

moray offshore renewables ltd

Environmental Statement

Technical Appendix 5.5 A - Archaeology Technical Report

Telford, Stevenson, MacColl Wind Farms
and associated Transmission Infrastructure
Environmental Statement



This page has been intentionally left blank.

This document was produced by Headland Archaeology (UK) Ltd. on behalf of Moray Offshore Renewables Ltd



Document Owner		Dr Dan Atkinson			
Document Status		Draft.v.5			
File Name		HEADLAND- Archaeology & Cultural Heritage baseline technical Report.docx			
Revision	Date	Description	Originated By	Checked By	Approved By
v.1	28/02/11	For review	DA		
v.2	31/05/11	For review	DA		
v.3	02/12/11	For Review	DA	CR	
v.4	23/01/12	For Review	DA	SW	
v.5	10/05/12	Final	DA	SW/AH	

moray offshore renewables limited
 4th Floor
 40 Princes Street
 Edinburgh
 EH2 2BY Tel: +44 (0)131 556 7602



CONTENTS

List of Figures

Executive Summary

1.	INTRODUCTION	6
2.	PROJECT BACKGROUND	6
3.	METHODOLOGY	6
3.1	Desk- Based Survey	6
3.2	Assessment of Marine Geophysical Survey Data	7
3.3	Assessment of Marine Geotechnical Survey Data	8
4.	LEGISLATIVE FRAMEWORK AND GUIDANCE	9
4.1	Consultations	9
5.	OFFSHORE BASELINE ENVIRONMENT.....	11
5.1.	Study Area	11
5.2.	Bathymetry, Geology, Geomorphology & Sedimentology	11
5.3.	Potential for Submerged Archaeology and Palaeolandscapes	13
5.4.	The Potential for Unrecorded Maritime Cultural Heritage Assets	15
6.	RECORDED MARITIME CULTURAL HERITAGE.....	19
6.1.	Limitations of data.....	19
6.2	Cultural heritage assets within the Inner Study Area.....	20
6.3	Cultural heritage assets within the Outer Study Area.....	24
6.4	Results of the Archaeological Assessment of Geophysical Survey Data	26
6.5	Results of the Archaeological Assessment of Geotechnical Survey Data	58
6.6	Key Onshore Receptors considered in relation to Setting	61
7.	CONCLUSIONS.....	62
8.	ONSHORE BASELINE ENVIRONMENT	64
8.1.	Study Area	64
8.2.	General Background	64
8.3.	Importance of previously recorded assets	68
8.4.	Potential for previously unrecorded cultural heritage assets	69
8.5.	Conclusions	69
	SOURCES CONSULTED	70

Published sources	70
Unpublished Sources	72
Databases of Cultural Heritage Asset Consulted	73
APPENDIX 1- GAZETTEER AND CONCORDANCE OF CULTURAL HERITAGE ASSETS WITH KNOWN LOCATIONS WITHIN THE Telford, Stevenson and MacColl Wind Farms	74
APPENDIX 2 – RECORDS OF MARITIME LOSSES	85
APPENDIX 3- LEGISLATIVE FRAMEWORK AND GUIDANCE	90
APPENDIX 4. GEOPHYSICAL SURVEY SPECIFICATIONS & SUITABILITY FOR ARCHAEOLOGICAL ASSESSMENT	93
APPENDIX 5. GEOPHYSICAL TARGETS IDENTIFIED BY HEADLAND ARCHAEOLOGY	98
APPENDIX 6 – DESIGNATED ASSETS CONSIDERED IN RELATION TO IMPACT UPON SETTING	133
APPENDIX 7 – CULTURAL HERITAGE ASSETS WITHIN THE ONSHORE OnTI STUDY AREA .	144

List of Figures

Figure 1. Site Location Showing Wrecks and Obstructions in the Proposed Wind Farms

Figure 2. Location Map and Geophysical Targets in the Proposed Wind Farms

Figure 3. Sidescan Sonar Sites of High and Medium Archaeological Potential

Figure 4. Sidescan Sonar and Multibeam Image of Site HA159, Wreck site the *Llanishen*

Figure 5. Sidescan Sonar, Sub Bottom Profiler and Multibeam Image of Unknown Wreck HA158

Figure 6. Magnetometer Targets in the Proposed Wind Farms

Figure 7. Sidescan Sonar Images of Site HA159, Wreck Site the *Llanishen*

Figure 8. Sidescan Sonar Images of Unknown Wrecks HA157 & HA158

Figure 9. Sub Bottom Profiler Data

Figure 10. Bathymetry Data with Geophysical Targets

Figure 11. Borehole Location Map

Figure 12. OfTI Location Map

Figure 13. OfTI Bathymetry

Figure 14. Archaeological Potential

Figure 15. Wrecks on Multibeam

Figure 16. Borehole Location Map

Moray Offshore Wind Farm Archaeology & Cultural Heritage Baseline Technical Report

Tom Joyce, John McCarthy & Abby Mynett

Executive Summary

This report presents the results of an archaeological desk-based assessment of the Moray Offshore Wind Farm – Stevenson, MacColl and Telford Wind Farms and associated offshore and onshore transmission infrastructure (OfTI and OnTI respectively).

The Archaeology and Cultural Heritage Baseline Technical Report was undertaken by Headland Archaeology (UK) Ltd. on behalf of Moray Offshore Renewables Ltd (MORL). The purpose of the report is to outline the archaeological potential of the environment and identify any sites and areas of archaeological significance within and in proximity to the proposed wind farms, OfTI and OnTI.

Offshore Wind Farms

The baseline assessment covers an Inner Study Area (the three wind farms) and a 1km Outer Study Area, with an arbitrary 5 km buffer zone around the proposed wind farms created and appraised in order to identify the archaeological potential of the area.

The assessment has established that there are no Designated Wrecks or other cultural heritage assets with legal designations within the Stevenson, MacColl and Telford Wind Farms. The report identified thirteen recorded wreck sites, four of which are located in the Inner Study Area (HA1001- HA1004), two within the Outer Study Area (HA1005 & HA1006), and seven within 5 Km's of the proposed wind farms (HA1007- HA1013) (Figure 1). Further, two UKHO obstructions (HA1014 & HA1015) have been identified, one within the Inner Study Area (HA1014) and one (HA1015) in the Outer Study Area. The location of all these sites is illustrated on Figure 1.

The results of the marine geophysical assessment have identified three targets of high archaeological potential and seventeen targets of medium archaeological potential (Figure 2 & 3). Pending any further investigation of the identified anomalies the mitigation strategy recommended for this assessment includes the implementation of exclusion zones for those targets exhibiting high or medium archaeological potential within the Inner Study Area.

The results of the geotechnical assessment show that the presence of organic bands in the stratigraphic record from BH12 is potentially significant in terms of palaeoenvironmental potential (Figure 11). These organic deposits if found to contain micro- (e.g. pollen, ostracods) and/or macrofossils (e.g. plant macrofossils, shell fragments), would be of great significance in obtaining palaeoenvironmental and palaeoclimate data for possible Quaternary inter-stadial events. The absence of organic sediments such as peats within the Holocene sediments however indicates that there is no potential for palaeoenvironmental data from proxies such as pollen from these sediments. However, the presence of residual, scattered flints and lithic artefacts within the marine sediments remains a possibility.

The assessment of key onshore cultural heritage receptors established that there are

a large number of designated assets present within 25 km of the wind farms. These comprise 32 scheduled monuments; 164 listed buildings (comprising two Category A, 99 Category B and 63 Category C(S)); and one conservation area (Wick).

OFTI

The assessment has established that there are no designated wrecks or other cultural heritage assets with legal designations within the OfTI. The study has identified 14 recorded wreck sites in the SeaZone dataset; where 11 were located in the OfTI Inner Study Area and 3 in the OfTI Outer Study Area. Of these recorded wrecks four are considered to be 'LIVE', eight 'DEAD' wrecks and two wrecks have been lifted (LIFT). Further to this, four UKHO obstructions have been recorded in the OfTI cable route; two of these in the Inner Study Area and two in the Outer Study Area.

The assessment of marine geophysical data identified fifteen anomalies of high archaeological potential and forty-two anomalies of medium archaeological potential. All of these receptors are located within the proposed cable route. Pending any further investigation of the identified anomalies the mitigation strategy recommended for this assessment includes the implementation of exclusion zones for those targets exhibiting high or medium archaeological potential within the wind farms.

The geotechnical assessment established that the presence of organic bands in the stratigraphic record from six vibrocores in the nearshore area of the cable. These organic deposits if found to contain micro- (e.g. pollen, ostracods) and/or macrofossils (e.g. plant macrofossils, shell fragments), would be of great significance in obtaining palaeoenvironmental and palaeoclimate data for possible Quaternary inter-stadial events. The absence of organic sediments such as peats within the Holocene sediments however indicates that there is no potential for palaeoenvironmental data from proxies such as pollen from these sediments. However, the presence of residual, scattered flints and lithic artefacts within the marine sediments remains a possibility.

OnTI

The onshore study area takes in land that has seen continuous occupation from the Mesolithic period onwards. As a result, a wide range of assets are present and there is substantial potential for archaeological assets to be present throughout the study area. The selected onshore cable route is likely to affect archaeological features, both recorded and currently unrecorded, but these are unlikely to be of greater than regional importance, scheduled monuments excepted.

1. INTRODUCTION

Headland Archaeology (UK) Ltd was commissioned by Moray Offshore Renewables Ltd (MORL) to prepare an Archaeology and Cultural Heritage Baseline Technical Report in advance of the proposed Stevenson, MacColl and Telford Wind Farms henceforth referred to as the wind farms, and associated offshore and onshore transmission infrastructure in the Moray Firth off the northeast coast of Scotland. The report outlines the archaeological potential of the marine environment and includes information on sites and areas of archaeological significance identified within and in proximity to the proposed wind farms and transmission infrastructure.

2. PROJECT BACKGROUND

Moray Offshore Renewables Limited (MORL) has been awarded a Zone Development Agreement by The Crown Estate to develop Zone 1 of nine offshore wind Round 3 zones. Zone 1 is located in the outer Moray Firth within the UK Renewable Energy Zone. Two potential development areas were initially identified, the Eastern Development Area (EDA) and the Western Development Area (WDA); it is the EDA that will be examined here. The proposed EDA is made up of three proposed wind farms; Stevenson, MacColl and Telford, approximately 22km east of the Highlands coastline. The wind farms will cover an area of approximately 296km² and will contain up to 339 turbines with a target capacity of up to 1.5GW. Inter-array cables will connect wind turbines and an export cable will convey the electricity generated to the shore at a landfall location on Fraserburgh Beach.

3. METHODOLOGY

3.1 Desk- Based Survey

The desk-based assessment is a documentary and cartographic search utilising a number of sources in order to locate all known cultural heritage assets within the constraints area and within the general location of the proposed wind farms, and to identify the archaeological potential of the area, in this case the North Sea, Moray Firth and northeast Aberdeenshire. Sources used for this assessment included:

- Databases of designated cultural heritage assets maintained by Historic Scotland including designated wrecks, scheduled monuments, listed buildings, battlefields, inventory historic gardens and designed landscapes and conservation areas;
- Maritime records held by the Royal Commission on the Ancient and Historical Monuments of Scotland (RCAHMS);
- UK Hydrographic Office Wrecks and Obstructions Database (SeaZone);

- National Library (for historic charts and maps only);
- Ministry of Defence (military remains only);
- Receiver of Wreck (ROW);
- Relevant SEA reports and Coastal Survey Assessment reports;
- National Monuments Record of Scotland (NMRS);
- Vertical and oblique aerial photographs held by (RCAHMS);
- Aberdeenshire Council's Historic Environment Record (HER);
- Plans held by the National Archives of Scotland; and
- Other readily available published sources and grey literature e.g. marine geophysical and geotechnical survey reports.

3.2 Assessment of Marine Geophysical Survey Data

All survey data supplied by MORL was reviewed in its 'raw' digital state with appropriate software. This allowed for the data to be replayed and interrogated in order to effectively assess the position, extent and nature of potential targets. All information with regard to the survey conditions was provided by MORL in order to gauge the quality of the data for the identification of potential cultural heritage assets.

The data was subject to an initial scan for any targets of potential cultural heritage interest, after which the data was assessed in detail to:

- familiarise the maritime archaeologist with the survey area;
- correlate anomalies with previously recorded sites;
- identify the absence of anomalies in the vicinity of previously recorded sites.
- identify anomalies indicative of hitherto unrecorded sites;
- check the accuracy of the position, nature and extent of known wrecks; and
- locate and assess unrecorded targets identified by the Osiris survey team.

All targets were 'tagged' and then assessed as to their archaeological potential. The initial potential of identified targets was gauged using a ranking system (see table 1 below) as a means of prioritising potential assets in order to inform upon subsequent interpretation. It must be stressed that the ranking system is only seen as a guide and is not used as a substitute for professional judgment.

Table 1. Criteria for identifying archaeological potential of targets

Potential of Asset	Character of Anomaly
HIGH	A target that is identified as a known archaeological asset or in the vicinity of such; or a target that is clearly recognisable as a well preserved feature or maritime loss such as a vessel or aircraft (or parts of) and any associated debris
MEDIUM	A target that exhibits characteristics likely to represent the remains of a feature or maritime loss such as a vessel or aircraft including any associated debris; or fragments of the same
LOW	An isolated or fragmentary target that is recognised to be of some interest but may represent a particularly small or fragmentary archaeological, or natural feature

The position and dimensions of identified targets along with any additional anomalies were recorded into a gazetteer (Appendix 5) and sample images of these targets were acquired, further maps and images are shown in Figures 1-16. The data was cross-referenced with the desk based assessment and the anomalies identified by Osiris Projects for the wind farms and Gardline Geosurvey for the OfTI. The position of these identified sites and geophysical targets have been mapped in GIS and all positions are given in Easting's and Northings supported by Latitude and Longitude values.

3.3 Assessment of Marine Geotechnical Survey Data

Telford, Stevenson and MacColl Wind Farms

A total of 25 boreholes were assessed from 18 locations across the proposed Telford, Stevenson and MacColl Wind Farms. The logs of the boreholes were assessed in order to gauge whether the deposits contained any sediments of palaeoenvironmental potential; in particular peats or sediments with high organic contents such as organic silts. The information for the borehole and grab sample logs has been supplied by Fugro Geo-consultancy.

OfTI

A total of 53 CPTs (core penetration tests) and 28 vibrocores were assessed from regular intervals along the OfTI. These boreholes were assessed in order to gauge whether the deposits along the cable route contained any sediments of palaeoenvironmental potential, specifically organic deposits such as peats and silts. The primary data was provided by Gardline Geosciences.

4. LEGISLATIVE FRAMEWORK AND GUIDANCE

This assessment takes account of the following legislative procedures and guidelines:

- Marine (Scotland) Act 2010;
- Protection of Wrecks Act 1973;
- The Protection of Military Remains Act 1986;
- Ancient Monuments and Archaeological Areas Act 1979;
- Planning (Listed Buildings and Conservation Areas) (Scotland) Act 1997;
- Merchant Shipping Act 1995;
- Valetta Convention;
- ICOMOS; and
- UNESCO.

