried contaminants to be released from such work should also be considered.
- Habitat loss: the applicant should consider loss of habitat once the technical aspects and proposed working methods have been confirmed (see section 1 above), and in the context of the biotopes recorded along the length of the cable route and at the proposed locations for offshore substation platforms.
- If a design envelope is being used for the application, then habitat loss will need to be estimated, using a worst case scenario, for each option being considered, so that comparisons can be made.
- Habitat change: the applicant needs to consider any reef effects or changes in benthic communities arising from any scour protection used for the export cable or the offshore substation foundation(s).
- Electromagnetic effects: the applicant will also need to consider the potential impacts on benthic communities from any thermal load or EMF arising from the cables during operation.

It is also important to consider the indirect effects on other receptors (marine mammals and seabirds) if their prey species could be impacted by the offshore cable works.

The scoping report provides a preliminary appraisal of available information on the baseline environment including consideration of Annex 1 habitats and Priority Marine Features[1]. BAP habitats and species[2], and the OSPAR list of threatened species and habitats[3], should also be considered in the assessment.

The SNCBs advise that benthic survey work will be required for the offshore cable as the majority of the new cable search area has not previously been surveyed. The SNCBs welcome the initial proposals for this work – including Drop Down Video ("DDV") and 0.1 m^2 stainless steel Day or Hamon grab samples (pp.78 & 79) – and the SNCBs look forward to being consulted on the detailed methods. There is the potential for Annex I habitat rocky reef to occur within the cable search area as it approaches shore. Early analysis of benthic survey data may help to refine proposals or indicate if further detailed surveys are required.

The SNCBs presume that location of the substation(s) can be informed by the geophysical, geotechnical and benthic survey work already completed, or planned, for the MORL Eastern Development Area.

4. Fish & Shellfish

The SNCBs refer to section 5.2.3 in the scoping report on 'Fish & Shellfish Ecology'. MS can advise whether the proposed benthic survey work and studies are sufficient to provide supplementary data on fish and shellfish, particularly herring and sandeels, and whether any targeted surveys are required for these interests.

The SNCBs note that table 5.2 (p.84) includes the Special Area of Conservation ("SAC") rivers that may need consideration, of which the closest – the River Spey SAC – is probably the most relevant. The SNCBs note that the following impacts will need consideration in respect of the qualifying interests of the listed SACs, as well as in relation to marine fish and shellfish:

- Smothering effects / suspended sediment: the applicant should consider potential smothering from sediment release in respect of less mobile fish and shellfish species as well as for the eggs of species which spawn in the area. Clarification on the

location and footprint of the export cables route and the timing / seasonality of operations can help in the assessment of these potential effects.

- The potential for any buried contaminants to be released from suspended sediment should also be considered.
- Habitat loss: benthic interests are discussed above, however, the applicant should also consider the extent of habitat loss in respect of marine fish and shellfish.
- Habitat change: the applicant needs to consider any reef effects or creation of habitat arising from any scour protection used for the export cable or Offshore Substation Platforms ("OSP(s)).
- Electromagnetic effects: the response of fish and shellfish to EMF is poorly understood and will need consideration. It would be helpful if the applicant could estimate EMF for the chosen AC cable type and make a comparison between:
  (i) EMF emitted without any mitigation; and
  (ii) any residual EMF emitted after adoption of mitigation methods.

In particular, the SNCBs seek to understand whether cable burial limits the strength, or reach, of EMF effects and whether more advanced cable casing might limit such effects.

5. Marine Mammals

The SNCBs refer to section 5.2.4 in the scoping report on 'Marine Mammals' and section 5.1.5 on 'Underwater noise'. The SNCBs agree that there is extensive information available on marine mammals in the Moray Firth. The SNCBs highlight that the south coast of the Moray Firth is particularly important for bottlenose dolphin (most are recorded within 3 km of the coast), and it is also an area of search for a potential Marine Protected Area ("MPA")[4] in respect of minke whale. In addition to the data sources listed in the scoping report, the SNCBs recommend contacting the Cetacean Research and Rescue Unit[5] who have done a lot of work on minke whale in the area as well as Whale & Dolphin Conservation[6] who collate sightings for Spey Bay.

Table 5-3 (p.90) sets out the range of marine mammals recorded in the Moray Firth. As correctly identified in the scoping report, bottlenose dolphin are a qualifying interest of the Moray Firth SAC and harbour seal are a qualifying interest of the Dornoch Firth and Morrich More SAC. Further advice in respect of the legislative process and Habitats Regulations Appraisal ("HRA") applying to these SAC interests can be found in the SNCBs scoping advice on the MORL Round 3 wind farms (letter dated 28 October 2010 – Annex E).

Each of the cetaceans listed in Table 5-3 is a European Protected Species ("EPS") and the SNCBs scoping advice on the MORL wind farms also provides advice in this regard (see Annex C).

The SNCBs agree with the scope of impacts to be considered for marine mammals as discussed in the tables on page 92 and 93:

- Disturbance / displacement as a result of construction / operational noise: particularly relevant for the installation of the OSP(s), depending on foundation type, and the placement of scour protection if needed for the OSP(s) or along the cable route. As discussed above, the southern Moray coast is important for marine mammals, so particular care will be needed for working in these coastal waters. The SNCBs recommend that directional drilling ("HDD") is considered for the cable landfall and connection to the offshore export cables.
- Collision risk, including potential corkscrew injury from ducted propellers: this issue is under current investigation by SMRU, in a research programme funded by MS. The SNCBs would welcome further discussion of this matter at an appropriate point, and

probably best co-ordinated by MS via the proposed regional advisory group for wind farm development in the Moray Firth (condition 27 on the MORL S36 consents).

- Indirect effects resulting from impacts on prey species: this issue can be informed by the results from benthic survey work. The SNCBs are satisfied that this aspect can be considered via desk-based appraisal as proposed in the scoping report.

The SNCBs also highlight the likelihood that cumulative impacts on marine mammals will need to be addressed for these proposed transmission works. There is a range of development consented, or proposed, that may impact on marine mammals in the Moray Firth including the MORL and BOWL offshore wind farms, their associated transmission works, the Caithness / Moray subsea cable link and a range of harbour developments including the three National Renewables Infrastructure Projects ("NRIPs") in the Moray Firth – Ardersier, Invergordon and Nigg – as well as other development proposals further afield.

The SNCBs would welcome further discussion of possible cumulative impacts at the appropriate time, probably best co-ordinated by MS via the proposed regional advisory group.

6. Ornithology

The SNCBs refer to section 5.2.7 in the scoping report on 'Ornithology (Offshore)'. The SNCBs note the potential for significant waterbird and wader interest along this coastline and in proximity to the cable landfall options. The JNCC have undertaken survey work as part of the process to identify new marine Special Protection Areas ("SPAs"), and the coastal waters of the Moray Firth are an area of search for a possible inshore SPA for non-breeding aggregations of marine waterbirds (ducks, grebes and divers). The SNCBs recommend further discussion with the JNCC's Seabirds at Sea team[7] to check for available survey data.

The SNCBs also recommend contacting the British Trust for Ornithology ("BTO") to obtain the WeBS[8] count data for this stretch of coastline. Depending on review of all available information, this may be sufficient to inform assessment and mitigation methods for waterbirds and waders in respect of the cable works. However, it is possible that further inter-tidal survey may be required or helpful for impact assessment.

The SNCBs advise that potential disturbance to waterbirds and waders is the key ornithological impact to address. The SNCBs do not identify any requirement for boat-based or aerial survey work in respect of seabird species along the cable route, although review of the data that MORL have already collected for the wind farms may be informative.

The SNCBs consider that desk-based appraisal is sufficient to consider potential disturbance or indirect impacts on seabird species arising from the export cable works. Consideration of any indirect impacts on seabirds from potential impacts to their prey species can be informed by the results from benthic survey work.

The SNCBs would also welcome further discussion of offshore substation lighting requirements in respect of seabirds. This could be undertaken as part of the discussions to discharge conditions on the Section 36 / marine licence for each wind farm (in particular condition 19 relating to lighting and marking plans).

7. Landscape, Seascape and Visual Impact Assessment

The SNCBs refer to section 5.3.8 of the scoping report: 'Seascape, Landscape and Visual Receptors'. As indicated, there was a comprehensive seascape, landscape and visual impact assessment ("SLVIA") provided in the ES supporting the Section 36 and marine licence applications for the MORL Round 3 wind farms.

The SNCBs would however, welcome some further consideration of the offshore substations as part of the assessment for the revised transmission works. This work can use the baseline character assessment and other information in the submitted wind farm ES to consider any additional, or different, SLVIA impacts from those previously assessed in respect of the proposed offshore substations in combination with the (consented) wind turbines.

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1. JNCC & SNH recommendations on Priority Marine Features are available from: http://jncc.defra.gov.uk/page-6052 http://www.snh.gov.uk/protecting-scotlands-nature/priority-marine-features/priority-marine-features/
2. UK BAP priority species and habitats: http://jncc.defra.gov.uk/page-5705
3. OSPAR list of threatened species and habitats: http://www.ospar.org/content/content.asp?menu=00180302000014_000000_000000
4. Further information on MPAs available from: http://jncc.defra.gov.uk/page-5269 and www.snh.gov.uk/protecting-scotlands-nature/protected-areas/national-designations/marine-protected-areas-(mpa)/
5. Cetacean Research and Rescue Unit: www.crru.org.uk/
6. Whale & Dolphin Conservation: http://uk.whales.org/
7. JNCC's Seabirds at Sea Team at: http://jncc.defra.gov.uk/page-4469
8. Further information on the Wetland Bird Survey (WeBS) available from: http://www.bto.org/volunteer-surveys/webs

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British Telecom (Radio Network Protection Team)

BT Radio Network Protection do not have any comments to make "Nil Return"

Health and Safety Executive

HSE is the national independent watchdog for work-related health, safety and illness. They have a dedicated team that regulates occupational health and safety standards for the offshore renewable energies industry. You are advised to contact this team to discuss how you will manage health and safety during the planning, construction and operation of your offshore renewable project.

They are contactable at:

Health and Safety Executive
Belford House
59 Belford Road
Edinburgh
EH4 3UE
trevor.johnson@hse.gsi.gov.uk
offshore.renewables@hse.gsi.gov.uk

Highlands and Islands Airports Ltd.

This development falls outside the safeguarded areas for Inverness Airport, therefore HIAL do not object to Transmission Infrastructure.

Historic Scotland

HS comments concentrate on our statutory remit for scheduled monuments and their setting, category A listed buildings and their setting and gardens and designed landscapes and battlefields appearing in their respective Inventories. This response covers the scoping for both the offshore and onshore elements of the proposal.

General Comments

HS welcome the preparatory work carried out in relation to identifying the scope of the assessment as it relates to the historic environment. HS is also content to agree with the proposed assessment methodology outlined within the report. HS therefore only have a small number of comments to offer at this stage. Given the relatively wide corridor, HS would be happy to discuss any issues arising for the historic environment as the proposals become more detailed and the assessment progresses. However, at this stage HS would ask that the historic environment baseline informs decision making relating to the preferred route and seeks to avoid these assets.

Offshore Environment

HS welcome the consideration given to the potential effects for the historic environment as a result of the offshore cable laying. The acknowledgment of the need to avoid features of historic interest is welcomed and in light of this HS particularly welcome the reference to best practice guidance relating to works taking place in the marine historic environment. In relation to Historic Marine Protected Areas (HMPA) HS can confirm that on 1 November 2013, section 1 of the Protection of Wrecks Act 1973 was repealed in Scotland. Historic shipwreck sites previously designated under this legislation have now been designated as Historic MPAs under the Marine (Scotland) Act 2010.

Onshore Environment

HS can confirm the findings of the initial baseline survey regarding designated sites within the onshore cable corridor and substation search areas. When considering options and working towards a detailed route for the transmission cable every effort should be made to avoid direct impacts on these sites. The consideration of any impacts on the setting of such sites is also to be welcomed, particularly in reference to the proposed substation.

Figure 5.20 Scheduled Monument Records

To note that SMR refers to Sites and Monuments Record as opposed to the reported Scheduled Monuments Record. It should therefore be noted that the majority of the sites identified in this figure are not scheduled monuments.

Site Specific Survey Methodology

HS welcome the guidance and legislation that will be referred to when carrying out the assessment or bringing forward mitigation. As a point of detail Scottish Planning Policy 23: Planning and the Historic Environment has been superseded by the consolidated Scottish Planning Policy.

HS are happy to discuss any issue raised in their response.

Moray Firth and North Coast Inshore Fisheries Group

IFG would wish to make an observation in regard to EIA. The EIA on fishing is basically non-existent. MORL have collated no evidence on the majority of fish and especially shellfish to make any reasonable assumption on the impacts from the development.

Moray Firth Partnership

MFP advised they will not be submitting a detailed response to this preliminary consultation. MFP copied the details to the East Coast, Moray Firth and North Coast Inshore Fisheries Groups, and have encouraged the IFG members to respond directly as appropriate.

NERL Safeguarding ("NATS")

NATS anticipates no impact from the Modified Transmission Infrastructure for the Moray Firth wind farms. As such NATS has no comments to make on the Scoping Report.

Northern Lighthouse Board

With regard to the proposed consultation and the scope of assessment, NLB would only comment on that part relating to Shipping and Navigational Safety.

NLB would advise that the following should be considered as an initial response to the scoping document regarding input to the EIA which will accompany any necessary marine licence application for the modified transmission infrastructure, and that any formal recommendations for any lighting and marking will be given through the Marine Licensing process.

NLB would anticipate that a 'Method Statement' would form part of the application, and that this would include details of any offshore sub-station structures, cable laying and landfall works. A NRA will also be required as part of the application, to ensure that hazards posed to the marine user are minimised.

NLB are happy to offer any further assistance, or if any of the above may require clarification.

Royal Society for the Protection of Birds Scotland

The focus of the RSPB Scotland response is that of potential ornithological impacts arising from the proposed development, both on and offshore. RSPB Scotland support the assessment of potential cumulative effects, particularly given the extent of activities that could occur across similar timescales within the Moray Firth over the next few years. RSPB Scotland also highlight below a number of issues that RSPB Scotland recommend require further consideration and reporting as part of the environmental impact assessment.

Onshore: Any potential impacts on breeding/ wintering birds can be avoided by carrying out cable-laying works out with these periods. A more detailed bird survey of particular sections may be required once the route has been selected, if any protected species are found.

In Section 5.2.6 Terrestrial Ecology the map in Figure 5-14 or the text in paragraph 5.2.6 does not include any reference to Aberdeenshire Council's Local Nature Conservation Sites (former SINS sites). Inclusion of these designations is recommended.

Offshore: In Section 5.2.7 Ornithology (Offshore) the offshore search area and the landfall points transect a favoured area for White-billed diver (*Gavia adamsii*), a globally Near Threatened species under IUCN and seaduck (particularly long-tailed duck which are Vulnerable under IUCN).

The White-billed diver spring range is concentrated in the area just offshore (from shore to 2km out) from Portsoy, but they can be scattered between Portsoy and Sandend. They appear regularly, arriving around early March and remain through to May. Local interest in recent years has led to the collection of records, including GPS information, although it remains unclear why the birds favour this area. White-billed diver are not included in the species list of the scoping report, however consideration should be made of any potential implications of the proposal on this species, which may include a requirement for further data collection and / or survey work.

RSPB Scotland are happy to offer assistance should you require any further information, or if any of the above issues may require clarification.

Royal Yachting Association Scotland

RYA Scotland do not envisage any adverse impact of the modified transmission scheme on recreational boating. During the construction phase, recreational sailors will best be alerted by notices at neighboring harbours and marinas, particularly the Caledonian Canal, Whitehills and Peterhead. Cable landfalls rarely pose a problem for anchoring by recreational craft and RYA Scotland will be happy to advise further if required once the exact landfall site has been chosen. Information on harbours in the this area can, in any case, be found in The Clyde Cruising Club Sailing Directions and Anchorages – Part 5, North East Scotland and Orkney Islands.

For completeness, RYA Scotland should note that the recreational sailing routes marked on Fig. 5-17 have been taken from The UK Coastal Atlas of Recreational Boating, 2nd edition, published by the RYA in 2008, to which reference should be made. The routes marked were based on expert opinion and are typical routes effectively marking the mid-point of a corridor. There have been no updates in this area since the date of publication although there has been an increase in traffic. The Pentland Firth and Orkney Waters Shipping Study commissioned by MS showed that although only a minority of recreational craft transmit an AIS signal, their courses were representative of recreational craft in general, except perhaps in areas close inshore. The same study showed the seasonal pattern of movements of recreational craft. In the present case, RYA Scotland see no need for the collection of additional data on the movement of recreational craft.