4.1 Consultations

In order to produce an informed assessment, contact was initiated with statutory authorities including Marine Scotland (The Scottish Government), Historic Scotland, and the Highland Council Historic Environment Team (HCHET). Their responses in relation to the marine and onshore cultural heritage assets within their statutory remit are outlined in Table 2 below.

Table2: Consultation Responses

Organisation	Consultation Response
Marine Scotland (The Scottish Government)	<p>Scoping response:</p> <p>General Principles</p> <ul style="list-style-type: none"> * The ES should address the predicted impacts on the historic environment and describe the mitigation proposed to avoid or reduce impacts to a level where they are not significant. * Direct impacts on the resource itself and indirect impact on its setting must be addressed in the EIA. <p>Baseline Information</p> <ul style="list-style-type: none"> * Information on the location of all archaeological/historical sites held in the National Monuments Record of Scotland (NMRS) can be obtained from www.PASTMAP.org.uk * Data on scheduled monuments, listed buildings and properties in care can also be downloaded from Historic Scotland's Spatial Data Warehouse.

Organisation	Consultation Response
<p>Historic Scotland (HS)</p>	<p>Scoping response:</p> <p>Principle of Proposal</p> <ul style="list-style-type: none"> * HS are content with the principle of the proposal. HS considers it unlikely that there shall be significant adverse impacts on marine assets and on the setting of terrestrial assets within HS statutory remit. * In HS's view, the proposed methodology for baseline surveys, assessment of impacts and mitigation is considered acceptable. * The relevant Council archaeological and conservation service will be able to provide information and advice on unscheduled archaeology and category B and C (S) listed buildings. <p>Marine Assets</p> <ul style="list-style-type: none"> * HS confirmed that there are no designations within their statutory remit located within the proposed development area. * HS recommended that the potential impact on undesignated wrecks is assessed as these could be subject to potential direct impacts, depending on the location of the sub-sea works. HS recommended that indirect impacts on historic assets on the seabed within the proposed development area and possibly beyond which may be caused by alteration to tidal currents and sedimentary regimes, and by changes to the chemical balance of the water and seabed sediments, should be assessed. <p>HS encouraged that archaeological analysis of grab and core samples to be undertaken, and that results of all archaeological assessments should be archived through the Royal Commission on the Ancient and Historical Monuments of Scotland.</p> <p>Cumulative Impact</p> <ul style="list-style-type: none"> * HS welcomes that potential cumulative impacts shall be assessed in relation to the wind farms; and that the cumulative assessment for the Transmission infrastructure will be scoped out of the assessment. <p>Additional feedback:</p> <ul style="list-style-type: none"> * HS were content with the progress during the compilation of the baseline and the impact assessment, opinion and feedback for which were established during meetings in October 2010 and May 2011. <p>Comments on Draft ES:</p> <ul style="list-style-type: none"> * Further feedback was provided in relation to the draft ES submissions in a letter date 26th March 2012 which broadly concurred with the results of the assessment and the mitigation measures proposed.

Organisation	Consultation Response
Highland Council Historic Environment Team (HCHET)	<p>Highland Council agreed with the proposed approach, which would involve the assessment concentrating on an agreed selection of cultural heritage assets in Caithness with settings related to the sea. It was agreed that the same assets that had been considered by the Beatrice Offshore Wind Farm Ltd (BOWL) should be considered in this instance.</p> <p>The potential for impacts upon assets in Easter Ross to be affected by the western development was raised. Potential impacts related to the western development area lie outside the scope of the current assessment.</p>

5. OFFSHORE BASELINE ENVIRONMENT

5.1. Study Area

Telford, Stevenson and MacColl Wind Farms

The Study Area for this desk-based assessment includes the proposed Telford, Stevenson and MacColl Wind Farms, referred to as the 'Inner Study Area', plus a 1km buffer zone around the wind farms referred to as the 'Outer Study Area'. A further arbitrary 5km buffer zone around the wind farms was appraised in order to identify the archaeological potential of the main study area. All cultural heritage assets are given Headland Archaeology (HW) numbers and illustrated on Figures 1-11.

OfTI

The OfTI study for the MORL wind farms includes an 'Inner Study Area' that is defined by the geophysical survey corridor and a 1km buffer zone referred to in the text as the 'Outer Study Area'. All cultural heritage assets are given Headland Archaeology (HA) numbers and illustrated in Figures 12-16.

The following paragraphs outline the bathymetry and geology of the study area and types of cultural remains that one might expect to encounter in the marine environment.

5.2. Bathymetry, Geology, Geomorphology & Sedimentology

5.2.1 Bathymetry

Telford, Stevenson and MacColl Wind Farms

A geophysical survey carried out by Osiris Projects in 2010 established seabed levels ranging from 35.2m below Lowest Astronomical Tide (LAT) to 56.9m below LAT (Osiris Projects 2011, Vol. 2A). In the northern section seabed levels dip irregularly from west to east while in the southern section seabed levels dip to the south east across an undulating seabed. An irregular shaped channel feature running NNW- SSE ranging from 300m to 2600m wide was identified in the north section. A large number of raised sand ridges 0.3m to 1.2m high and associated shallow troughs are identified

throughout the survey area. The survey confirmed granular sediments interpreted as fine gravels and fine or medium to coarse grained sands to coarser grained sands and gravels, with occasional to frequent cobbles and boulders. Much of the area lies on the more elevated section of the Smith Bank, where seabed levels lie between 35.0m and 45.0m below LAT. However, a marked step is present, where seabed levels deepen from 40.0m below LAT to 47.0m below LAT, crossing the Western Development Area from NNW – SSE.

OFTI

A geophysical survey carried out by Gardline Geosurvey in 2011 established that the seabed's key units across the site area were comprised of sands underlain by clay deposits. The sites composition varied greatly across the route with raised sand ridges, mega sand ripples and areas of gravels and boulders clearly visible in the multibeam bathymetry data. Large channel features are also present across the site.

5.2.2 Geology, Geomorphology and sedimentology

The solid geology beneath the site comprises a thick sequence (>100m) of sandstones and mudstones of the Lower Cretaceous age which are in turn overlain with Quaternary age deposits made up of soft clayey silts and hard gravelly clays (The British Geological Survey, Section 4 (BGS)). The silts are known to be <10m if present at all, with the gravels reaching depths of up to 50m in parts likely to be glacial tills. Above these quaternary deposits are thin surface sediments of sands and gravels commencing from the Holocene period. There is evidence that the Moray Firth area is still undergoing isostatic rebound with an estimated relative land uplift of 1.11mm per annum (Shennan & Horton, 2002). The pre-Holocene sediment deposits in the inner Moray Firth have been recorded up to a maximum depth of 47m, this has come from twenty eight local borehole evaluations from the BGS. These shallow boreholes from the inner Moray Firth date as far back as mid-Last Glaciation and reveal seven units of stratigraphy providing further evidence for this ever-changing landscape.

Recent geotechnical investigations have shown the offshore sediments of the outer Moray Forth consist predominantly of sands and gravels extending to depths in excess of 50m (Senergy Survey and Geo-Engineering Ltd, 2009). The sediments relating to the Holocene deposits are thought to make up the upper 2-3m of the lithostratigraphy of the outer Moray Firth and again largely consist of mobile sands, gravels and sandy clays (courtesy of BGS data). The Quaternary units, which underlie these sediments, also consist of medium to dense, stiff clays, coarse sands, with isolated cobbles and boulders. In contrast to the sediments of the outer Moray Firth, those within the inner Moray Firth have been more intensively studied, with intercalated sediments of peats and estuarine silts, containing microfossils having been recorded to depths of up to 7m (Haggart, 1986, 1987). No such organic sediments have been observed in the outer Moray Firth.

Table 3: Archaeological and Geological Chronology

Age in years BP / BC / AD	British Stages	Archaeological Period
42AD - Present Day	Holocene	Roman; Early Medieval/Medieval Post-Medieval to Modern
700BC - 42AD		Iron Age
2,500BC - 700 BC		Bronze Age
4,000 BC – 2,500AD		Neolithic
9,000 BC – 4,000BC		Mesolithic
10,000 BP	Younger Dryas (Loch Lomond Stadial)	Palaeolithic
11,000 BP	Windermere Interstadial	
13,000 BP	Dimlington Stadial	
70,000 BP–16,000 BP	Devensian	
110,000BP	Ipswichian	
339,000BP – 130,000BP	Wolstonian	
380,000BP	Hoxnian	
423,000BP	Anglian	
860,000BP – 478,000BP	Cromerian Complex	

5.3. Potential for Submerged Archaeology and Palaeolandscapes

5.3.1 Relative sea-level change

The area of the Moray Firth has been undergoing glacio-isostatic uplift since the end of the last glacial period. Authors, such as Haggart (1982) have estimated that the area of the inner Moray Firth may have undergone as much as 42m of uplift since c. 9600 BP. Thus evidence for relative sea-level change prior to the Loch Lomond Stadial may be seen in raised shorelines between 40m to 26m above the current sea-level (Synge and Smith, 1980). Holocene relative sea-level change has been investigated across sites in northeast Scotland and show a broad trend of falling sea-level from the Late Glacial Maximum of c. 15,000 BP to around 10,000 BP to levels below that of present day sea-level; the early-Holocene minimum (Shennan *et al*, 2000; Shennan and Horton, 2002). This is followed by a period of sea-level rise, until around 5000 BP when sea-level began to fall, with this trend continuing in the area to the present (Shennan and Horton, 2002). It is thought that the driving cause for this sea-level fall within this area is glacio-isostatic uplift (Lambeck, 1992).

Sea-level studies from the Moray Firth itself have shown that relative sea-level has fluctuated through the Holocene. Sea-level index points from marine silts and buried peats in the area of the Beaully Firth have shown that in the period between the end of the last glaciation (the Devensian) and the Loch Lomond Stadial (c. 13,500-11,000

BP) relative-sea level was rising (Haggart, 1986, 1987). Prior to this it is believed the area would have been under ice sheets (Haggart, 1987). The formation of peats at around 9600 BP indicate a fall in relative sea-level, which lasted until around 7800 BP when sea-level began to rise again. At approximately 7300-7200 BP there is evidence for a high energy event in the sediment record, which may signal a storm surge event (Haggart, 1988). Evidence for such an event has also been found in the Dornoch Forth to the north (Smith *et al*, 1992) and elsewhere (e.g. Dounie) indicating a widespread event across the east coast of Scotland, which some authors have suggested may represent a tsunami event (Long *et al*, 1990; Dawson *et al*, 1991). This period of relative sea-level rise lasted until c. 5000 BP when sea-level began to fall, which has continued to its present level (Haggart, 1986, 1987). Similar dates for comparable relative sea-level changes in this area have been found in the Dornoch Firth (Smith *et al*, 1992).

The development area itself is known from previous studies (e.g. Flemming, 2004) to have been largely restricted in the past to glacial and marine conditions; therefore never becoming territorialised within the last 12,000 years. Relative sea-level change in the area combined with glacial isostatic rebound has meant that the Outer Moray Firth has remained either under ice sheets or submerged by the North Sea since the last glacial period. This means that there have been no opportunities for terrestrial deposits of palaeoenvironmental interest, such as peats to develop.

5.3.2 The potential for palaeoenvironmental and archaeological study

Previous palaeoenvironmental work in this area has been confined to the inner Moray Firth where palaeocological work was undertaken in relation to sea-level change studies (see above). Pollen work from the head of the Beaully Firth (Haggart, 1986, 1987) was able to show vegetation change in response to changes in relative sea-level within this area. Fluctuations in relative sea-level had an effect on the coastal plant communities and this is reflected in the pollen records of this area with changes from hazel scrub woodland at around 9600 BP to reed swamp communities at approximately 7000 BP correspond with a period of relative sea-level rise. At approximately 5000 BP relative sea-level then decreased and an alder-carr woodland community is established, while high values of grass pollen indicate some reed swamp remained in the area (Haggart, 1986, 1987). These communities continue to the end of the pollen study as relative sea-level continued to fall (see above). These results are similar to other studies in the region, such as in the Dornoch Firth area (e.g. Smith *et al*, 1992).

The nature of the sediments of the outer Moray Firth, being largely coarse sands and gravels, limits the scope for palaeoenvironmental work, in relation to the wind farms and cable route. The palaeoenvironmental investigations within the inner Moray Firth of pollen and diatom analysis were undertaken on peats and estuarine silts (Haggart, 1986; 1987) where the good preservation of such materials is conducive to

research. However, the preservation of such microfossils within sands and gravels is extremely poor and unlikely; indicating the potential for such studies in the proposed MORL wind farms and cable route is very low.

5.4. The Potential for Unrecorded Maritime Cultural Heritage Assets

5.4.1 Paleolithic (70000BP to 9000BP)

The Paleolithic covers the time from the initial occupation of what is now recognised as mainland Britain believed to have been c. 70000BP to 10000BP. During this time there have been a number of environmental changes and cycles, glaciations, changes in sea level, and much of the offshore area we are to examine for this report was for long periods exposed as dry land, offering the possibility to examine paleoenvironmental evidence as well as material culture. While there have been no reported Paleolithic finds or deposits of archaeological significance from the study area, the discovery of an array of flint tools and associated faunal remains believed to have been deposited during the Devensian Ice Age c.100000BP were uncovered after offshore dredging works eight miles east of Great Yarmouth in Norfolk (Wessex, 2007). This demonstrates the potential for Paleolithic evidence to survive in offshore submerged contexts. Elsewhere in the British Isles Paleolithic cave sites on the Welsh coast are well documented (Lynch *et al*, 2000), a cluster of which occur at Colwyn Bay including Pontnewydd Cave which contained the remains of at least three individuals. Similarly, a late Paleolithic site from coastal England is known at Blackpool (Manley, 1989: 19).

5.4.2 Mesolithic/ Neolithic (9000BC- 2500BC)

Mesolithic sites can be difficult to locate and identify but are known from coastal locations on the northern and western Isles of Scotland (Bonsall, 2009: 70-77), suggesting the possible use of maritime transport around the coast of Scotland at this time. No evidence for Mesolithic activity has been identified in close proximity to the study area. One explanation offered has been fluctuations and rises in sea level and subsequent submergence of coastal sites. A flint scraper recovered from a borehole core sample on the Viking Bank in the North Sea further demonstrates that prehistoric deposits can survive submerged landscapes. A flint scraper recovered from a borehole core sample taken on the Viking Bank off Shetland some distance to the north in the North Sea represents the only prehistoric find from a maritime context discovered to date (Fleming, 2004). A number of lithic scatters have been identified along the north east coast at Keiss and in the Yarrows basin. This evidence suggests that settlement was occurring at coastal locations from the later Mesolithic period onwards, and that tool manufacturing had occurred over a prolonged period of time throughout prehistory in the area (Pannett and Baines, 2002).

Neolithic sites are known from coastal locations on the north eastern coast including at the Black Isle peninsula close to Moray Firth. Evidence for maritime travel is

demonstrated through a number of examples of sea-faring vessels have been identified and recovered from coastal locations throughout British Isles. This includes an example from the east of Ireland which was recovered under 2 metres of sand during offshore trenching at a landfall site at Gormanstown, County Meath (Brady, 2002). The author suggested that this example was modified with outriggers to accommodate long distance sea travel (ibid.). Trade of goods, common ritual ideas and possible migrations are the other main indications of maritime contact during the Neolithic period.