Scottish Fishermans Federation

The SFF responds on behalf of its nine constituent member associations: Anglo Scottish Fisherman's Association, Clyde Fisherman's Association, Fishing Vessel Agents & Owners Association (Scotland), Mallaig & North West fisherman's Association, Orkney Fisheries Association, Scallop Association, Shetland Fisherman's Association, Scottish Pelagic Fisherman's Association and the Scottish Whitefish Producers Association.

The SFF note that the proposal allows for up to 4 transmission cables. The SFF would expect these to be buried as far as possible at a depth to ensure minimum risk from snagging or changes in seabed as a result of tidal movement. Where this is not technically possible, consultation on the alternatives and mitigation proposals must be decided and agreed through the Moray Firth Commercial Fisheries Working Group which must include those potentially affected by the cable route.

The SFF are content with the definition given in Chapter 3, page 35 on the cumulative and in combination impacts, and expect to see these clearly illustrated along with any necessary mitigation.

The SFF are content with the baseline fisheries given in Chapter 5.3.2 and vessel activity in 5.3.3. If that knowledge is properly applied to the cable route as far as scallop activity to the North and South, Nephrops & demersal en route, squid and static gear to the South, the SFF are confident that any negative impacts on fishing will become clear and that appropriate mitigation measures will be developed.

Whale and Dolphin Conservation ("WDC")

Overall WDC were happy with what had been 'scoped in' for marine mammals.

For the 'cumulative impacts', developments outside of the Moray Firth should also be considered. For example, Aberdeen Harbour Extension and the three offshore wind farm developments in the Firth of Forth (Neart na Gaoithe, Inch Cape and Seagreen) should all be included because they are all within the Management Unit and known range of the Moray Firth SAC bottlenose dolphin population.

The risk of corkscrew injuries ("CSI") should be included in the EIA. It is not clear from the Scoping Report if CSI will be included in the section 'increased collision risk' or not.

WDC are happy to discuss any questions regarding these comments and look forward to receiving the EIA in the near future.

The following organisations did not provided a response in relation to the consultation on the MOfTI scoping report (“Nil Return”):

Moray Council (“MC”)
Scottish Environmental Protection Agency (“SEPA”)
Association of Salmon Fishery Boards (“ASFB”)
Beatrice Offshore Windfarm Limited (“BOWL”)
Bond Offshore Helicopters (“BOH”)
Bristows Helicopters (“BH”)
Chamber of Shipping (“COS”)
CHC Helicopters (“CHCH”)
Civil Aviation Authority (“CAA”)
Cromarty Forth Port Authority (“CFPA”)
Crown Estate (“CE”)
Defence Infrastructure Organisation (“DIO”. The Ministry of Defence)
Ithaca Energy (“IE”)
Joint Radio Company (“JRC”)
Marine Safety Forum (“MSF”)
Marine Scotland Compliance (“MSC”)
Maritime & Coastguard Agency (“MCA”)
Moray Firth Sea Trout Project (“MFSTP”)
Ports and Harbours (“PH”)
Scottish Canoe Association (“SCA”)
Scottish Fisherman’s Organisation (“SFO”)
Scottish Wildlife Trust (“SWT”)
Surfers Against Sewage (“SAS”)
Transport Scotland (“TS”)
University of Aberdeen (“UoA”)

Annex 2 – RYA SCOTLAND POSITION STATEMENT

THE RYA'S POSITION ON OFFSHORE ENERGY DEVELOPMENTS

DECEMBER 2009

The RYA has taken an active role in policy making that affects boat users and has been the voice of recreational boating for over a century. We represent our 100, 000 personal members and over 1500 affiliated clubs representing approximately 400, 000 boating enthusiasts and administer training standards at over 2000 recognised teaching establishments. Research conducted by the RYA, BMF, MCA, RNLI and Sunsail in 2006 showed there were approximately 3.5 million participants in boating-related watersports in the UK. The BMF estimates the total turnover of the UK leisure and small commercial marine industry in 2005/6 was £2.8 billion. Of this, the 'value added contribution' which is the principal measure of national economic benefit was £1.04 billion (37.6% turnover). The industry employs 35,000 people across 4300 different businesses.
RYA represents users of inland and coastal:

- Cruising and racing sailing and motor boats
- Sailing dinghies and day boats
- Windsurfers
- Personal watercraft

The RYA supports the UK Government's and evolved administrations' efforts to promote renewable energy[1]. We note that it is Government policy that wind farms should not be consented where they would pose unacceptable risks to navigational safety after mitigation measures have been adopted[2]. Our primary purpose in engaging in the consultation regarding the development of offshore energy developments is to secure navigational safety and to ensure that recreational boating interests are not adversely affected. The RYA has made objections to some of the proposed developments on grounds explained in this document. As more issues have come to light, we have reviewed our position on offshore energy development. We recognise that some marine renewable schemes may provide opportunities to benefit recreational sailors, e.g. active breakwater types of power generation can provide areas of sheltered water.

This position paper sets out our concerns from a general perspective and should enable developers to more accurately take account of recreational boating concerns in their environmental impact assessments.

In summary the concerns of recreational boating and offshore energy developments relate to:

1. Navigational safety
    a. Collision risk
    b. Risk management and emergency response
    c. Marking and lighting
    d. Effect on small craft navigational and communication equipment
    e. Weather

[1] The UK Renewable Energy Strategy 2009. HM Government
[2] Draft National Policy Statement for Renewable Energy Infrastructure (EN-3) DECC. November 2009. Note that this NPS will be a relevant planning consideration even though marine planning is a devolved issue in Scotland and Northern Ireland and in some cases Wales.

2. Location
    a. Loss of cruising routes
    b. Squeeze into commercial routes
    c. Effect on sailing and racing areas
    d. Cumulative effects
    e. Visual intrusion and noise
3. End of life
    a. Dereliction
    b. Decommissioning
4. Consultation

The MCA has developed guidance for assessing the navigational impact of offshore renewable energy installations, this should be utilised in addition to the information contained here[3].

1. Navigational Safety

Prior to leaving the shore, mariners make a passage plan and make assessments based on weather, tides and the environmental conditions. Offshore developments become an additional navigational hazard to the mariner. However, if sited sensitively, well designed and managed effectively these developments can satisfy the safety issues of concern to recreational boating.

Construction of the first offshore wind farm, North Hoyle, was completed in 2004. Since that time, Scroby Sands was completed in 2004, Kentish Flats in 2005, Barrow in 2006, Burbo Bank in 2007, Lynn in 2008 and Inner Dowsing in 2008. A further seven are currently under construction and seven more are consented and awaiting a start date. There have been no reported incidents involving recreational craft and offshore wind farms in these five years of operation around the UK coast.

Collision risk

The RYA believes that poorly designed wind farm developments could pose a risk of rotor blade collision with recreational craft. Wave and tidal developments and the sub-surface structures and scour protection associated with wind turbines could similarly pose a threat of underwater collision. The danger that moving rotor blades or other parts of the mechanisms pose is the reason for concern. Navigating around static hazards is part of sailing and only in rare situations, such as in narrow channels with strong tidal flows, do static installations pose a threat.

The RYA believes that the threat to recreational yachts can be minimised by specifying
1. a minimum rotor height clearance above mean high water springs of 22 metres
2. a minimum underwater clearance of 3.5 m below mean low water springs

The RYA has developed its position on clearance height and depth on the available data. Firstly an estimation of the air draught of the national fleet of yachts around the UK was established in the knowledge that these types of yachts may be found in all UK waters, these data are taken from the Royal Ocean Racing Club (RORC) Rating Office's database. For more detail see the final section on *Developing RYA policy on minimum clearance height and depth*.

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[3] (MGN 371 ***"Offshore Renewable Energy Installations (OREIs) - Guidance on UK Navigational Practice, Safety and Emergency Response Issues.",*** MGN 372 ***"Offshore Renewable Energy Installations (OREIs): Guidance to Mariners Operating in the Vicinity of UK OREIs".***

Risk management and emergency response

Risk management provisions should be formulated from the results of a site specific risk assessment that accounts for recreational craft. Recreational craft can be generalised as 'small craft' which are defined by the MCA as those craft under 24m in length. This distinction is important when it comes to equipment and other requirements for small and large craft. Guidance was developed in 2005 to outline the requirements for assessing the navigation impacts of offshore wind farms[4] .

For recreational craft, such an assessment should take into account the following parameters:

- The number, size and type of local vessels
- The number, size and type of national vessels
- Annual events that are not covered in a short term monitoring
- Wave height and sea state conditions
- Monitoring should be carried out during the high season
- A range of possible incidences

Any risk assessment should recognise that it is a theoretical process and that utilising historical data on the number of incidents reported to HM Coastguard from the area with no hazards in place may not adequately represent the situation with 30-300 installations in situ. It should also be recognised that not all incidents are reported to the Coastguard; generally only those that represent life threatening situations are reported. However, since commercial offshore wind farms have now been deployed in UK waters for five years, this experience should be fed into any risk assessment to provide an accurate and realistic predicted level of risk and enable a proportionate and practical set of measures to be put in place to address any unacceptable risk.

In order to effectively manage the risk of a vessel in distress drifting towards an installation, there needs to be an effective *Emergency Response System* in place. This will require the ability to shut down the moving parts, such as the turbines, when an emergency call is reported. In some cases, where traffic is high, a stand-by safety vessel may be required.

Safety Zones

The RYA's opinion remains that the creation of safety zones around wind turbines or other installations that exclude small craft on a wholesale basis are likely to be unnecessary, impracticable and disproportionate. In our view, such a restriction on the small craft's right of navigation is not justifiable in terms of safety and there is little possibility of enforcing such zones. In some locations, it may actually increase risk of collision as small craft may be pushed into the lanes of larger vessels or may have to make extended voyages.

European standards are now being established where small craft, under 24m, are exempt from any operational safety zones. The German Government was the first to recognise the negative implications of imposing safety zones on small craft and has exempted small craft from such zones. In principle the RYA has no objection to the creation of *advisory or precautionary zones* but such zones must be designed and implemented on a case-by-case basis and with due respect to the right of navigation. The RYA believes that the purpose of any *advisory or precautionary zones* should be to warn vessels to navigate with particular caution but they should not permanently restrict navigation or exclude recreational vessels. Wave and tidal technology is varied and is now the unknown factor when considering navigational safety impact. Nevertheless when these do not have moving parts within keel depth, their status as a hazard is in principle no different from that of a reef or other natural obstruction.

[4] Guidance on the Assessment of the Impact of Offshore Wind Farms: Methodology for Assessing the Marine Navigational Safety Risks of Offshore Wind Farms. 2005. DTI.

The RYA does, however, foresee occasions when it may be prudent to impose short-term temporary restrictions, for example during engineering, maintenance or construction works. Such temporary restrictions should be promulgated through Notices to Mariners. Many vessels visit the UK from continental Europe and this should be taken account of in any communication.

Cables and anchoring

A further issue relating to risk management is that of cables and anchoring. In most cases, small craft will not anchor within an offshore energy 'farm'. However, in emergency situations this may be the only way of securing a drifting vessel to ensure no damage is done. To secure the safety of navigation, cables should be buried to a sufficient depth to avoid being uncovered. This should take into account shifting sediments on the seabed.

Marking and lighting

As offshore renewable energy installations become more common in UK waters, the requirements for marking and lighting the sites should be consistent. This has been achieved for offshore wind and should be replicated for wave and tidal devices. Much work has been done in this field and guidance supported by RYA is available from Trinity House or the Northern Lighthouse Board as appropriate. For wind farms, as a minimum each turbine should be clearly marked in high visibility yellow paint to a height of 12 m, low level lighting should allow the turbine number to be read from a 'safe' distance, corners of the wind farms should be marked and any other points or routes through the wind farm marked accordingly. Wave and tidal developments vary dramatically in their design and the marking and lighting of these installations will need to be developed carefully. Wave power units that lie low in the water and that may move within an area of water, such as Pelamis, will be particularly hazardous to small boats and effective marking and lighting will be essential.

The RYA supports the guidance issued by the relevant light house boards on these issues and works with them to identify site specific issues that may occur.

Effect on small craft navigational and communication equipment

All craft larger than a dinghy will have some form of navigational equipment on board. The most common will be a magnetic compass. Large quantities of steel, cabling and the transmission of electrical power may produce interference with the magnetic compass. Studies have shown that the effect on systems such as GPS, VHF and mobile phones from wind farms is negligible. However, there is a demonstrated effect on radar systems which reduces the visibility of small craft to search and rescue vessels as well as to each other and larger commercial vessels. This causes concern when large wind farm developments are sited close to commercial shipping lanes and obstruct small craft routes avoiding these commercial routes or at the confluence of routes.

Problems may be found with small craft navigational equipment, which is not as powerful as commercial varieties, when we start consider installations further offshore. Antennae are likely to be lower and less powerful than many larger commercial vessels.

Any proposed development should account for the effect on small craft navigation and communication equipment in detail

Weather

Local weather conditions should also be examined in the risk assessment and measures taken to reduce the effects of poor weather conditions, low visibility and fog should be included in the risk management plan. Installations may need to have fog horns attached for low visibility conditions.

2. Location

The location of offshore energy installations is going to be crucial to navigational safety as well as potential loss of amenity for recreational craft. It should also be noted that commercial routes and shipping lanes do not represent those routes taken by small recreational craft. Whilst these routes will vary, the RYA, has collated these routes into the *UK Coastal Atlas of Recreational Boating* which is available from the RYA and which details cruising routes, sailing areas and racing areas as well as the location of marinas, RYA affiliated clubs and recognised training centres. This document should be consulted when considering the location of offshore energy developments and when writing an environmental statement.

Recreational routes, general sailing and racing areas must be accounted for when examining the impacts of wind farm developments.

Loss of cruising routes

When examining the routes and location of turbines it is important to recognise that sailing boats behave differently to power driven craft in that their actual line of travel may zigzag across the ultimate direction of travel as they are dependant on the wind direction. The coastal atlas should be consulted as well as any other available information to inform the siting of the developments and individual installations and the potential provision of navigation routes through the larger sites.

Along many stretches of coast, recreational craft may need to seek shelter in poor weather. Sheltered harbours and anchorages and routes to these harbours of refuge should be protected. These are identified as essential routes in the Coastal Atlas.

The loss of routes will also lead to an increased distance of travel. This has environmental implications for powered craft and safety implications for all craft. Some routes, typically narrow channels or strong tidal flows, may already be hazardous at times to navigate through and adding hazards in these areas may seriously compromise navigational safety. There are also safety issues with the creation of turbulence and wind shadowing in confined areas where craft may be moving slowly and gusty turbulent conditions may create problems.

Squeeze into commercial routes

Recreational routes differ from commercial routes as recreational craft essentially aim to keep out of the major commercial navigation routes by travelling in the shallower adjacent waters or taking other routes entirely. As a result, examining commercial routes alone will not enable the safe positioning of OREIs, recreational boating must also be accounted for. This may require routes through large developments to be identified or inshore routes for smaller craft to be safeguarded. The cumulative impact of all marine developments is becoming increasingly important when assessing these issues of squeeze.

Effect on sailing and racing areas

Most of the general day sailing and racing areas are close to the shore and in the more sheltered waters. The Strategic Environmental Assessment for Round 3 offshore wind development[5] recognises the busy inshore areas and states that the majority of offshore wind development should be beyond 12nm. European standards are again being set by Netherlands and Germany who have excluded any development within 12nm from the shore in order to retain 'open space' for its amenity and recreational value. Recreational activity is important to the health and wellbeing of the community as well as economic support for the local coastal economies. Retaining the undisturbed remoteness of some waters will be important in terms of its wilderness and amenity value.

In certain confined areas and areas heavily used for sail racing, the effects of wind turbines in terms of turbulence and shadowing on craft should be taken into account.

[5] Offshore Energy Strategic Environmental Assessment: Post consultation report. June 2009. DECC.

Any interference in wind speed and/ or turbulence created by a wind farm in a racing area would create a significant negative impact on the event site and diminish its value.