There is a dense concentration of prehistoric sites known from coastal locations to the west of the Study Area on the north east coast. The Cairn of Get and Hill o' Many Stanes near Wick represent ritual activity from the Neolithic into the Bronze Age close to Moray Firth, which was presumably associated with settlement, evidence for which is less readily apparent. At Freswick, a shell midden of limpet shells and fish bones was excavated and suggested to be the site of a Bronze Age encampment that overlay a mesolithic layer containing flakes, cores and scrapers (Lacaille, 1954). Iron Age activity appears to have been widespread along this area of coast. Up to 200 brochs have been identified in Caithness, many having widespread views of the seascape including Borrowston Broch (Hill of Ulbster), Watenan Fort and Tulloch (Usshilly) Broch and field system.

5.4.3 Bronze Age (2500BC - 700BC)

Archaeological evidence from throughout the British Isles provides us with examples of the continued use of logboats during the Bronze Age and also of the use of small coracle type boats made from leather skins. More than 150 logboats have been recovered in Scotland (Mowat, 1996). Advances in boat building technology are best witnessed by the discovery of the Dover boat discovered in September 1992 between Dover and Folkestone. The boat is c. 3,500 years old and was damaged but may have originally measured 18 metres long and 2.4 metres wide, making it capable of crossing the channel and carrying a substantial cargo. The boat was made up of at least six oak timbers strewn together with yew wood, with all the joints reinforced with a thin lath of oak, covering moss pushed into the joint. The two central planks are joined by the use of wedges pushed through a central rail and a series of cleats (Clark, 2005). Other similar type of boats recovered from this period include 3 found at North Ferriby on the Humber near Hull, however no examples of this type of craft have ever been recovered from the Moray Firth or the North Sea area.

5.4.4 Iron Age & Roman (700BC – 410AD)

The archaeological evidence for maritime travel is evident in the common culture and traditions evident across much of Europe and the British Isles. We know that

Wales, Scotland, the Isle of Man and Ireland adopted a Celtic culture at this time and this could not have occurred without maritime travel. The type of craft used for travel at this time is known to have evolved to that known as the Romano-Celtic type, similar to one discovered in the Severn Estuary (Lawer & Nayling, 1993). However it is likely that skin covered vessels and dugout canoes continued to be used. A gold ornament representing a boat discovered as part of an Iron Age hoard in Co. Derry in Northern Ireland is generally accepted to represent the type of vessel in use at that time. The detail includes a mast and yard arm, 18 miniature oars and rowers benches, a type of rudder or steering oar, a grappling hook and other tools (Wallace 2002). It gives us a unique insight into the type of vessel used for deep sea and ocean travel but the one detail that cannot be discerned is whether the vessel was intended to represent a boat of hide or of timber (*ibid.*).

Archaeological and documentary evidence for Roman occupation in Scotland is well documented and discussion with regard to the utilization of the sea around Scotland has also been postulated (Martin *in* Smout, 1991). There is no question that both military and merchant maritime traffic would have been extensively employed during this period, connecting with the many Roman fort networks on the major east coast Firths; notably Cramond on the Forth and Carpow on the Tay. Although archaeological evidence for Roman maritime activity is yet to be forthcoming, it has to be a distinct possibility that evidence of such activity may well survive within the vicinity of the study area.

5.4.5 Early Medieval and Medieval (500AD – 1550AD)

The Early Medieval Period witnessed increasing contact between cultural groups throughout the British Isles, particularly between Ireland and Scotland. The Dalriadic Scots integrated and settled among the native groups of the west coast of Scotland and this interaction is embodied in maritime contact, evidence for which is suggested in pictorial graffiti, such as that discovered at the early Christian site on Inchmarnock opposite the Isle of Bute (Atkinson, 2008). The depiction of vessels on stones discovered at the site suggests evidence for the potential admixture of maritime boatbuilding traditions during this period. Elsewhere the east of Scotland was dominated by the Pictish tradition and in the absence of archaeological evidence for maritime activity we also rely on sculptural depictions of craft types, such as that noted on the Cossans Stone in Angus. Despite the lack of archaeological evidence for vessel remains, there is still the potential for such discoveries in the future.

Maritime links assumed renewed importance in the Early Medieval period, especially in relation to the spread of Christian culture and the written record from this period makes constant reference to journeys undertaken by those involved with the church between Scotland and Ireland, Wales, Cornwall and Brittany. Well documented voyages include those of Colm Cille, who travelled with a group of monks from

Northern Ireland to set up a monastery in Iona and Columbanus who traveled to Gaul (Ó Cróinín, 2005). The medieval text *Navigatio Sancti Brendani Abbatis* (The Voyage of St Brendan the Abbot) tells how a group of 6th century monks built a leather skinned 'curragh' type boat and set sail west over the ocean. Evidence of similar Monastic foundations on the east coast of Scotland are well represented, particularly the monastery at Portmahomack opposite the study area (Carver, 2008).

Documentary sources tell us state that the North Sea was frequently navigated by Danish and Norse Vikings, Orkney becoming a base in their expansion south and west from Norway (Ó Cróinín, 2005). The Annals of Ulster report of intermittent raids being carried out by the Norse at monastic sites on the west coast of Scotland at Iona and Northern England at Lindisfarne in 793AD. The Viking longship, clinker built type vessels, was a major factor in the success of their raids and voyages as they were suited to rough seas but also with the ability to navigate shallow estuaries and waterways (Greenhill and Morrison, 1998). Evidence for Viking vessels has been found on Orkney, the Isle of Man, at Portrush in County Antrim and on Rathlin Island off the coast of County Antrim. There are a number of accounts of maritime travel by the Vikings from Orkney, including an account from the 13th century when King Haakon Haakonson arrived in Orkney with a fleet of over 100 ships (Ó Cróinín, 2005).

During the medieval period it was military campaigns, migration and consequent commercial expansion that accounted for much of the sea travel of the time. During this time the English, Spanish and French had significant naval forces. The importance of ports grew, as did significant populations, prompting an expansion in seaborne trade and commerce. Custom accounts from the 15th century provide evidence of a thriving import and export industry (Rodger, 1997).

5.4.6 Post- Medieval- Modern (1550-Present)

The post-medieval period saw a steady increase in coastal activity where military activity and the expansion of world-wide trade meant further growth in the volume of shipping. From the 18th century onwards comprehensive records of ship losses became widespread and from the middle of the 19th century these records became far more comprehensive. This is reflected in the NMRS data collected that shows over 1500 wrecks in the Firth of Forth and Tay / North Sea area alone. Many of the recorded losses occurred during major storms, including the Great Storm of 1800 and other famous storms in 1852, 1874, 1875 and 1876. In the 1875 storm at least 15 vessels were lost and in 1876 there appears to have been at least 31 sinking's (Ferguson, 1991: 58). So severe were these losses that they encouraged the adoption of steam power for cargo vessels and by the end of WWI most of the larger vessels in the area were steam powered. Fishing has also been a significant industry in the area, with the rise of numerous fishing settlements along the Scottish east coast during the 18th and 19th centuries with major increases in the population - driven mainly by the growth of the herring fishing. It is not surprising therefore, that

many of the reported losses in this area are of smaller fishing vessels of various designs. It was not until the 20th century that metal hulls came into use in the herring trade and many of the earlier losses of wooden vessels are likely to be highly degraded and difficult to detect.

5.4.7 Military Remains

Vessel losses: The majority of identified shipwrecks in the seas of the Outer Moray Firth are the result of military activity during WWI and WWII. Initial losses during WWI were caused by the extinguishing of coastal lights which resulted in numerous wrecks concentrated along the shoreline. In the latter half of 1917 a submarine offensive was launched by the German Navy which resulted in the sinking of at least eleven ships in the Outer Moray Firth (Ferguson, 1991: 97). Records for shipping casualties are somewhat incomplete between 1939 and 1945 due to censorship but approximately 50 merchant vessels were sunk off the north-east coast as well as numerous military boats, ships, submarines and Allied and German aircraft losses. WWII losses are concentrated around Rattray Head and the eastern approaches to the Moray Firth (*ibid.*, 112).

Aviation losses: There is a moderate concentration of offshore aircraft losses along the north-east coast of Scotland, many resulting from military operations. There were several airbases in the area including Royal Air Force Lossiemouth built in 1938 and although mainly a training unit for Bomber crews during the Second World War, some operational raids were launched from there. In the 1980s the wreck of a 4 engine aircraft observed during an inspection of a submarine oil pipeline off Helmsdale in the Moray Firth has been identified as a Liberator Bomber that had gone down in 1945 with the loss of six lives. A number of aircraft are recorded in the NMRS as having gone down in the Moray Firth, however exact locations are not known.

6. RECORDED MARITIME CULTURAL HERITAGE

6.1. Limitations of data

One of the greatest limitations when researching known and potential offshore cultural heritage is the difficulty of locating recorded maritime losses. For many losses the location of the sinking of the vessel can be in the form of a general area description, as in 'off Moray Firth' or 'North Sea', which is not practically useful for the purpose of accurate assessment, except to show the potential exists to encounter cultural remains. Recorded losses are far more numerous than confirmed wrecks but are usually very poorly located and as such are useful only to characterise the type of shipwrecks in the area and assess the potential for further discoveries. Other wrecks have been identified through sonar survey but this too presents difficulties as many of these wrecks have been located using GPS, which until relatively recently were only accurate to 100m (Baird, 2009: viii) or by DECCA which can give locations

accurate to only a kilometre. Another important point about the recorded maritime losses is that they are heavily biased towards 19th and 20th century losses when more comprehensive records of losses began to be compiled by the UK Hydrographic Office.

The details for specific offshore cultural heritage assets are derived from two main sources, the National Monuments Record of Scotland held by the Royal Commission on Ancient and Historic Monuments of Scotland (RCAHMS) and SeaZone Hydrospatial Data (itself largely derived from UK Hydrographic Office data). These databases are both derived in turn from a variety of sources including various published lists of marine losses and marine surveys (eg. Baird, 2009; Larne and Larne, 1998; Nash, 2009). There is consequently a large overlap between the datasets.

The discussion and tables below covers all UKHO entries within the study area including dead entries. This is due to the fact that while in some cases there may be vessels which have failed to show up on recent geophysical surveys the locations may still contain remains of cultural heritage interest. In other cases, however, it is clear from the details of the entry that there is no reason to believe that there are now or ever have been archaeological remains. These entries have also been included in the text and illustrations and are discussed on a case by case basis below.

All known cultural heritage assets and events within the study area, including undesignated assets, have been assigned Headland Archaeology (HW or HA) numbers and a full gazetteer with concordance is provided in Appendix 1.

6.2 Cultural heritage assets within the Inner Study Area

Telford, Stevenson and MacColl Wind Farms

There are no Designated Wrecks or other cultural heritage assets with legal designations within the Inner or Outer Study Areas.

There are five entries within the SeaZone wrecks and obstructions dataset which fall within the Inner Study Area (HA1001, HA1002, HA1003, HA1004, HA1014). These are listed in Table 4 and shown in Figure 1. Of these three are LIVE entries, one is a DEAD wreck, while one is an unknown obstruction.

There is one reported loss within the Inner Study Area recorded in the National Monuments Record of Scotland. This corresponds to a UKHO SeaZone entry (HA1001) and is therefore assigned the same HA number in this report.

Table 4: Offshore cultural heritage assets within the Telford, Stevenson and MacColl Wind Farms Inner Study Area with known locations including UKHO 'dead' entries (those in bold are live).

HW No.	UKHO No.	Name	Type	Designations	UTM_WGS84	Status
1001	1328	Carisbrook (possibly)	Steamer	None	515045 6461955	Live
1002	1306	Llanishen (probably)	Steamer	None	514733 6458851	Live
1003	1184	Active	Fishing Trawler	None	516145 6455801	Dead
1004	1182	Unknown	Unclassified	None	516574 6453645	Live
1015	1181	None	Obstruction	None	524948 6453838	Dead

OfTI

There are no Designated Wrecks or other cultural heritage assets with legal designations within the Inner or Outer Study Areas of the OfTI. The assessment has identified 5 recorded wreck sites in the OfTI Inner Study Area from the SeaZone dataset (Listed in Table 5). Of these recorded wrecks two are considered to be LIVE and three DEAD wrecks. Further to this two UKHO obstructions have been recorded in the Inner study area of the cable route, (HA 1098 and 1101).

There is one reported loss within the OfTI Inner Study Area recorded in the National Monuments Record of Scotland as well as one obstruction. This overlap corresponds with UKHO SeaZone entries (HA 1009 and HA 1101) and are therefore assigned the same HA number in this report.

Table 5: Offshore cultural heritage assets within the OfTI Inner Study Area with known locations including UKHO 'dead' entries (those in bold are live).

HA No.	Name	Type	Designations	Status	UTM30N metres
HA1001	Unknown	Unclassified	None	DEAD	544989.012, 6425679.569
HA1004	HILLFERN (POSSIBLY)	Cargo ship	None	LIVE	549508.9, 6424832.913
HA1009	SVARTON (PROBABLY)	Cargo ship	None	LIVE	567783.375, 6414501.145

HA No.	Name	Type	Designations	Status	UTM30N metres
HA1037	<i>Unknown</i>	<i>Unclassified</i>	None	DEAD	565439.941 6404747.357
HA1038	<i>Challenger</i>	<i>Fishing Trawler</i>	None	DEAD	571130.613 6409375.456
HA1098	<i>None</i>	<i>Obstruction</i>	None	-	524,988.318 6,453,803.73
HA1101	<i>None</i>	<i>Obstruction</i>	None	-	560,557.775, 6,394,870.679

Most of the NMRS records corresponded with the SeaZone data, however 12 records in the Inner Study Area did not have associated SeaZone records and thus HA numbers have been assigned (HA1042, 1043, 1045, 1051, 1057, 1082, 1083, 1084, 1085, 1086, 1087 and 1093) (Table 5). The geophysical survey identified five possible wrecks further to those recorded in the NMRS and SeaZone (HA87, 116, 168, 179 and 302).

Table 6: NMRS cultural heritage assets in the OffI (those in BOLD do not correspond to Seazone entries).