Cumulative effects
Of increasing concern with the planned number of developments is the need to assess each development in its wider surroundings. The *cumulative effects* of offshore energy installations on navigation routes will be increasingly significant. Existing navigation routes affected by other proposed development sites will need to be accounted for, rather than only current routes.

3. End of Life

Dereliction
Whilst we would hope that these installations remain economically viable for the lifetime of the structures, the RYA would support measures taken by Government to secure the financial implications of removing the structures, prior to consents been given. This will ensure that after the installation ceases electricity production for whatever reason, derelict structures that are not marked or lit and remain a hazard to navigation and anchoring are not found in UK waters.

Decommissioning
Equally, any decommissioning plan needs to ensure that the structures are completely removed. Any parts of the structure remaining after the commercial operation of the installation may pose a hazard to navigation and should be avoided. However, we recognise that secondary uses may be identified for these structures once energy generation ceases. If structures are to remain in the water, navigational safety must be taken into account and structures should be appropriately marked and lit.

4. Consultation

Consultation with the RYA should be through the Headquarters in Hamble and the Scottish, Welsh and Northern Irish offices who can coordinate wider consultation with their regional environmental coordinators, the clubs and individual membership and if needed, help to coordinate stakeholder meetings.

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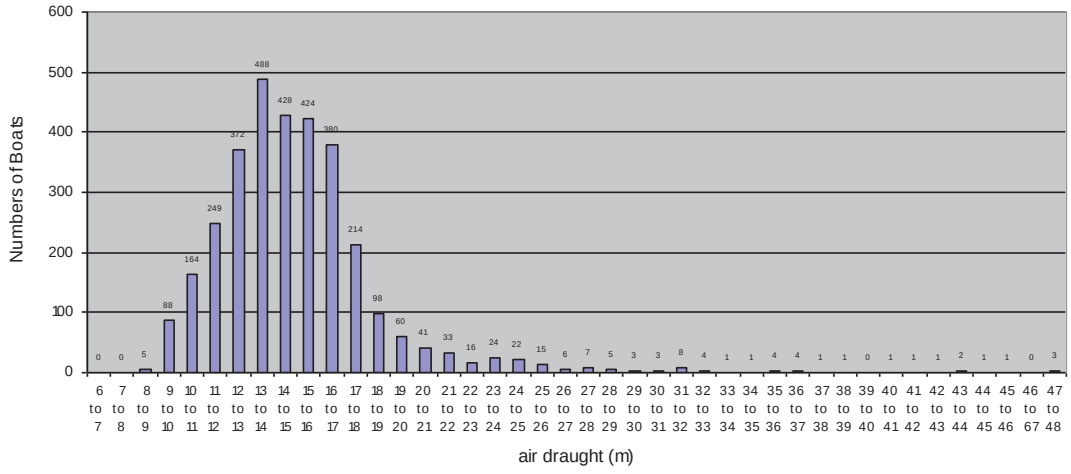
Development of the RYA policy on minimum clearance height and depth

The RYA has developed its position on clearance height and depth on the available data. Firstly an estimation of the air draught of the national fleet of yachts around the UK was established with the knowledge that these types of yachts may be found in all UK waters, this data is taken from the Royal Ocean Racing Club (RORC) Rating Office's database. Although there are other rating systems in use, the RORC system is widely accepted and applied worldwide. Rating is a technical handicapping process that enables adjustments to be made to yacht racing results so as to allow a wide range of different boats to be raced on equal terms. The boats contained in the database are mainly cruisers and yachts. Many yachts taking place in club races are registered with the RORC Rating Office. The RYA believes this data, containing 3179 records, is a good representation of the type of yacht to be found sailing around the shores of the UK. Although the total number of yachts around the UK has not been quantified, this database represents 6% of the total number of boats owned in the UK, estimated at 564,000 (BMF, 2003).

'Air draught' as presented here is the distance from the waterline to the top of the mast structure. This is based on the 'p' measurement, boom to top of mast, in the rating system (RORC, 2003). Two metres have been added for the distance from the boom to the water surface, which is a conservative estimate for the larger vessels. It should be noted that masthead equipment and instrumentation has not been included in the calculation of air draught, although it will also add a further half to one metre to the air draught of a yacht. Loss of this equipment may produce failure in communication from the yacht although not structural failure to the yacht.

Figure 1: Graph showing the air draught in metres of the boats within the IRC fleet (sample size=3179)



Looking at the above data in the form of percentage of the UK boating fleet, we can see the percentage of recreational yachts at risk from different rotor clearance heights. Figure 2, shows that a clearance height of 14 metres above sea level will put 57% of the national fleet at risk from rotor height collision. Reducing this to 18 metres above sea level, substantially reduces this percentage, however it still leaves 12% of the national fleet at risk from rotor height collision. This is still an unacceptable level of risk to the yachts found in UK waters. A clearance of 22 metres has been shown to be possible in engineering terms, which would put 4 % of the national fleet at risk, a more acceptable level of risk in the view of the RYA. As a matter of common observation, larger yachts over 18 metres in length (see Figure 3), representative of this 4% group are more likely to be run by highly experienced crews and skippers. The datum of mean high water springs (MHWS) is taken as the clearance datum rather than mean sea level and then factoring in a site specific wave height parameter. However, wave height should be examined in the risk assessment at each site. It should be noted that 22 m above MHWS has already been specified as a minimum clearance height in

several of the wind farms consented in the first round of consents and is therefore a feasible, cost-effective option for developers.

It should also be noted that while this is currently an acceptable level of clearance, yachts are increasing in size and future developments may require a greater clearance height.

Figure 2: Graph showing the percentage of boats in the IRC fleet with different air draught shown in metres (sample size = 3179**)**