HA NO.	Name	Age	Desc	Eastings	Northings
1055	SVARTON: NORTH SEA	20TH CENTURY	STEAMSHIP (20TH CENTURY)	408510	886430
1056	UNKNOWN: FRASERBURGH BAY, NORTH SEA		OBSTRUCTION(S)	401040	866900
1057	DAUNTLESS: FRASERBURGH BAY, NORTH SEA	19TH CENTURY	SCHOONER (19TH CENTURY)	401000	866000
1058	NORTHERN MAID: FRASERBURGH HARBOUR, NORTH SEA	19TH CENTURY	SCHOONER (19TH CENTURY)	400200	866800
1059	MATHIEU: FRASERBURGH HARBOUR, NORTH SEA	19TH CENTURY	CRAFT (19TH CENTURY)	400200	866800
1060	EBENEZER: FRASERBURGH HARBOUR ENTRANCE, NORTH SEA	19TH CENTURY	LUGGER (19TH CENTURY)	400200	866800
1061	NEW ONWARD: FRASERBURGH HARBOUR ENTRANCE, NORTH SEA	19TH CENTURY	LUGGER (19TH CENTURY)	400200	866800
1062	ZODIAC: FRASERBURGH HARBOUR ENTRANCE, NORTH SEA	20TH CENTURY	LUGGER (20TH CENTURY)	400200	866800
1063	POMONA: FRASERBURGH HARBOUR ENTRANCE, NORTH SEA	20TH CENTURY	SCHOONER (20TH CENTURY)	400200	866800
1064	PORTLAND: FRASERBURGH HARBOUR, NORTH SEA	19TH CENTURY	SCHOONER (19TH CENTURY)	400200	866800

HA NO.	Name	Age	Desc	Eastings	Northings
1065	JUDITH: FRASERBURGH HARBOUR ENTRANCE, NORTH SEA	19TH CENTURY	BRIGANTINE (19TH CENTURY)	400200	866800
1066	SUSAN: FRASERBURGH HARBOUR, NORTH SEA	19TH CENTURY	SCHOONER (19TH CENTURY)	400200	866800
1067	VETERAN: FRASERBURGH HARBOUR, NORTH SEA	19TH CENTURY	SHIP (19TH CENTURY)	400200	866800
1068	SOVEREIGN: FRASERBURGH HARBOUR, NORTH SEA	19TH CENTURY	CRAFT (19TH CENTURY)	400200	866800
1069	REFORM: FRASERBURGH HARBOUR ENTRANCE, NORTH SEA	19TH CENTURY	SLOOP (19TH CENTURY)	400200	866800
1070	JEAN AND MARY: FRASERBURGH HARBOUR, NORTH SEA	19TH CENTURY	LUGGER (19TH CENTURY)	400200	866800
1071	UNKNOWN: FRASERBURGH HARBOUR, NORTH SEA	19TH CENTURY	CRAFT (19TH CENTURY)	400200	866800
1072	HENRY AND ELIZABETH: FRASERBURGH HARBOUR ENTRANCE, NORTH SEA	20TH CENTURY	LUGGER (20TH CENTURY)	400200	866800
1073	HENRY: FRASERBURGH HARBOUR ENTRANCE, NORTH SEA	19TH CENTURY	SLOOP (19TH CENTURY)	400200	866800
1074	SISTERS: FRASERBURGH HARBOUR ENTRANCE, NORTH SEA	19TH CENTURY	CRAFT (19TH CENTURY)	400200	866800
1075	LOCHNAGAR: FRASERBURGH HARBOUR ENTRANCE, NORTH SEA	19TH CENTURY	CRAFT (19TH CENTURY)	400200	866800
1076	ERLEN: FRASERBURGH HARBOUR, NORTH SEA	19TH CENTURY	CRAFT (19TH CENTURY)	400200	866800
1077	JESSE AND ALEXANDER: FRASERBURGH HARBOUR ENTRANCE, NORTH SEA	19TH CENTURY	SCHOONER (19TH CENTURY)	400200	866800
1078	VICTORY: FRASERBURGH HARBOUR ENTRANCE, NORTH SEA	20TH CENTURY	LUGGER (20TH CENTURY)	400200	866800
1079	PERSERVERENCE: FRASERBURGH HARBOUR ENTRANCE, NORTH SEA	19TH CENTURY	CRAFT (19TH CENTURY)	400200	866800
1080	GIPSEY: FRASERBURGH HARBOUR, NORTH SEA	19TH CENTURY	CRAFT (19TH CENTURY)	400100	866900
1081	BARONESS STRATHSPEY: FRASERBURGH BAY, NORTH SEA	19TH CENTURY	SCHOONER (19TH CENTURY)	400000	865000
1082	ROYAL CONSORT: BOICH ROCK, FRASERBURGH BAY, NORTH SEA	19TH CENTURY	SCHOONER (19TH CENTURY)	400000	866000
1083	SOVEREIGN: BOICH HEAD, FRASERBURGH BAY, NORTH SEA	19TH CENTURY	SCHOONER (19TH CENTURY)	400000	866000

HA NO.	Name	Age	Desc	Eastings	Northings
1084	HAPPY RETURN: FRASERBURGH, NORTH SEA	19TH CENTURY	CRAFT (19TH CENTURY)	400000	866000
1085	JEAN AND BETSEY: NORTH SEA	19TH CENTURY	SLOOP (19TH CENTURY)	400000	866000
1086	AUGUSTA: FRASERBURGH, NORTH SEA	19TH CENTURY	SCHOONER (19TH CENTURY)	400000	866000
1087	INTER NOS: FRASERBURGH, NORTH SEA	19TH CENTURY	LUGGER (19TH CENTURY)	400000	866000
1088	MARY COLVILLE: GLENBUCHTY, MORAY FIRTH	20TH CENTURY	SCHOONER (20TH CENTURY)	399000	866000
1091	THE 'ROUNABOUT' WRECK	20TH CENTURY		407230	877020
1092	UNKNOWN: NORTH SEA		CRAFT	407400	877000
1093	KINNAIRD HEAD, KINNAIRDS HEAD		CRAFT	408000	877000

6.3 Cultural heritage assets within the Outer Study Area

Telford, Stevenson and MacColl Wind Farms

There are 3 entries within the SeaZone wrecks and obstructions dataset which fall within the Outer Study Area, two of these entries are categorised as wrecks (**HW1005 and HW1006**) and one as an obstruction (**HW1015**). These are listed in Table 7 and shown on Figure 1.

Table 7: Offshore cultural heritage assets within the Telford, Stevenson and MacColl Wind Farms Outer Study Area with known locations including UKHO 'dead' entries (those in bold are live).

HW No.	UKHO No.	Name	Type	Designations	UTM_WGS84	Status
1005	1171	<i>Minsk</i>	Cargo Steamer	None	520562 6441757	Live
1006	1169	<i>HMS Lynx</i>	Destroyer	None	521994 6441416	Dead
1015	1181	None	<i>Obstruction</i>	None	524948 6453838	Dead

Within 5km of the proposed wind farms there are also the following recorded cultural heritage assets (Table 8). This further arbitrary 5km buffer zone around the wind farms was appraised in order to identify the archaeological potential of the main study area. A full description of each entry is given where available in the gazetteer in Appendix 1.

Table 8: Offshore cultural heritage assets within 5km of the Telford, Stevenson and MacColl Wind Farms with known locations including UKHO 'dead' entries (those in bold are live).

HW No.	UKHO No.	Name	Type	Designations	UTM_WGS84	Status
1007	1166	CHARKOW	Steamer	None	520536 6438016	Dead
1008	1324	HMS Lynx(Part)	Destroyer	None	528768 6447193	Live
1009	1489	Unknown	Unclassified	None	528700 6447875	Live
1010	8700	Unknown	Unclassified	None	529612 6447832	Live
1011	8701	Unknown	Unclassified	None	529646 6447577	Live
1012	8699	Unknown	Unclassified	None	531733 6449230	Live
1013	1315	Marstenen (possibly)	Steamer	None	519439 6466361	Live

There is one reported loss within the Outer Study Area recorded in the National Monuments Record of Scotland. This overlap corresponds with the UKHO Seazone entry (HA1013) and is therefore assigned the same HA number in this report.

OfTI

There are nine recorded wreck sites in the OfTI Outer Study Area (see Table 9). Of these recorded wrecks two are considered to be LIVE wrecks, five DEAD wrecks and two have been lifted (LIFT). Again some SeaZone wreck entries have little to no information available other than an unreliable position recorded. Though it is unlikely that these are in fact existent wrecks they cannot be discounted. Two UKHO obstructions have been recorded in the Outer Study Area of the OfTI (HA1099 and HA 1100).

Table 9: Offshore cultural heritage assets within the OfTI Outer Study Area with known locations including UKHO 'dead' entries (those in bold are live).

HA No.	Name	Type	Designations	Status	UTM30N metres
HA1002	Unknown	Unclassified	None	DEAD	562171.057, 6415801.273
HA1003	PRINCESS CAROLINE	Passenger Ship	None	DEAD	558659.068, 6419365.863
HA1005	REMUERA	Passenger ship	None	LIVE	566601.366, 6405076.739
HA1010	TRSAT	Cargo ship	None	DEAD	568285.149, 6405135.192

HA No.	Name	Type	Designations	Status	UTM30N metres
HA1011	<i>Northern Light</i>	<i>Small fishing boat</i>	None	DEAD	559764.876, 6394734.604
HA1014	TRSAT (PROBABLY)	Cargo ship	None	LIVE	566218.334, 6403214.235
HA1032	<i>WATCHFUL</i>	<i>Small fishing boat</i>	None	LIFT	560202.584, 6395390.282
HA1035	<i>Unknown</i>	<i>Small fishing boat</i>	None	LIFT	559617.765, 6394609.062
HA1036	<i>Unknown</i>	<i>Aircraft</i>	None	DEAD	544891.116, 6429013.326
HA1099	<i>None</i>	<i>Obstruction</i>	None	-	567,136.745, 6,414,396.319
HA1100	<i>None</i>	<i>Obstruction</i>	None	-	567656.837 6402547.67

6.4 Results of the Archaeological Assessment of Geophysical Survey Data

6.4.1 Sidescan Targets Located within the Telford, Stevenson and MacColl Wind Farms

6.4.1.1 Osiris Projects targets in the Telford, Stevenson and MacColl Wind Farms

Osiris Projects identified 814 sidescan anomalies in total within the Eastern and Western development Area (Figure 2). These anomalies were for the most part identified as large isolated boulders by Osiris, with a large number of small boulders. It is likely these smaller boulders are from geological outcrops or glacial till on the seabed. Further assessment of these targets by Headland Archaeology has established the nature of these anomalies and confirms their likely natural origin. This is based on their characteristics and position within an area of seabed dominated by geological 'features'. These targets are regarded as being of low archaeological potential within this assessment.

6.4.1.2 Headland Archaeology Sidescan Targets in the Telford, Stevenson and MacColl Wind Farms

A total of 140 sidescan anomalies have been identified by Headland Archaeology. Each target has been given an Archaeological Potential rating, the results of which identified three targets of high archaeological potential; seventeen targets of medium archaeological potential and one hundred and thirteen targets of low archaeological potential within the Inner and Outer Study Areas. High and medium targets have been categorised due to their physical appearance and manmade characteristics and their locations are illustrated on Figure 3.

Table 10: High and Medium Targets Recorded in the Telford, Stevenson and MacColl Wind Farms Geophysical Survey

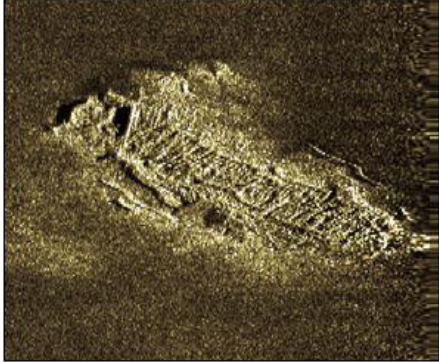
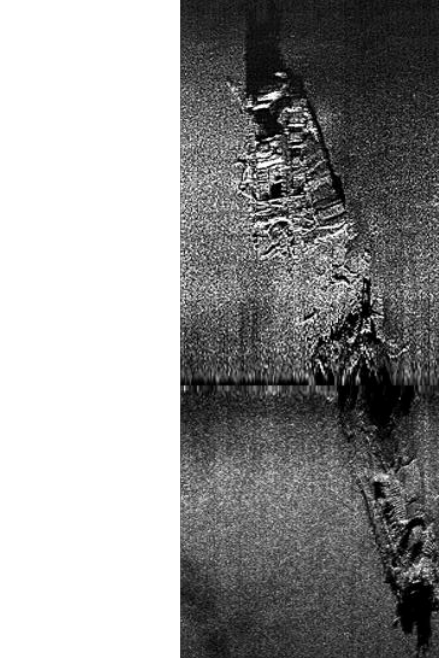
HW	Site Name	Site Type	Sidescan Potential	Mag Potential	UTM30N metresE	UTM30N metresN
157	Carisbrook	Wreck	High	High	515050.8	6461978.66
158	Unknown	Wreck	High	High	516485.9	6453673.1
159	Llanishen	Wreck	High	High	514759.9	6458893.73
36	-	-	Medium	-	525711.5	6447161
44	-	-	Medium	-	521132.4	6446479
52	-	-	Medium	-	520384.8	6447576
61	-	-	Medium	-	523746.1	6454553
71	-	-	Medium	-	520779.5	6448862
72	-	-	Medium	-	516404.7	6447812
73	-	-	Medium	-	509171.3	6446862
74	-	-	Medium	-	508985.4	6447061
75	-	-	Medium	-	515055.2	6461947
76	-	-	Medium	-	515642.5	6462110
77	-	-	Medium	-	511513.2	6456395
78	-	-	Medium	-	513932.1	6454259
100	-	-	Medium	-	513356.5	6458593
102	-	-	Medium	-	516052.1	6463919
108	-	-	Medium	-	517946	6450716
117	-	-	Medium	-	509730.2	6439767


6.4.1.3 Anomalies with High Archaeological Potential - Telford, Stevenson and MacColl Wind Farms Inner Study Area

In total three sites were identified as exhibiting high archaeological potential in the sidescan data (Figure 3), all of which were located within the Telford, Stevenson and MacColl Wind Farms Inner Study Area and which represent known wreck sites (Table

11).

Table 11: High Potential Targets Description Recorded in the Telford, Stevenson and MacColl Wind Farms Inner Study Area



HW No.	Description	Image
157	<p>HA157 is the known wreck of the SS Carisbrook (possibly) sunk in June 1915 and recorded as being a 'live' wreck in the UKHO SeaZone database (UKHO-WO-1328). The steamer ship has dimensions from the geophysical sidescan data of 68.1m x 17.38m and a height of 1.14m above the seabed. The sidescan sonar image is shown on Illustration 1 and on Figure 8. An associated high potential magnetometer target (HA9) is also interpreted as this target. Osiris Projects identified this remain namely S302 and magnetometer target M35. This wreck is not visible on the seabed in the bathymetry dataset unlike the other two wrecks (HA 158 & 159). This is likely to be due to geological features and the poor preservation condition observed from the geophysical sidescan data. Medium potential target HA75 is located near to this vessel (28m away) and may be associated shipwreck debris remains. Figure 8 also identifies shipwreck debris on the seabed surrounding the vessel.</p>	
159	<p>HA159 is identified as the remains of the Llanishen vessel which is broken in two on the seabed (Illustration 2). The ship has a UKHO status as 'live' and its geophysical dimensions are recorded as 137.7m x 49.94m and a height of 4.28 (UKHO-WO-1306). The location of the ship is at UTM30N 514759mE and 6458893mN (Figure 3). Osiris Projects have located this shipwreck (S288 and M33). This wreck is identified in the magnetometer data (HA11) and also visible in the bathymetry data (Figure 4), illustrating a relatively featureless part of the seabed (Figures 3 & 6).</p>	



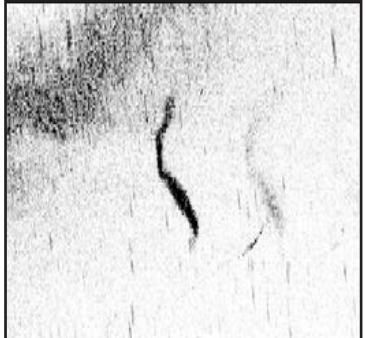

HW No.	Description	Image
158	HA158 is the third known wreck site located at UTM30N 516485mE and 6453673mN. This is an unidentified vessel first discovered in 1949. It is recorded as 'live' in its UKHO status (UKHO-WO-1182) with dimensions taken from the sidescan sonar image as 150.23m x 34.59m and a height of 3.96m (Illustration 3). This target has also been identified in both the bathymetry (Figure 4) and magnetometer (HA10) data. Osiris Projects identified both sidescan and magnetometer targets for this wreck (S359 and M39).	