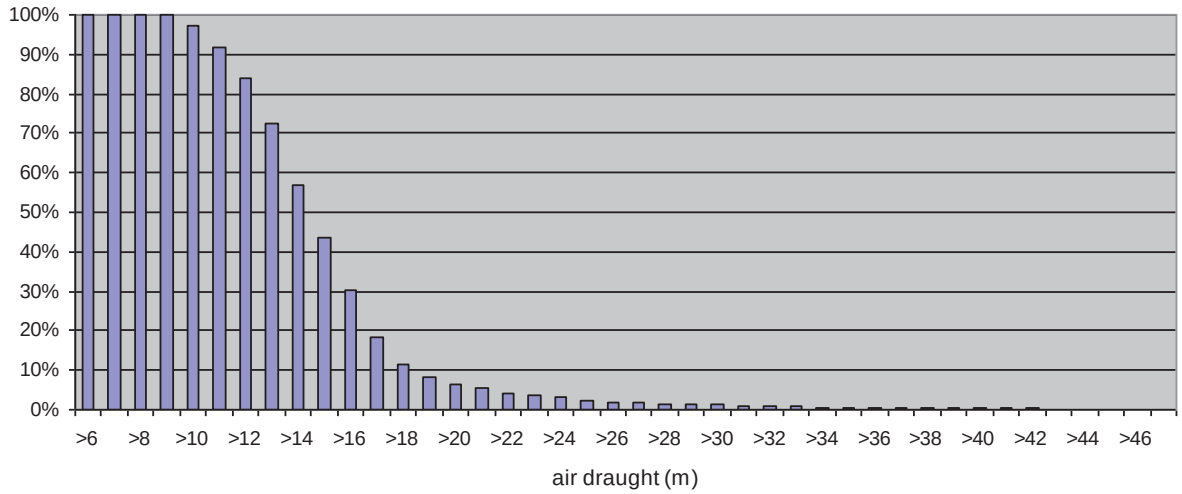
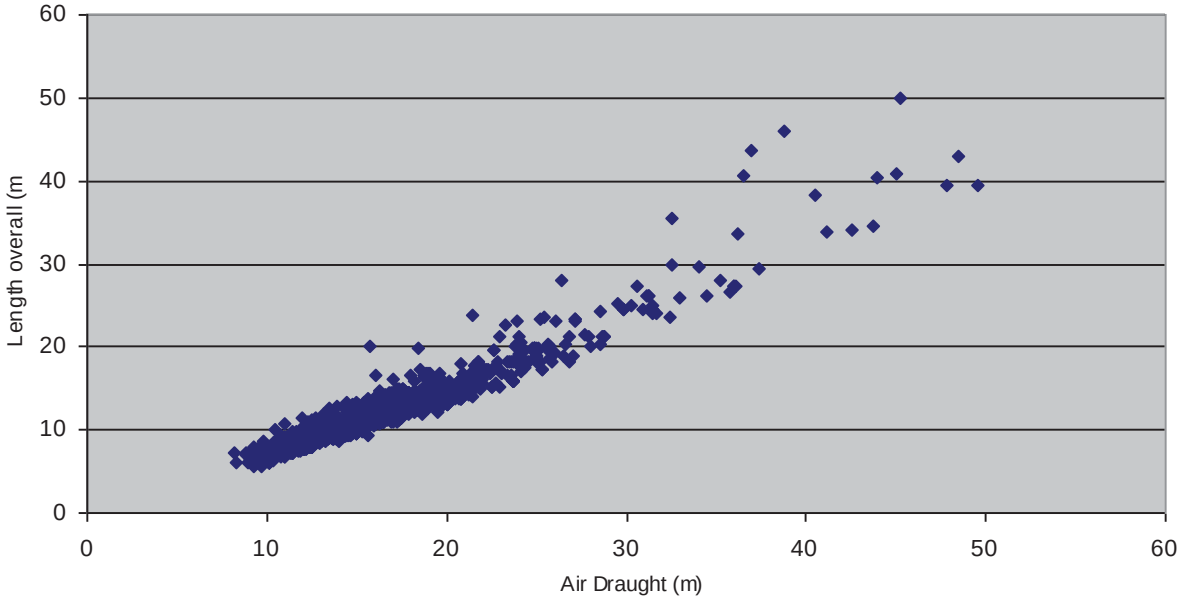
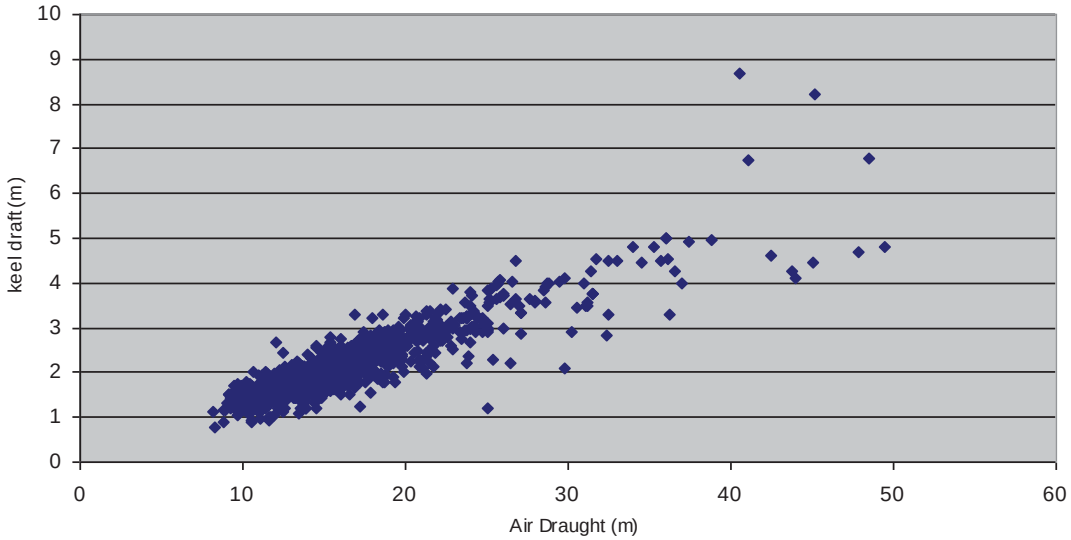


Figure 3: Graph showing the relationship of Length Over All (LOA) in metres and air draught in metres of the IRC fleet.



Additional data is provided showing the relationship between air draught and the depth of water required for clearance below the vessel's keel (Figure 4). Figure 4 shows that a depth of 3.5 metres corresponds to an air clearance of 22m above MHWS which is relevant for subsurface wave and tidal developments.

Figure 4: Graph showing the relationship of water draft in metres and air draught in metres of the IRC fleet.



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RORC (Royal Ocean Racing Club). 2003. IRC/IRM Yearbook. London

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Annex 3 – SCA RENEWABLE ENERGY POLICY

Introduction

In passing the Land Reform (Scotland) Act 2003 the Scottish Parliament has provided a statutory right of access to inland water and confirmed the customary freedoms of access that paddlers have always enjoyed in Scotland.

However, the quality of the resource that we take access to, Scotland's rivers, lochs and coastal areas, is coming under increasing threat from various types of development, most notably at the current time from renewable energy proposals. Whilst the Scottish Canoe Association (SCA) welcomes the passing of a statutory right of access, we are concerned that the canoeing resource in Scotland does not suffer from damage by inconsiderate or poorly planned renewable energy schemes.

With this in mind the SCA has developed a Renewable Energy Policy in order to express our concerns about the value of the places where canoeing takes place and to explain to developers, planners, government agencies, councillors and politicians the views that the SCA holds and the kind of sites that we would wish to see protected from development.

Throughout this document we will use the generic term canoeing to refer to the use of both canoes and kayaks.

Policy Context

The SCA believes that government should make the promotion of energy efficiency a much higher priority. There is a fundamental issue with causing damage to our natural heritage in order to generate energy that is then wasted on inefficient appliances, under insulated buildings and overly relaxed public attitudes to use of energy.

The SCA recognises the global problems associated with carbon emissions and climate change, and accepts there is a need to alter our sources of energy and societal attitudes towards use of energy.

The appendices to this policy statement describe the historical context to the SCA's involvement in the energy debate as well as the current relevance of national energy policy. The appendices then go on to review the trends in hydro and marine energy development.

The SCA's policy for dealing with Renewable Energy issues is set out below.

SCA Policy

1. The SCA wishes to be involved in the debate on the future of the nation's energy policy in order to play a proactive role in determining the impact on water that canoeists make recreational use of.

2. The SCA seeks to work with developers, agencies, consultants and planning authorities to help identify potential conflicts between canoeing and proposed renewable energy projects. The SCA believes that early consultation should lead to the avoidance of damaging conflicts between recreational interests and energy companies.

3. The SCA will form a view on each new renewable energy proposal taking into account a number of factors. These include: the likely impact on paddling interests; the importance of the water body involved in paddling terms; the protection of scenery and a judgment on any cumulative effect of a range of different renewable projects.

4. We are concerned that good rivers are being threatened for a very small power output in return. Therefore, in assessing any proposed energy scheme the SCA will perform a

power output to canoeing interest comparison. We believe this will enable us to consider and compare two important factors: what is being lost and what is being gained.

5. Where the canoeing value of a river is not so great that we would wish to see the proposed development stopped we will work with the developer to comment on the safety aspects of the inlet and outlet features, negotiate shut down days for the river to be paddled and in most cases request an online river level gauge.

6. The SCA will oppose renewable energy proposals when we consider the watercourse or coastal area that is under threat to be of national or international value to our sport.

7. The SCA is concerned that building barrages in estuaries could hinder navigation and introduce safety issues for paddlers. Any barrage should have continuously navigable channels near the coast to ensure safe passage for canoes, kayaks and other small craft. The possible ecological and silting problems caused by tidal barrages are also of concern.

8. The SCA seeks to protect our finest coastal scenery. Scotland's coastline is the most scenically attractive in Europe and should be offered special protection to recognise this. Major developments on our remoter and most scenically attractive stretches of coastline should be resisted and will be opposed by the SCA. The SCA would prefer to see offshore wind turbines located well out to sea; and tidal and wave power stations either out to sea or located entirely below the surface of the water.

9. The SCA is concerned about the safety implications of certain marine renewables and the consequences for sea navigation. For this reason we are opposed to developments on stretches of coast that would require small craft to go further out to sea to navigate around or stop paddlers from landing on the coast in an emergency.

10. The SCA is concerned about the access implications of marine renewables on the water close to the coast and in the coastal zone. We are opposed to developments on the sea and coastline that limit where small craft can navigate. Where it is necessary to have renewable energy installations or their shore facilities near the coast, existing launch sites should be preserved. Where it is necessary to use part of the coast for the installation, provision of car parking and access to the water for recreational users should be maintained or improved as part of the installation. The principle of multiple uses for coastal sites should apply.