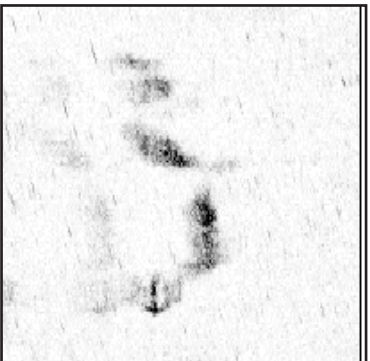

6.4.1.4 Anomalies with Medium Archaeological Potential Potential - Telford, Stevenson and MacColl Wind Farms Inner Study Area


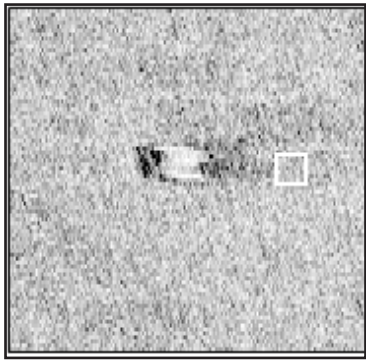

In total 1 sites were identified as exhibiting medium archaeological potential located within the Telford, Stevenson and MacColl Wind Farms (Figures 2 & 3). These are all classified as potential debris remains. Osiris identified 4 potential 'objects' namely S7; S81; S228 and S238, none of which were identified by Headland.

Table 12: Medium Potential Targets Description Recorded in the Telford, Stevenson and MacColl Wind Farms Inner Study Area

HW No.	Description	Image
44	Headland target HW44 is interpreted as a possible object of medium archaeological potential being a dark and light reflector in the sidescan data. This possible object has dimensions of 5.16m x 4.43m and a height of 0.88m and is located at UTM30N 521132.44mE and 6446478.56mN in the MacColl wind farm. This area of the seabed is identified as being uneven with outcroppings of glacial till noted from the bathymetry data. There are no associated magnetic anomalies or Osiris targets within 50m of this target.	
52	HW52 is again identified as being debris on the seabed due to its manmade characteristics. The dimensions of the anomalies are 4.23m x 3.13m and a maximum height of 1.07m and have been recorded at coordinates UTM30N 520384.78mE and 6447576.11mN in the MacColl wind farm. No associated Osiris targets or magnetic fluctuations were identified. The possible object appears to have a thin linear feature extending from it or perhaps illustrating a partially buried object.	

HW No.	Description	Image
61	<p>Target HW61 appears to be a possible linear object assessed as being of medium archaeological potential. The dimensions of the anomaly are recorded as 4.3m x 1.59m and a height of 1.58m. This anomaly is located in the Telford wind farm at coordinates UTM30N 523746.07mE and 6454552.91mN. This target is possibly associated with Osiris Projects sonar target S753 located within 50m of HW61. The area that this target is located in is highly uneven and common outcrops of glacial till are present. The feature is a dark and light reflector and individual fragments are visible on the data.</p>	
71	<p>Sonar target HW71 is interpreted as being the remains of a wellhead installation and associated with nearby Osiris Projects target S592 recorded as seabed depressions. This target is composed of three roughly circular anomalies visible in the sidescan data with approximate dimensions of 25.55m x 22.63m and a height of 0.78m. This is located at UTM30N 520779.49mE and 6448861.74mN in the MacColl wind farm. There is also a magnetic fluctuation (HW22) in the vicinity (within 100m) of the target which again supports this interpretation. The SeaZone data also shows wellhead installations to be present in the immediate vicinity</p>	
72	<p>HW72 is recorded as being possible linear debris remains located at UTM30N 516404.69mE and 6447811.88mN to the east of target HW71 in the Stevenson wind farm. The targets dimensions are 25.32m x 0.77m with no measurable height as the target is a dark reflector in the sidescan data. The feature is curvilinear in shape and has potential anthropogenic characteristics.</p>	
75	<p>Target HW75 is a possible debris scatter located at UTM30N 515055.18mE and 6461946.7mN in the Telford wind farm. The anomaly spread has dimensions of 26.27m x 4.02m, there is no measurable height data available from the sidescan data. Nearby Headland target HW157 and Osiris Projects targets S302 and magnetic anomaly M35 has been identified to be the wreck of the Carisbrook vessel, thus HW75 is likely associated debris from this site. This area of the site is noted as having geological outcropping from the bathymetry dataset. Magnetic anomaly HW9 is associated with the target showing considerably high fluctuations on the survey data.</p>	

HW No.	Description	Image
76	<p>Target HW76 is linear debris measuring 12.31m x 2.76m and a maximum height of 0.25m, located in the Telford wind farm at UTM30N 515642.48mE and 6462110.21mN. There are no magnetic anomalies or Osiris sonar targets located within 50m of this anomaly. The Carisbrook wreck site HW157 is approximately 600m away from this recorded target.</p>	
77	<p>HW77 is a possible object with dimensions of 7.07m x 2.44m and a height of 0.84m being a dark and light reflector in the sidescan sonar data set. It is located at UTM30N 511513.2mE and 6456395.32mN in the Stevenson wind farm and is not associated with any Osiris targets or magnetic fluctuations. Low potential Headland target HW166 is within 5m of this, identified as a possible natural feature. The object appears to be made up of two thin linear elements.</p>	
78	<p>Target HW78 is described as a possible group of potential objects or debris scatter. These features are located to the east of target HW77 in the Stevenson wind farm located at coordinates UTM30N 513932.14mE and 6454259.4mN. This target has approximate dimensions of 8.16m x 3.24m and a height of 0.25m. There are no associated Osiris Projects targets or magnetometer evidence linked to target HW78, however individual small elements are visible in the data.</p>	
80	<p>HW80 is located in the Stevenson wind farm at coordinates 517192.39mE and 6450733.81mN. The debris has a curvilinear shape and a linear appearance with approximate dimensions of 28.41m x 2.8m width. This is a dark reflector in the sidescan data.</p>	

HW No.	Description	Image
100	Target HW100 is located in the Telford wind farm at UTM30N 513356.46mE and 6458593.32mN. This target is a possible object or debris with dimensions of 6.34m x 1.65m and a height of 1.48m. No associated Osiris targets or magnetic fluctuation are identified in the datasets. The possible object is a dark and light reflector in the sidescan data and appears to be partially buried.	
108	HW108 has been identified as a potential object from its manmade characteristics visible in the sidescan data measuring 4.97m x 2.67m and with a height of 1.13m. This target is located in the Telford wind farm at UTM30N 517946.02mE and 6450716.08mN. The central area contains the large channel feature and frequent sands and gravels with the potential for debris becoming buried. This potential object is shown on. HW145 low potential target is located within 10m of this, having been interpreted as a likely nature feature.	
117	HW117 is a possible object measuring 10.46m x 1.69m and a height of 0.74. The object is recorded at coordinates UTM30N 509730.22mE and 6439767.39mN in the MacColl wind farm and is a dark and light reflector in the sidescan dataset. Osiris target S96 is located 2m away from the Headland target. Likewise Headland target of low archaeological potential HW140 is less than 5m from this possible object. HW117 has very defined curvilinear attributes visible in the sidescan data.	

6.4.2 Headland Archaeology Sidescan Targets in the OfTI

A total of 414 sidescan sonar anomalies have been identified by Headland within the OfTI. These targets were predominantly identified as 'possible natural features' and given a low archaeological potential rating (347 in total). Fifteen targets have been assigned a high archaeological potential rating and forty-two targets have been assigned a medium archaeological potential rating in the inner and outer study areas.

Table 13: High and Medium Targets Recorded in the Cable Route Geophysical Survey

HA	Site Name	Site Type	Sidescan Potential	Mag Potential	UTM30NmE	UTM30NmN
5	-	Debris	Medium	-	520204.28	6460925.28
9	-	Debris	Medium	-	520680.1	6460835.52
21	-	Debris	Medium	-	524596.08	6453925.37
26	-	Debris	Medium	-	524250.76	6454980.82
28	-	Debris	Medium	-	522427.98	6459665.05
29	-	Debris?	Medium	-	525408.5	6454631.95
52	Unknown	Wreck SeaZone entry 20226	High	-	549507.45	6424777.67
53	-	Wreck debris	Medium	High	549485.11	6424821.26
55	Unknown	HA52 debris	High	-	549509.59	6424797.79
60	-	Chain	Medium	-	550331.72	6422362.07
63	-	Debris	Medium	-	549598.7	6423337.09
65	Unknown	Wreck same as HA52?	High	-	549485.85	6424785.76
66	Hillfern (Possibly)	Wreck	High	High	549509.25	6424838.2
69	-	Debris	Medium	-	553189.35	6419773.53
72	-	Debris	Medium	-	572036.12	6409225.78
84	-	Debris	Medium	-	549209.29	6423551.71
85	-	Debris	Medium	-	567096.67	6415732.69
87	-	Debris	High	-	562914.76	6417183.16
92	-	Debris	Medium	-	562500.94	6417272.75
95	-	Debris same as 92?	Medium	-	562505.92	6417287.08
114	-	Debris	Medium	-	527681.22	6441736.24
116	-	Wreck	High	-	527301.22	6442005.93

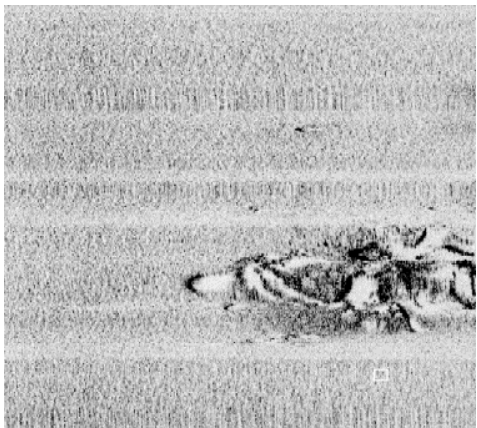
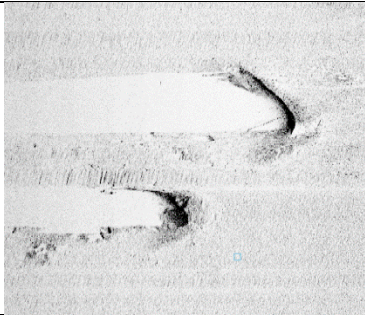
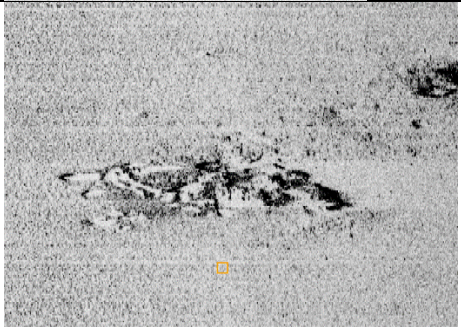
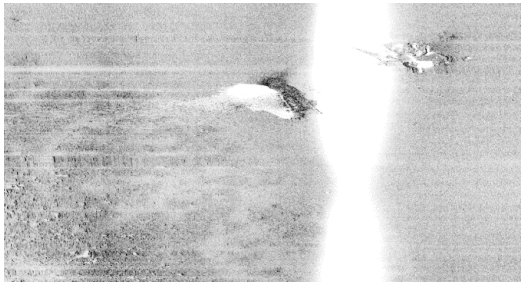
HA	Site Name	Site Type	Sidescan Potential	Mag Potential	UTM30NmE	UTM30NmN
122	-	Debris	Medium	-	571716.06	6413088.65
125	-	Debris with scour	Medium	-	569569.61	6415493.47
129	-	Buried wreck?	High	-	570669.48	6414087.14
136	-	Debris/chain/scour	Medium	-	568530.38	6413905.88
137	Svarton (Probably)	Wreck	High	High	567751.03	6414518.83
141	Svarton (Probably)	Same as 137?	High	-	567766.3	6414546.9
142	-	Wreck debris	Medium	-	567823.54	6414607.63
150	-	Debris	Medium	-	568135.88	6415298.18
158	-	Debris	Medium	-	533677.7	6434712.67
160	-	Buried debris?	Medium	-	527645.11	6441737.04
164	-	Debris	Medium	-	542705.36	6428552.86
168	-	Wreck	High	High	529157.23	6439611.87
169	-	Debris	Medium	High	529158.31	6439601
173	-	Debris	Medium	-	560572.61	6394565.45
174	-	Debris	Medium	-	560606.3	6394582.45
179	-	Wreck	High	-	560649.28	6394483.69
180	-	Debris	Medium	-	560518.47	6394350.29
181	-	Debris	Medium	-	560659.02	6394487.44
182	-	Chain	Medium	-	560248.21	6394176.6
185	-	Debris	Medium	-	560748.64	6394451.05
188	-	Debris	Medium	-	560575.92	6394204.38
198	-	Chain	Medium	-	559903.91	6394827.38
200	-	Chain	Medium	High	560262.29	6394776.3
202	-	Debris	Medium	-	560480.92	6394709.55

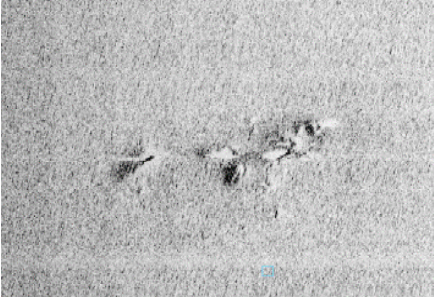


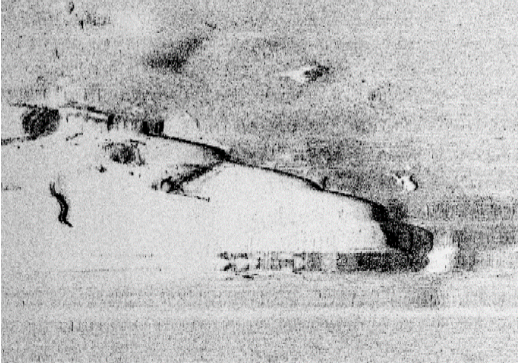
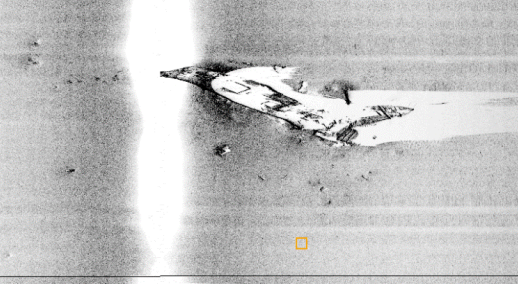
HA	Site Name	Site Type	Sidescan Potential	Mag Potential	UTM30NmE	UTM30NmN
211	-	Wreck debris	Medium	-	560642.97	6395082.23
212	-	Wreck debris	Medium	-	560639.29	6395080.56
296	-	Debris	Medium	-	562131.18	6395132.74
302	-	Wreck	High	-	571143.86	6415234.08
317	-	Debris	Medium	-	573666.88	6411290.4
352	Remuera	Wreck	High	High	566636.97	6405082.18
356		Debris	Medium	High	566183.17	6403215.91
357	Trsat (Probably)	Wreck	High	High	566202.38	6403193.8
362	Trsat (Probably)	Buried Wreck same as 357?/352?	High	-	566191.42	6403202.87
366	-	Debris	Medium	-	567013.52	6402338.48
386	-	Debris	Medium	-	564846.02	6398078.35


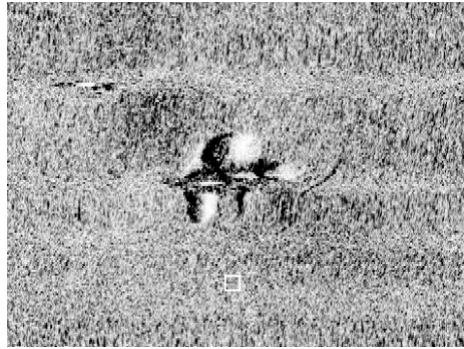
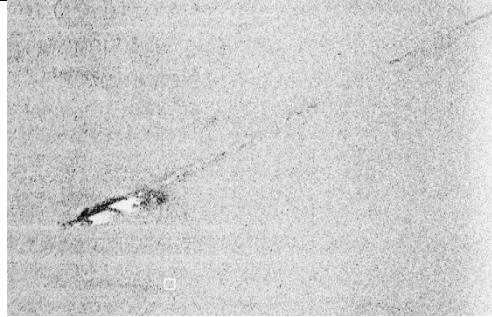
6.4.2.1 Anomalies with High Archaeological Potential in the OfTI Inner Study Area

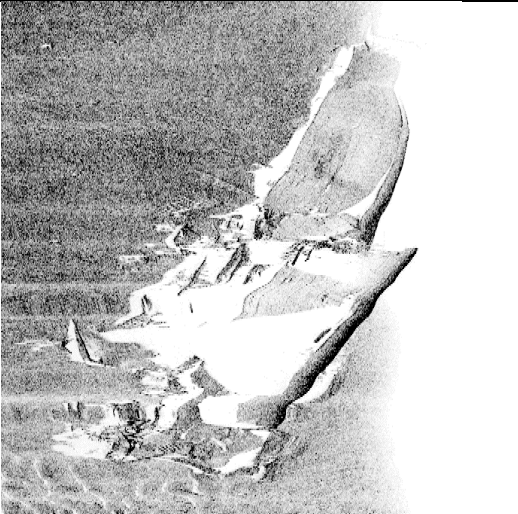


Fifteen high potential sidescan targets have been identified within the OfTI Inner Study Area, namely (HA52, 55, 65, 66, 87, 116, 129, 137, 141, 168, 179, 302, 352, 357 and 362).

Table 14: High Potential Targets Description Recorded in OfTI Inner Study Area

HA Number	Description	Image
52	HA52 is located in the central area of the OfTI at coordinates 549507mE and 6424778mN. This wreck corresponds with unknown SeaZone entry 15901 and is visible in the multibeam data. The wreck has dimensions of 32.6m x 16.71m and a geophysical height of 1.01m and appears to be partially buried or damaged. The wreck is in an area of the seabed that has outcropping rocks and sand lenses. Three other high potential targets and a medium potential debris remain are within 40m of this wreck (HA55, 65, 66 and 53). There is a magnetic anomaly within 60m of the wreck.	
55	HA55 is within 20m of HA52 and is likely associated debris or a different part of the wreckage. The debris has dimensions of 12.61m x 3.91m and a maximum height of 2.09. The targets coordinates are 549510mE and 6424798mN.	
65	HA65 is the same wreck as HA52 from a different angle and survey line. The wrecks recorded dimensions are 34.78m x 11.37m and a maximum height of 3.02m and is located 26m from HA52 at coordinates 549486mE and 6424786mN.	
66	HA66 is SeaZone entry 5570637 recorded as the Hillfern (Possibly) and is also visible in the multibeam data. The wreck is much abraded and on a gravelly area of the seabed with scour marks visible in the sidescan data. Its dimensions are 24.03m x 7.14m and height of 1.69m. This wreck is located just 40m from unidentified wreck HA52 at coordinates 549509mE and 6424838mN.	

HA Number	Description	Image
87	High potential target HA87 is located in the south easterly part of the OfTI at coordinates 562915mE and 6417183mN. The partially buried debris is located in an area that has large areas of sand present. There is no recorded SeaZone wreck in the vicinity of this target or any magnetic anomalies. The debris dimensions are 16.47m x 4.68m and 0.26m height	
116	HA116 is located at coordinates 527301mE and 6442006mN northern area of the OfTI. There is a slight scour mark around the wreck visible in the sidescan data and it looks to be partially buried in sand. Again no SeaZone entry is recorded in the area and there are no associated magnetic anomalies. The buried wreck debris dimensions are 21.66m x 8.09m and height of 2.82m.	
129	HA129 is a partially buried wreck with visible dimensions of 6.04m x 5.76m and a geophysical height of 0.84m. The debris has been identified at coordinates 570669.48mE and 6414087.14mN. This is a dark and light reflector in a relatively sandy area of the seabed. There are no associated SeaZone records.	
137	HA137 is SeaZone wreck Svarton (Probably) located in the southern part of the OfTI at coordinates 567751mE and 6414519mN. The wreck is very large with dimensions of 63.84m x 13m and height of 0.71m and is clearly visible in the multibeam data. The wreck is visibly damage and broken in two with surrounding debris (medium potential target HA142).	
141	HA141 is the same piece of wreckage as HA137 on another survey line from a different angle identified at coordinates 567766mE and 6414547mN. Here more detail can be identified on the wreck such as the deck area and bow. There is a magnetic anomaly associated with HA137 and HA141.	


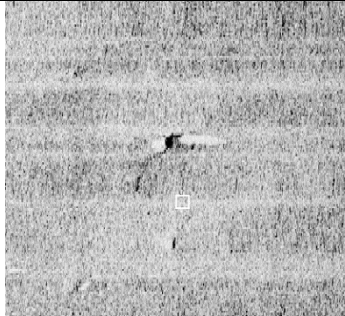

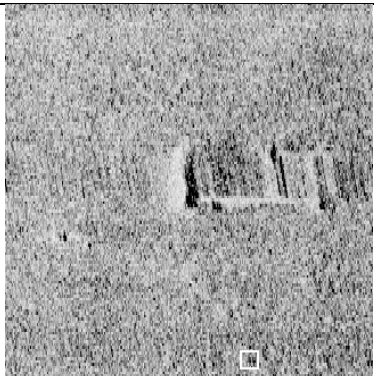
HA Number	Description	Image
168	<p>HA168 has been identified in the northern area of the OfTI at coordinates 529157mE and 6439612mN. Again the area is made up of observable sandbanks and a scour mark is visible off the debris. Its dimensions are 12.55m x 9.93m and a maximum height of 1.24m; this is visible in the multibeam data. Located 10m from this is medium potential target HA169 which may be associated debris. A magnetic anomaly is also within 50m of the target which suggests they may be related. Gardline have identified debris remains within 10m of this target which is likely the same debris.</p>	
179	<p>This debris is located in the nearshore area of the OfTI at coordinates 560649mE and 6394484mN. The target is on an area of the seabed with rock outcropping present, though the sidescan seems to show that the feature is perhaps on a sandy lens and is somewhat visible in the multibeam data. The features dimensions are 10.21m x 5.28m and a maximum height of 1.84m. No SeaZone wrecks are recorded in the area and there are no magnetic anomalies present. Medium potential target HA181 is 10m from this possible buried wreck and could be associated debris.</p>	
302	<p>HA target 302 is located near the southern end of the OfTI at coordinates 571144mE and 6415234mN. The possible buried wreck has dimensions of 18.43m x 5.66m and a maximum height of 0.49m. The target is on a fairly even part of the seabed. Large scour mark can be seen coming off the feature. Neither SeaZone entries nor magnetic anomalies are in the vicinity of the possible wreck.</p>	




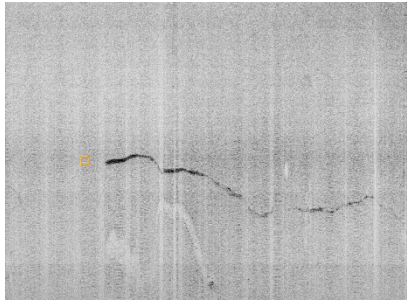
HA Number	Description	Image
352	HA352 is a partially buried wreck remain located at coordinates 566636.97mE and 6405082.18mN in the OfTI. The wreck has geophysical dimensions of 41.19m length, 6.77m width and a height of 0.69m. The wreckage appears to be partially buried in sand and has broken up bits of debris surrounding it.	
357	HA362 corresponds with HA1014, the SeaZone entry TRSAT (probably). This is located at coordinates 566202.38mE and 6403193.8mN. The wreck has geophysical dimensions of 42.79m x 11.26m and a maximum height of 1.34m. Again the wrecks is in an area of the seabed with sand mega ripples and is partially buried and broken up on the seabed.	
362	HA362 is the same wreck as HA357 from another sidescan survey line angle. Again the preservation condition of the wreck can be seen as highly broken up on the seabed. This wreck was bombed by a German aircraft in 1941.	

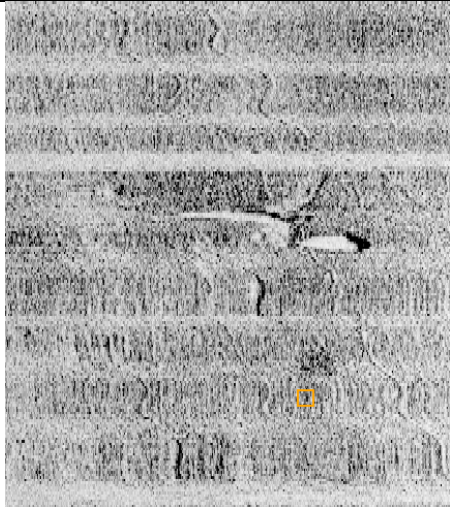



6.4.2.2 Anomalies with Medium Archaeological Potential in the OfTI Inner Study Area


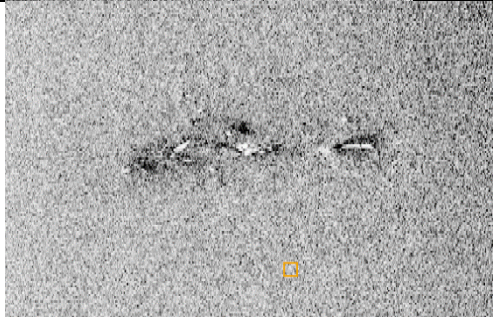
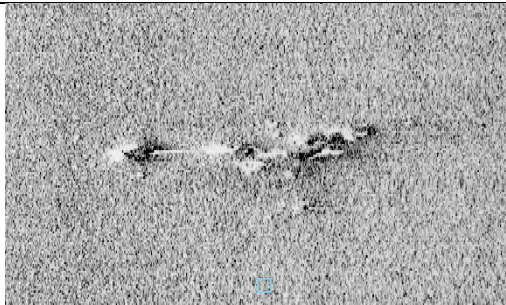

There are forty two targets that have been assigned a medium archaeological potential rating in the OfTI Inner Study Area and are as follows (HA5, 9, 21, 26, 28, 29, 53, 60, 63, 69, 72, 84, 85, 92, 95, 114, 122, 125, 136, 142, 150, 158, 160, 164, 169, 173, 174, 179, 180, 181, 182, 185, 188, 198, 200, 202, 211, 212, 296, 317, 366 and 386).


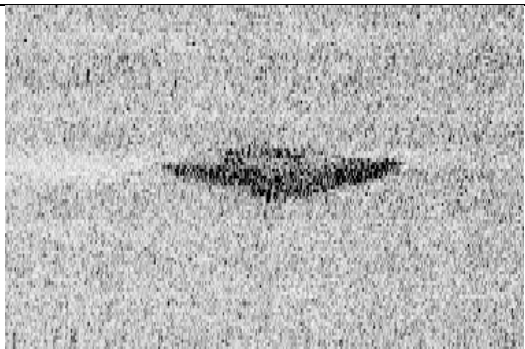
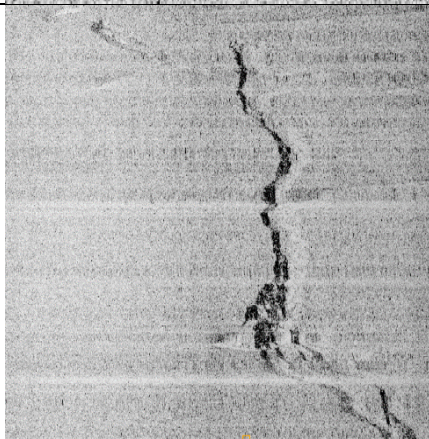
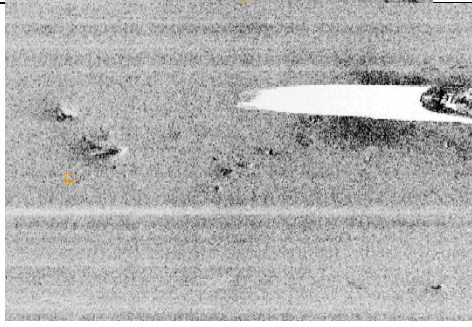
Table 15: Medium Potential Targets Description Recorded in OfTI Inner Study Area

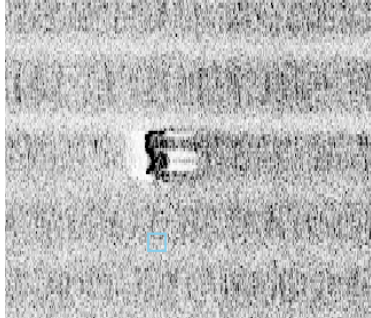
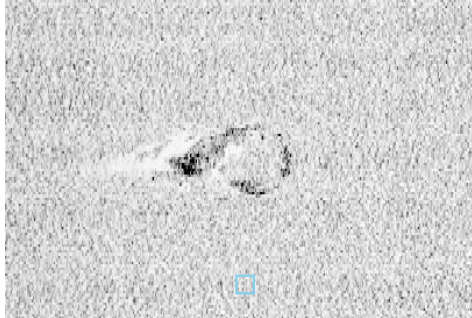

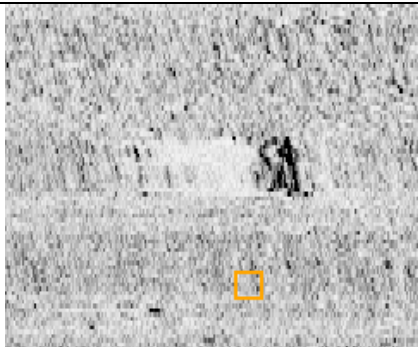
HA No.	Description	Image
5	HA5 is in the northernmost part of the OfTI at coordinates 520204mE and 6460925mN. The debris has dimensions of 6.05m x 0.86m and a geophysical height of 0.33m. There are no associated magnetic anomalies in the area.	
9	HA9 is located to the east of HA5 approximately 400m away. The debris appears to be a solid piece with a rope/chain coming off from it with dimensions of 9.97m x 3.20m and a maximum height of 0.38m. The debris is located at coordinates 520680mE and 6460836mN.	
21	HA21 is located at coordinates 524596mE and 6453925mN with dimensions of 14.06m x 6.04m and height of 0.13m in the northern area of the OfTI. It looks to be partially buried rectangular debris with a slight scour mark coming from it. There are no associated magnetic targets near this debris remains and the seabed appears to be quite even with gravel and boulders present.	
26	HA26 is located slightly north of HA21 and is made up of a number of individual pieces of debris at coordinates 524251mE and 6454981mN. The debris has measurements of 9.89m x 7.80m and a maximum geophysical height of 0.16m. Again the debris looks to be partially buried by sands and gravels.	