11. Tidal energy represents the only form of renewable energy that could produce large amounts of new base load energy. For that reason we believe it is inevitable that tidal energy will eventually become widely utilised and will contribute to our nation's security of supply. We would like to see a locational strategy drawn up well in advance of Scotland's tidal energy being harnessed.

12. The SCA is concerned that starting up and shutting down turbines can cause rapid and artificial fluctuations in river levels. This could cause problems for canoeists, as well as anglers and other recreational visitors, especially in gorge sections of white water rivers. The artificial altering of water levels by hydro schemes switching on and off could lead to accidents or contribute to existing incidents turning into accidents. The SCA will assess the safety implications of any proposed scheme on paddlers. This will require information on the anticipated normal running regime for the turbine and the implications of an emergency shutdown. The anticipated number of controlled start ups and shut downs on a daily basis and the speed at which the water levels change will be required to carry out this assessment.

13. The SCA believes that water release information from existing hydro power stations should be more freely available to canoeists so that more recreational use can be made of the water.

14. The SCA seeks to work with developers and energy companies to secure good quality access facilities that will assist canoeing, such as passes navigable by canoe and footpaths round new obstructions on the river as well as car parks close to the access and egress points on controlled rivers.

15. The SCA believes the practice of cutting the capacity of existing hydro schemes in order to qualify for subsidies is indefensible and should be stopped.

16. The SCA believes in the principle of early consultation being used to identify problems with proposed plans at an early stage and as a way of avoiding protracted conflicts between developers and opponents of a proposed scheme as well as generally improving the public perception of renewable energy.

17. The SCA believes that government should provide a lead by developing a locational strategy for all forms of renewable energy.

18. The SCA would like to see renewable energy developed in such ways that the need for unsightly transmission systems is reduced and any environmental impact is minimised. As renewable energy projects eventually move offshore we would like to see more use of sub-sea cabling, albeit with due care taken to consider the natural heritage value of our underwater ecosystems.

Appendix A

Historical Context

A great deal of hydro development took place in the Scottish glens in the post-war years. These schemes had a major impact on our upland landscapes, but they did provide energy to remote parts of Scotland for the first time. These schemes are still operational and providing electricity to the national grid some 50 years after they were built. The dammed storage schemes that were built in those days still provide electricity as well as predictable water for canoeing via releases in the form of freshets, which are primarily aimed at helping fisheries management but are sometimes specifically for canoeing events.

With the exception of the massive Glendoe hydro scheme, the modern day renewable energy industry appears not to be looking to build anymore dammed storage schemes. Whilst storage schemes do provide opportunities for good canoeable water during releases, the landscape impacts caused by their highly visible draw-down scars can be significant, and are considered unacceptable to a wide range of recreationalists, and this is one reason why they are not currently being seen as a viable proposition in Scotland.

The building of nuclear power stations in Scotland during the 1950s and 1960s led to the need for pump storage hydro schemes and the Cruachan and Foyers power stations were constructed for this purpose. Should government commit to replacing our ageing nuclear power stations there could be a renewed interest in pump storage. Should this happen there could be implications for high mountain lochs and the burns and rivers that drain them. The decision about our future commitment to nuclear power will be based on the political direction Scotland chooses to follow, but it could also depend on future developments in the international quest for power from waste free nuclear fusion as opposed to nuclear fission with its associated problem of how to dispose of the waste nuclear material. A return to nuclear power in combination with pump storage hydro would be likely to impact on a small number of mountain burns and the main concern to canoeing would be whether these were canoeable.

Appendix B

National Energy Policy

The UK and Scotland are undergoing a change in energy policy, partly brought about by ageing power stations and partly because of our Kyoto and other commitments to reducing carbon emissions. As well as reviewing our energy mix in terms of power sources, we also have to review our network for electricity transmission. The Beauly to Denny powerline upgrade proposals are highlighting the problems of landscape impact, health concerns and affect on property prices associated with overland pylons. With renewable energy production set to move increasingly offshore the arguments for sub-sea transmission lines becomes a more viable option. Also, the greater the amount of power produced the more economically viable the higher investment in sub-sea cabling becomes. Onshore transmission lines have a scenic impact for a number of recreational activities, including canoe touring on open water, especially lochs. Sub-sea cabling, on the other hand, would usually be buried well out to sea and should not have any impact on kayakers who generally keep close in to shore. We would have concerns that the places where cabling leaves the land or comes back onto land should be well protected, but the high voltages concerned would require that in any case. Our other concern in this area is that access to the foreshore is not affected by the building of shore based structures for new developments.

The comment is often made that if energy efficiency were taken more seriously we would not have to destroy valuable parts of our countryside in order to power inefficient electrical appliances and allow householders to leave their appliances on standby overnight or workplaces their lights and computers on overnight. The threat to our countryside in general, and canoeing resource in particular, would be lowered if more effort were put into the promotion of energy efficiency.

We believe the public perception of renewable energy is being harmed by contentious planning applications that create critical opposition. Anti wind farm campaigns, protests against the proposed Beauly to Denny powerline and objections to hydro proposals are all on the increase and the combined effect is of a growing opposition to renewable energy. This may also be having a related impact of increasing support for nuclear power. Public opposition to renewable energy proposals may eventually influence government policy, and developers may begin to take this opposition more seriously. A way in which developers can react positively is to seek early consultation with interested communities and to work to avoid key recreational and landscape sites with the intention of trying to achieve greater public support for renewable energy.

The SCA is concerned that the drive to increase the proportion of our energy derived from renewable sources is leading to a loss of support for renewable energy. Much of this opposition to renewable energy is coming from previous supporters of such energy. The terms renewable energy and environment-friendly have become inter-changeable, but in many cases renewable energy proposals carry a massive cost to the environment and this leads to the levels of opposition that such proposals are encountering. We believe the quality of our environment and quality of our recreational enjoyment of our environment should be given higher priority.

The economic value of tourism, and of segments of tourism such as adventure sports tourism, should be given greater recognition for the revenue it creates for the national economy. The scenic quality of the countryside is the foundation for the majority of that tourism spending.

Appendix C

Hydro Power

The current trend in hydro development is for run-of-river schemes. With no facility for storing water, only for running the water down a pipe parallel to the river, a run-of-river scheme means that the water in the river is either at its natural level if the hydro is not operating, or at a lower than natural level if the hydro is operating. In this respect a run-of-river scheme can only be to the detriment of canoeing. Furthermore, run-of-river schemes can create dangers, especially on constricted gorge sections of rivers, when the hydro system is being switched on or off and the water level is being artificially altered. Recent trends in hydro power generation and canoe design have led to power companies and canoeists being interested in the same types of rivers.

Run-of-river hydro developers are looking for relatively small rivers with a steep gradient, usually with a waterfall to increase the overall gradient. The development of shorter playboats, made possible by the advances in roto-moulded plastic construction over the past 20 years, has opened up for canoeing the narrower and steeper creek-type rivers with steep drops. This interest in the same type of river by the two different groups is causing a significant problem, and with the lack of storage facility in a run-of-river scheme there is little space for compromise. Where the potential impact is too great we would wish to see the proposed scheme being dropped, but where the value of the river to canoeing is not that great we would wish to comment on the safety aspects of the intake and outlet features, as well as agreeing some kind of system of shut down days when the river can be paddled and requesting that an online river level gauge be made available.

The changing trends within canoeing, mainly brought about by the radical transformation in the size, strength and manoeuvrability of white water canoes, means that rivers that were considered impossible then are now increasing in popularity. This trend towards paddling narrow creek style rivers is certain to continue into the future and is likely to increase the potential for energy production and canoeing to come into conflict.

Canoeing guidebooks cannot keep up with this trend towards exploring steep narrow rivers, so energy companies referring to such guidebooks is not going to be sufficient to gather an accurate assessment of a river's interest for canoeing. Furthermore, whilst some rivers are going to be paddled by a few but never become popular, others are going to become increasingly popular and are likely to be amongst Scotland's most paddled rivers in a few years time. The SCA is going to be far more concerned about protecting the latter category of rivers than the former.

With the increase in leisure time and disposable income in modern society, canoeing has become increasingly popular and as some enthusiasts have moved on to creek rivers so the availability of conventional kayaks, sit-on-tops and open boats has also led to increased paddling on the less extreme rivers, some of which may be of interest to hydro developers.