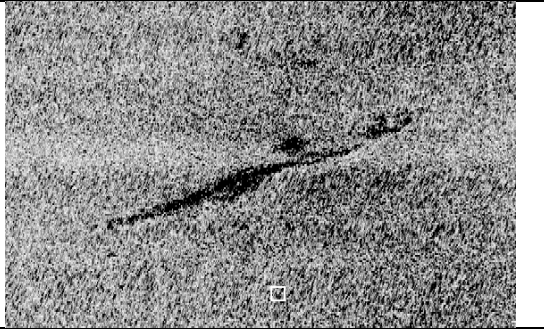
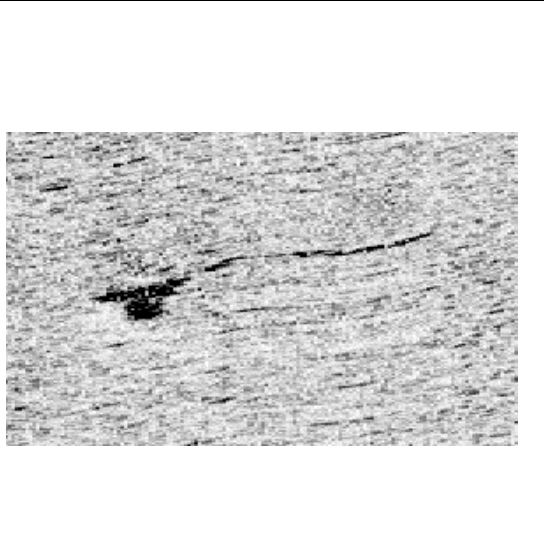
HA No.	Description	Image
28	HA28 is a right angled debris remain in the northern part of the OfTI located at 522428mE and 6459665mN. The debris remains is 6m in length and 2.48m wide with a geophysical height of 1.79m. There are no magnetic anomalies present and the debris appears to be in a depression on the multibeam data, there is also a scour mark coming off the debris in the sidescan image.	
29	HA29 is located at coordinates 525409mE and 6454632mN in the northern area of the OfTI. The debris is partially buried with curvilinear characteristics, with dimensions of 6.49m x 2.87m and maximum height of 0.40m.	
53	HA53 is associated wreck debris of HA66 the Hillfern (Possibly) in the central area of the OfTI at coordinates 549485mE and 6424821mN. The debris is quite scattered and is spread across an area of dimensions 11.05m x 9.68m and maximum height of 0.15. The seabed has outcropping bedrock and sand lenses. There is a magnetic anomaly associated with this wreck and associated debris.	
60	HA60 is located in the central part of the OfTI at coordinates 550332mE and 6422362mN. It appears to be some kind of long thin chain or rope on the seabed with dimensions of 178.37m length, 1.91m width and a height of 0.22; this is not visible in the multibeam data.	


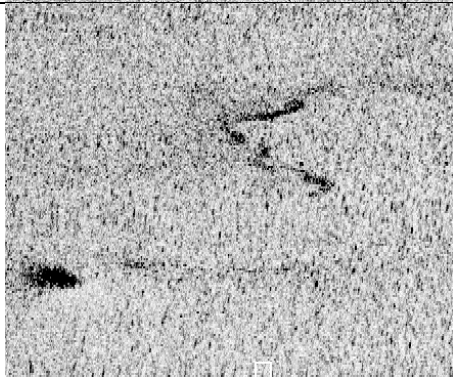
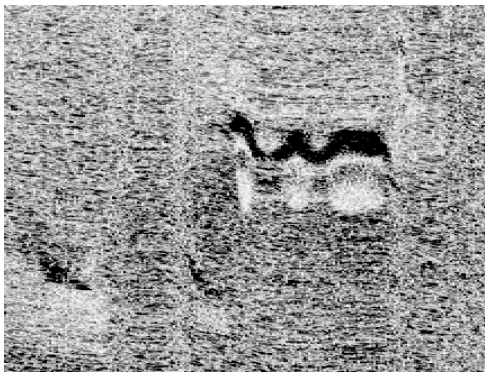
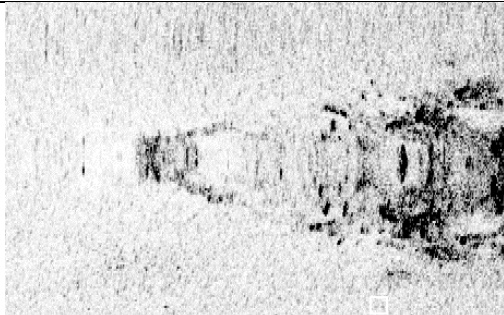
HA No.	Description	Image
63	HA63 is partially buried debris located at coordinates 549599mE and 6423337mN in the central area of the OfTI. This area of the seabed is quite gravelly and uneven. The debris spread has dimensions of 10.70m length 4.94m width and 0.56m height. There are four Gardline boulder targets within 20m of this debris.	
69	HA69 is located in the central southern part of the OfTI at coordinates 553189mE and 6419774mN. The debris remains have manmade characteristics and are made up of individual pieces of fragments with dimensions of 10.65m x 4.3m and a geophysical height of 0.31m. No magnetic anomalies have been identified in the area which is characterised by sand and gravels on the seabed.	
72	HA72 is positioned in the most eastern part of the OfTI at coordinates 572036mE and 6409226mN. The area of the seabed is principally made up of sand and gravels and the target looks to be partially covered or buried by these. The target is a solid right angled feature with dimensions of 6.36m x 1.01m and a geophysical height of 1.01m. There are no associated magnetic targets near this debris.	
84	HA84 is located at coordinates 549209mE and 6423552mN in the central area of the OfTI. The debris remains are made up of a small solid piece with a chain or rope coming off and dimensions of 28.45m x 0.54m and a height of 0.34m. There are no associated magnetometer targets present and seabed is characterised by sands and gravels.	



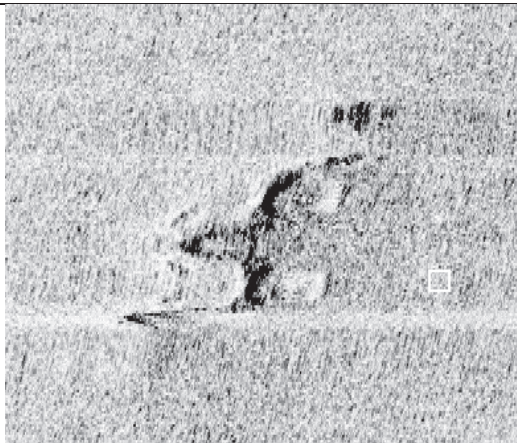
HA No.	Description	Image
85	HA85 is located in the central southern part of the OfTI at coordinates 567097mE and 6415733mN. The debris is curvilinear with small out strutting elements and with dimensions of 21.53m x 2.65m and a geophysical height of 0.1m. The seabed is relatively even with sands and gravels visible in the sidescan data.	
92	HA92 appears to be partially buried debris remains in the central OfTI (coordinates 562501mE and 6417273mN). The debris is within 15m of HA95 and could be related or even the same debris remains on a different survey track. The target has dimensions of 12.85m x 4.97m and a geophysical height of 0.36m and there is a slight anomaly visible in the multibeam data.	
95	HA95 is located at coordinates 562506mE and 6417287mN with dimensions of 8.78m x 3.76m and a height of 0.35m. It is likely to be the same debris remains as HA92 recorded from a different sidescan angle from its characteristics and dimensions. Sands and gravels appear to be partially covering the debris.	
114	HA114 is possible wreck debris identified at coordinates 527681mE and 6441736mN in the northern part of the cable route. The debris has dimensions of 22.18m x 8.1m and a maximum geophysical height of 2.65m. There is no evidence in the multibeam for wreck remains though the debris looks to be partially buried in the seabed sands and gravels, also there are no associated magnetometer targets.	


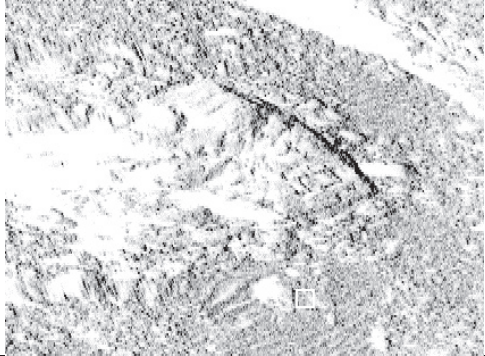
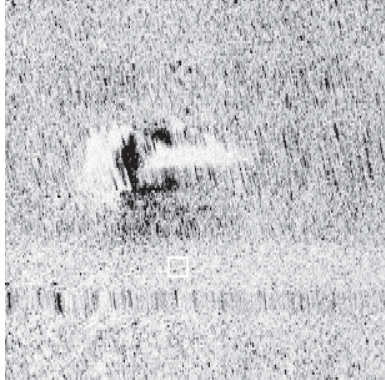
HA No.	Description	Image
122	HA122 is located in the southern area of the OfTI at coordinates 571716mE and 6413089mN. The debris is right angled and has measurements of 12.26m x 3.97m and a geophysical height of 0.40m. There are no associated magnetometer targets within HA122 vicinity and the seabed characteristics are quite sandy and even.	
125	HA125 is debris remains with a scour mark present in the sidescan sonar image. The debris is located in the central southern area of the OfTI at coordinates 569570mE and 6415493mN. The targets dimensions are 13.43m x 5.69m and a geophysical height of 0.12m. The seabed looks to be quite a sandy and gravelly composition.	
136	HA136 is a long debris and possible chain remains identified at coordinates 568530mE and 6413906mN. The target has dimensions of 99.26m length x 7.48m maximum width and a geophysical height of 0.72m. This area of the seabed is quite uneven with visible geological fissures in the multibeam image. Parts of this target appear to have manmade characteristics and as such have been assigned a medium archaeological potential rating.	
142	HA142 is wreck debris remains of the Svarton HA137 located at coordinates 567824mE and 6414608mN in the central southern part of the OfTI. The debris is 83m away from the wreck though as it was picked up on a different survey track than the original wreck target. It has measurements of 3.05m x 2.84m and a geophysical height of 0.23m.	




HA No.	Description	Image
150	HA150 is located in the central southern part of the OfTI at coordinates 568136mE and 6415298mN. The debris is an irregular shape with individual elements clear in the sidescan image and dimensions of 5.69m x 1.25m and a geophysical height of 0.30m. There are no associated magnetic anomalies with this debris and a slight depression is visible in the multibeam image.	 <p>A sidescan sonar image showing a dark, irregularly shaped object on a light-colored seabed. A small blue square is positioned directly below the object, indicating its location in the multibeam data.</p>
158	HA158 is recorded in the northern part of the OfTI at coordinates 533678mE and 6434713mN. The debris is partially buried under sands and is curvilinear in shape with measurements of 8.2m x 7.48m and a geophysical height of 0.37m. There are no associated magnetometer targets present in the area.	 <p>A sidescan sonar image showing a dark, curved object partially obscured by lighter-colored sand. A small blue square is positioned below the object.</p>
160	HA160 is a buried and abraded possible wreck in close proximity to HA114 (36m) at coordinates 527645mE and 6441737mN. The debris has measurements of 12.35m length, 1.87m width and geophysical height of 0.81m. There is a depression visible on the multibeam data, though no magnetic anomaly or SeaZone entry in the vicinity.	 <p>A sidescan sonar image showing a long, dark, horizontal object with a slightly irregular shape. A small blue square is positioned below the object.</p>
164	HA164 is located at coordinates 542705mE and 6428553mN in the central area of the OfTI. The debris remains has dimensions do of 4.65m x 1.50m and a geophysical height of 0.42m with individual elements of it distinguishable in the sidescan image. The multibeam image shows the seabed to be quite uneven and gravelly.	 <p>A sidescan sonar image showing a dark, rectangular object with some internal detail. A small orange square is positioned below the object.</p>

HA No.	Description	Image
169	HA169 is located in the Northern part of the OfTI at coordinates 529158mE and 6439601mN. This debris is located within 10m of high potential target HA168 and is likely associated debris. The anomalies dimensions are 15.06m x 7.62m and a geophysical height of 0.29m. The target is clearly visible in the multibeam data and there is also a magnetic anomaly recorded with 20m.	
173	HA173 is located in the nearshore area of the OfTI cable route at coordinates 560573mE and 6394565mN. The debris is a thick linear feature with dimensions of 3.27m x 1.93m and height of 1.33m. The debris is not visible in the multibeam data which shows the area to be highly uneven with outcropping bedrock and there are no associated magnetic anomalies.	
174	HA174 is located 37m northeast of HA73 in the nearshore area of OfTI at coordinates 560606mE and 6394582mN. The linear debris is clearly visible in the multibeam data with dimensions of 18.76m length, 1.97m width and 0.19m height, the debris looks to be partially buried.	
180	HA180 is again located in the nearshore area of the OfTI at coordinates 560518mE and 6394350mN. The debris is long and thin with a rounded piece of debris at one end and dimensions of 5.87m x 0.73m and height of 0.18m. There are no associated magnetic anomalies with this target and again the seabed characteristics in this area of the cable route are highly uneven and rough terrain.	