The avoidance of conflict between canoeing and energy companies can be avoided through the use of early consultation. The SCA responds to a number of scoping study requests for initial reaction to hydro proposals on behalf of various developers. This provides the opportunity to flag up at a very early stage the SCA's interest in a particular river.

The SCA is willing to work with the Scottish Environment Protection Agency, Scottish Natural Heritage and hydro developers in order to devise ways of avoiding conflicts of interest on strategically important Scottish rivers. We would hope that this willingness to work proactively and discuss ways of helping the industry identify key paddling rivers would be recognised and respected by all the relevant companies in the hydro power sector and that we can find ways to achieve protection for our finest rivers and burns so that they can be kept in their current state. We would enter into any discussions on the basis that the SCA retains the right to oppose proposals on any river or burn, and that we would still have the right to take part in any consultation exercise.

The SCA would like to see more commitment to micro renewable energy schemes. Micro scale hydro power has the potential to harness power from burns that are too small for canoeing, but which could produce power for single houses or small communities without causing damage to scenically attractive and recreationally important watercourses.

Appendix D

Marine Energy

The greatest source of renewable energy is undoubtedly from the marine environment. The potential for harnessing power from sources such as tides, waves and wind at sea are enormous and we believe the power generating industry will eventually make much greater use of these marine based energy sources. One of the huge advantages of harnessing tidal energy is that it is entirely predictable and when several geographically spread stations are used in combination it is capable of generating large amounts of base load power. This element of predictability gives tidal power an advantage over all other forms of renewable energy.

As marine renewable energy schemes become more commercially viable and the civil engineering capability develops further, it is likely the government subsidy system will adapt to encourage a wider range of technologies. As this happens it is inevitable that developers' interests will turn increasingly to our estuaries, coastlines and the open sea.

The greatest resource enjoyed by sea kayakers in Scotland is our stunning coastal scenery. Our concern with marine renewables is therefore the impact on the scenery, especially close to the coastline. Man made developments close to shore also represent a significant safety concern as they can force small craft such as kayaks and dinghies to go out to sea in order to travel around them, which in times of bad weather or poor visibility can make them serious hazards to navigation. For these reasons it is preferable from a kayaking point of view if marine energy developments are located further out to sea or contained below the surface of the water.

The potential amount of renewable energy available in our estuaries is massive. However, renewable energy in estuaries can be harnessed with or without the need for tidal barrages. Barrages mean that greater amounts of energy can be produced, but experience from overseas suggests that they lead to enormous ecological problems with the silting up of the estuary and a gradual reduction in the amount of power produced. We believe the tidal flow can be harnessed in estuaries without the need for barrages, and with a predictable flow of water we see this as a form of renewable energy worth harnessing as long as it is developed with recreation and nature conservation firmly in mind. Scotland's estuaries are valuable areas for recreation and canoeists make great use of these vast expanses of water. Whereas a barrage would affect the ecological balance of an entire estuary, a non-barrage power plant would have a more localised ecological impact and could be designed so that it would not have a significant impact on recreational water craft.

There are certain locations around the Scottish coast that hold the potential for truly massive amounts of tidal power to be generated. The Pentland Firth is perhaps the most obvious example of a natural power source that could one-day produce sufficient power to replace a major fossil fuel power station, but there are several other locations around the Scottish coast that could be of interest to energy companies searching for tidal energy projects. The civil engineering capability entailed in such a proposal could be a significant hurdle to such schemes, but as that barrier is overcome we are likely to see a move towards more tidal power generation facilities being proposed. From a kayaking point of view the massive tidal races around Scotland are all of great interest to our activity and we would have concerns with any plans to develop within them any structures that would break the surface of the water. We are particularly concerned in this respect for the protection of Corryvreckan, which is one of a handful of tidal whirlpools in the world. Due to our concerns regarding safety and seascape already discussed in this policy document the SCA would wish to be consulted on any such planning proposals.

Structures on the surface of the water such as the Polaris wave machine and structures that break the surface of the water such as turbines mounted on vertical posts could present small boat users such as kayakers with serious safety issues. The risk of collision combined

with the navigational challenge of going around such structures could be quite significant, so we would always welcome the opportunity to comment on proposals for such developments.

Our final concern with marine renewable energy projects is the impact of any landfall facilities. Shore based infrastructure such as servicing facilities for sea based plant, wave machines and interface equipment between renewable energy generators and the grid have the potential to impact on the coastal landscape and restrict access to and along the foreshore. From a safety point of view, as well as aesthetic and access, we would wish to be consulted on proposals for such shore based facilities. The SCA's policy is that any shoreside infrastructure associated with renewable developments should be designed to minimise encroachment on the foreshore and that access to the foreshore from the land and water is preserved for kayakers and other recreational users. Any downside caused by the developer's shoreside infrastructure should be balanced by creating better pathways, car parking and access to the foreshore and water for recreational purposes.

17 December 2008

Annex 4.

DEVELOPER APPLICATION AND ENVIRONMENTAL STATEMENT CHECKLIST

	Enclosed
1. Developer cover letter and fee cheque	□
2. Copies of ES and associated OS maps	□
3. Copies of Non Technical Summary	□
4. Confidential Bird Annexes	□
5. Draft Adverts	□
6. E Data – CDs, PDFs and SHAPE files	□

Environmental Statement	Enclosed	ES Reference (Section & Page No.)
7. Development Description	□	
8. Planning Policies, Guidance and Agreements	□	
9. Economic Benefits	□	
10. Site Selection and Alternatives	□	
11. Baseline Assessment data – air emissions	□	
12. Design, Landscape and Visual Amenity	□	
13. Construction and Operations (outline methods)	□	
14. Archaeology	□	
15. Designated Sites	□	
16. Habitat Management	□	
17. Species, Plants and Animals	□	
18. Water Environment	□	
19. Sub-tidal benthic ecology	□	
20. Hydrology	□	
21. Waste	□	
22. Noise	□	
23. Traffic Management	□	
24. Navigation	□	
25. Cumulative Impacts	□	
26. Other Issues	□	

N.B. Developers are encouraged to use this checklist when progressing towards application stage and formulating their environmental statements. The checklist will also be used by officials when considering acceptance of formal applications. Developers should not publicise applications in the local or national press, until their application has been checked and accepted by officials.

Statute	Year	Summary
Marine Works (Environmental Impact Assessment) Regulations	2007	Makes provision requiring environmental impact assessments to be carried out prior to the granting of consent for certain regulated activities in UK waters and UK controlled waters, where this is required to comply with Council Directive 85/337/EC.
Natural Environment and Rural Communities Act	2006	Provides for the publication of lists of nationally important habitats and species.

4 Scots Law

Statute	Year	Summary
Town and Country Planning (Development Management Procedure) (Scotland) Regulations	2013	Makes detailed provision for submission of planning permissions. Also states that prescribed public consultation activities are required to be undertaken to the satisfaction of local planning authorities for national developments and major development.
The Water Environment (Controlled Activities) (Scotland) Regulations	2011	If an entity intends to carry out any activity which may affect Scotland's water environment, it must be authorised to do so under these regulations. Discharges, disposal to land, abstractions, impoundments and engineering works are all regulated by the Scottish Environment Protection Agency.
Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations	2011	Details procedures concerning applications for planning permission and the preparation of environmental statements.
Wildlife and Natural Environment (Scotland) Act	2011	Includes provisions on biodiversity, SSSIs and the protection of wildlife.
Marine (Scotland) Act	2010	Introduces a new marine planning system and updates the marine licensing system within the Scottish Marine Area (0-12 nm) and includes provisions on marine conservation, seal conservation and enforcement procedures. Also provides for the publication of Priority Marine Features.
Climate Change (Scotland) Act	2009	Sets carbon targets for Scotland for 2050 and interim targets for 2020.
The Nature Conservation (Scotland) Act	2004	Contains offences relating to SSSIs, Nature Conservations Orders, Land Management Orders, etc.
Salmon and Freshwater Fisheries (Consolidation) (Scotland) Act	2003	Offers protection to salmon and sea trout.
Water Environment and Water Services (Scotland) Act	2003	Makes provision, and enables provision to be made, for or in connection with the implementation of Directive 2000/60/EC establishing a framework for Community action in the field of water policy.
Land Reform (Scotland) Act	2003	Established statutory rights of responsible access to land and inland water for outdoor recreation, crossing land and some educational and commercial purposes