HA No.	Description	Image
181	<p>HA181 is possibly associated wreck debris of HA179 in the nearshore area of the OfTI at coordinates 560659mE and 6394487mN. The debris has dimensions of 4.88m x 4.36m and a maximum height of 0.89m and is located only 10m from the high potential targets HA179. Debris anomalies are also visible in the multibeam data.</p>	
182	<p>HA182 possible chain or rope debris has been identified at coordinates 560248mE and 6394177mN OfTI nearshore area. The debris has manmade characteristics and dimensions of 6.34m x 0.74m and a maximum height of 0.10m. The seabed areas topography is highly uneven with outcropping bedrock and as such the debris is not clearly visible within the multibeam data. There are no associated magnetic anomalies.</p>	
185	<p>HA185 is located in the nearshore OfTI area at coordinates 560749mE and 6394451mN. The debris is located on an area of the seabed that is highly uneven with outcropping bedrock and sand lenses. The debris looks to be partially buried with curvilinear characteristics and dimensions of 8.22m x 0.73m and a maximum height of 0.50m. There are no associated magnetic anomalies with this target.</p>	
188	<p>HA188 is again located in the nearshore area of the OfTI at coordinates 560576mE and 6394204mN. The debris remains are 12.65m length, 10.92m width and 0.02m height and is partially visible in the multibeam data. The target is very symmetrical looking in the sidescan data and has manmade characteristics.</p>	

HA No.	Description	Image
198	<p>HA198 is a long and thin rope or chain debris remains located at coordinates 559904mE and 6394827mN in the OfTI nearshore. The debris has dimensions of 27.56m length and a maximum width of 0.33m with height of 0.07m. The target is in an area with commonly outcropping bedrock and sands present.</p>	
200	<p>HA200 is located in the nearshore OfTI area at coordinates 560262mE and 6394776mN. The debris has been interpreted as a possible chain and associated debris with measurements of 35.80m x 0.35m and a height of 0.19m. There is a magnetic anomaly that could be associated with this target 100m away. Again the seabed in this area of the cable route is highly uneven with outcropping bedrock.</p>	
202	<p>HA202 is in the OfTI at coordinates 560481mE and 6394710mN and has dimensions of 5.08m x 3.22m and maximum height of 0.61m. The debris remains is symmetrical in the sidescan sonar image and has definite manmade and unnatural characteristics. There are no magnetic anomalies in the vicinity of this target and the seabed topography is uneven with sandy lenses.</p>	

HA No.	Description	Image
211	<p>HA211 and HA212 are in the same group of debris being 4m from one another. HA211 is located in the OfTI at coordinates 560643mE and 6395082mN. The debris appears to be situated on top of and within an area of outcropping bedrock and has dimensions of 24.29m 2.58m and a geophysical height of 0.54m.</p>	
212	<p>HA212 has dimensions of 1.50m x 1.32m and height of 0.20m and again are located within a highly uneven and outcropping area of the seabed. The debris coordinates are 560639mE and 6395081mN.</p>	<p>AS ABOVE</p>
296	<p>HA296 is recorded in the nearshore OfTI at coordinates 562131mE and 6395133mN. The target is linear in shape with measurements of 16.48m x 6.80m and 0.49m height. This target is in a highly irregular area of the seabed with large amounts of outcropping rocks.</p>	
317	<p>HA317 is located in the southern part of the OfTI at coordinates 573667mE and 6411290mN. The debris is a solid right angled target with dimensions of 12.20m x 4.94m and maximum height of 0.39m. The debris is not identifiable in the multibeam data and there are no associated magnetic anomalies.</p>	

HA No.	Description	Image
356	HA356 is located in the OfTI at coordinates 566183mE and 6403216mN. This debris is likely associated wreck debris of the Trsat (Probably) HA357 and HA362. The remains appear to be partially buried and are surrounded by sand megaripples in the sidescan sonar image with dimensions of 12.57m x 8.58m and maximum height of 0.42m. This debris and associated wreck are clearly visible in the multibeam data and have an associated magnetic anomaly within 40m.	
366	HA366 has been identified in the Fraserburgh area of the cable route at coordinates 567014mE and 6402338mN. The debris remains has dimensions of 4.77m x 1.86m and a geophysical height of 0.55m. There are no magnetic anomalies located near to this debris remain.	
386	HA386 is recorded in the OfTI at coordinates 564846mE and 6398078mN. The remains look to be partially buried and slightly curvilinear in shape with measurements of 17.87m x 2.92m and a maximum height of 0.75m. This area of the seabed has lots of surrounding boulders and some outcropping bedrock; no magnetic anomaly has been identified.	

6.4.3 Sidescan Targets Located in the Telford, Stevenson and MacColl Wind Farms


6.4.3.1 Anomalies with High Archaeological Potential in the Telford, Stevenson and MacColl Wind Farms Outer Study Area


No anomalies of high archaeological potential were identified in the geophysical data for the Telford, Stevenson and MacColl Wind Farms Outer Study Area. However, according to the SeaZone data, two wreck sites are located within this area, a LIVE wreck named the *Minsk* (HW1005) and a DEAD wreck (HW1006) for which the origin is unknown. These wreck sites were not identified in the geophysical survey data but cannot be discounted from the assessment.

6.4.3.2 Anomalies with Medium Archaeological Potential in the Telford, Stevenson and MacColl Wind Farms Outer Study Area

Three targets have been assigned a medium archaeological potential rating in the Telford, Stevenson and MacColl Wind Farms Outer Study Area (Table 16).

Table 16: Medium Potential Targets Description Recorded in the Telford, Stevenson and MacColl Wind Farms Outer Study Area

HW No.	Description	Image
36	Anomaly HW36 is recorded as being a possible object of medium archaeological potential. It is located at UTM30N 525711.49mE and 6447160.95mN in the central area of the wind farms. The potential objects dimensions are 15.35m x 3.9m with a height of 0.4m from the seabed. It is characterised as a dark and light reflector in the sidescan data. This target has no associated magnetic anomalies or Osiris Projects targets.	
73	HW73 looks to be potentially partially buried debris. The target has measurable dimensions of 12.73m x 1.74m and a height of 0.20m located in the western area of the wind farms at coordinates UTM30N 509171.25mE and 6446862.47mN. No Osiris targets or Headland magnetometer targets are associated with HW73.	

HW No.	Description	Image
74	HW74 is located approximately 50m west of target HW73 and could potentially be associated debris. The sidescan sonar data shows a scatter of possible objects with approximate dimensions of 7.58m x 1.86m and maximum height of 0.30m. These remains are located at UTM30N 508985.42mE and 6447060.9mN. This is not located in the vicinity of any Osiris Projects magnetic or sidescan anomalies. The geology of this area of the seabed is recorded as being uneven and having a common occurrence of glacial till outcropping.	

6.4.4 Sidescan Targets Located within the OfTI Outer Study Area

6.4.4.1 Anomalies with High Archaeological Potential in the OfTI Outer Study Area

No targets have been identified in the OfTI Outer Study Area with high archaeological potential.

6.4.4.2 Anomalies with Medium Archaeological Potential in the OfTI Outer Study Area

No targets were identified in the OfTI Outer Study Area with medium archaeological potential.

6.4.5 Anomalies with Low Archaeological Potential

Telford, Stevenson and MacColl Wind Farms

In total 113 targets were identified by Headland Archaeology to be of low archaeological potential both in the Telford, Stevenson and MacColl Wind Farms Outer Study Area Inner and Outer Study Areas (Figure 2). This classification was based on the shape, strength of reflection and in most cases uniqueness on the seabed in relation to the surrounding seabed characteristics. In some instances targets that are likely to be of geological origin have been included to help illustrate the character of these targets and similarities with the majority of the Osiris Projects anomalies interpreted as boulders.

Although their dimensions and characteristics are varied, the majority of low potential targets were relatively small (<2m) and/or isolated objects of unknown origin. From the sidescan sonar survey it is possible to take measurements of these potential anomalies, their height, shape and relationship to the surrounding seabed. It cannot be ascertained that these targets reflect any characteristics suggesting anthropogenic origin and thus they are for the most part categorised as 'natural features' particularly when the geological characteristics of the surrounding seabed is taken into account (see Appendix 1 for full list).

The majority of these low archaeological potential targets fall within the north, central and eastern area of the wind farms. The northern area of the site has a

greater water depth (56.9m below LAT in the extreme NE corner of the site) (Walters, J, 2011) as well as being predominantly sandy deposits with some areas of exposed glacial till and rocky outcrops. Targets identified as low archaeological potential such as possible small boulders commonly show up as prominent features in the sidescan and multibeam data on these sandy areas of seabed. This correlates with the targets classified as low potential by Headland for which there are approximately 35 targets located in the north-eastern area of the site. These are likely to represent isolated boulders or outcropping bedrock.

The eastern and central areas of the site have sandy gravels present with deep gouges and scars visible across the seabed on both the bathymetry and sidescan survey data. Along with these gravelly clay deposits this area contains a large channel feature orientated NNW-SSE identified across the central area of the wind farms (Walters, J, 2011). Targets identified in this area account for approximately 40 of the total low potential targets. Isolated features present are identified as small/large boulders, their dimensions and relationship with the surrounding seabed have influenced this interpretation and from the geological characteristics of the area are more likely to be associated with glacial activity and outcrops rather than archaeological remains.

The southern area of the wind farms has the most uneven and undulating characteristics of the seabed in the development area. This again is characterised by both sand and gravel remains and again the presence of scars and gouges. There are 38 targets of low archaeological potential in this area identified as boulders due to their size, shape and characteristics in relation to the surrounding seabed.

OfTI

In total three-hundred and forty-eight targets of low archaeological potential have been identified and their dimensions recorded in the OfTI. These targets have been identified as 'possible natural features' and this classification was based largely on the shape and strength of reflection in the sidescan sonar image and in most cases uniqueness on the seabed in relation to the surrounding seabed physical appearance. There is still the potential for these to be man-made archaeological remains.

The majority of low potential targets were particularly varied in their size, shape and characteristics though the majority were of a size greater than 2m and were an isolated contact on the seabed. It is reasonably evident that in areas of the cable route where there are major geological changes on the seabed such as areas of outcropping bedrock in the nearshore and large channels such as in the middle southern area more low potential targets have been recorded. This is chiefly due to the fact that the anomalies characteristics are somewhat different to that of the surrounding boulders and rocky outcrops. Likewise in sandy areas of the seabed boulders commonly show up as prominent features in the sidescan and multibeam data.

6.4.6 Magnetometer Targets

Telford, Stevenson and MacColl Wind Farms

The magnetometer data was assessed in order to identify possible targets of cultural heritage interest. A raster of the magnetic field across the application boundary was provided by Osiris Projects along with values interpolated from readings taken along the survey transects. This resulted in a high quality image where known wrecks appeared as very strong signals over a large area (HA9, HA10 & HA11); suggesting that any other significant metallic objects such as unrecorded wrecks or debris should be clearly visible. The gridded surface extended beyond the wind farms boundary and covered most of the Outer Study Area. The exception is to the NW where the grid extends just outside the Application Boundary itself (Figure 6). The magnetometer targets are HA numbers 9 – 27 and 176.

Three targets of high magnetic potential have been identified in the wind farms and are illustrated in Figure 6. These are the three known wrecks also identified in the sidescan sonar datasets, namely the *Carisbrook*, *Unknown* and *Llanishen* vessels (HA9, HA10 & HA11). The raster shows extremely high magnetic fluctuations on the survey grid for all three of these targets, however like the sidescan and bathymetry data results the *Minsk* vessel identified in the SeaZone data does not give a high magnetic reading. There are some slight fluctuations present in the area where the wreck is recorded to be, however they are so minor that it is likely that these are present as a result of geological features rather than any cultural heritage remains. The wellhead remains HW71 identified in the sidescan data correspond to a high magnetic reading HA22 in the magnetic data.

Magnetic target HA12 is tagged as a medium potential target. This is in the vicinity of the recorded 'dead' wreck in the Seazone data. No sidescan anomalies are within the vicinity of this target, however this could imply that the wreck or associated debris is buried.

A total of 56 magnetic anomalies have been detected by Osiris Projects, three of which co-incide with known wreck site remains namely the *Carisbrook*, *Llanishen* and an *Unknown* vessel (M33; M35 and M39). No magnetic anomaly has been identified in the area thought to belong to the *Minsk* shipwreck, which might suggest that the ship is actually located outside of the survey area. Seven of the magnetic anomalies identified by Osiris are associated with Osiris' sonar targets, three of which are the known wreck sites (S288; S302 and S359), the others being 'matressing', 'boulders' and 'seabed depressions'. There are a number of areas in the central and northern parts of the site with relatively low magnetic fluctuations across large expanses of seabed. This is likely resultant from the geological qualities of the area, having a large channel feature present across the central expanse and the central and northern areas composed of medium to coarse grained sands and gravels.

Four low potential magnetic anomalies are present in the Outer Study Area as illustrated on Figure 6 (HA 17, HA27, HA25 and HA176). There are no associated sonar targets present relating to these magnetometry targets, that is to say within a 50m radius

OFTI

The magnetometer data was assessed in order to identify possible targets of cultural heritage interest and also to cross reference targets identified in the sidescan sonar survey and multibeam data. Isolated and weak magnetometer anomalies may be resultant from geological conditions on and beneath the seabed.

Magnetometer targets associated with wrecks and possible wrecks include HA66 the Hillfern (Possibly), HA168 (unidentified wreck), HA137 the Svarton (Probably), HA357 the Trsat (Probably) and HA352 the Remuera wreck. Noticeably not all archaeological wrecks and debris will be picked up on the magnetometer survey, it is totally dependent on their magnetic value and signatures and thus objects such as wooden crafts would be missed.

There are noticeably more magnetic fluctuations and anomalies in the rocky nearshore areas of the cable route and in the gravelly sand regions; these are chiefly isolated events and thus likely due to be due to geological factors. Boulder clay sediments are very common across the cable route and therefore a source for anomalous magnetic values due to their hard crystalline and metamorphous properties. Because of the broad extension of these boulder fields it is very difficult to distinguish between a boulder and a manmade object, like metallic debris, in this area

6.4.7 Shallow Seismic Survey

6.4.7.1 Telford, Stevenson and MacColl Wind Farms

The nature of the seabed morphology and geology as indicated in the geotechnical report produced by Osiris Projects (2011) is confirmed in the results of the sub-bottom profiler data. The sub-bottom data was assessed using the Chirp source as this data was regarded as the most useful in identifying targets or objects at an appropriate resolution to the depths most likely to reveal features such as wreck remains or associated debris.

The results of the geotechnical assessment carried out by Headland Archaeology's geoarchaeologist has highlighted that the potential discovery of palaeotopographical features and the presence of relict submerged landscape surfaces and deposits within the wind farms area is unlikely.

Geological Data

The geological background of the Moray Firth includes the forming of westernmost part of the trilete North Sea Basin, followed by faulting in the Triassic and Jurassic periods and general subsidence in the Cretaceous. Eastward tilting and erosion

during the Tertiary period created the Basin's current formation. Solid geology beneath the site contains thick sequences of sandstone and mudstone of Lower Cretaceous age. These rocks are overlain by Pleistocene deposits of Quaternary age made up of soft clayey silts (predominantly <10m) to hard gravelly clays (upto 50m) thought to be glacial tills. Overlaying these quaternary deposits are for the most part thin, finer grained surface sediments that are generally less than 2m thick composed of sands and gravelly sands (Walters, J. 2011).

The analysis by Osiris Projects of the wind farms area is made up of four distinct zones. Zone one in the north Eastern area of the site comprising an arc of extending a maximum of 4.5km into the area, deep marine sediments are absent here and with patchy sediments of sand on a more elevated substrate. Zone 2 is located to the south east of zone 1, being an area of approximately 13km x 6km. This area consists of a channel infilled with marine sediments ranging from 10 to 30m thickness. Isolated depressions are also present throughout the zone. Zone 3 is an area of approximately 6km x 11.5km in the central southern extent of the wind farms area and extending into the Western Development Area. Similar in composition to zone 1, with deeper marine sediments absent, there are occasional small infilled channels and depressions particularly on the southeast side of the site. Zone 4 is located in the Western development Area of the site and as such will not be discussed here.

Archaeological Potential

From an archaeological point of view, it is important to note that palaeotopographical features represent both zones of potential human habitation and areas of potential for the survival of evidence. The edges of palaeo-channels are likely to accumulate fluvial gravels that early humans would regularly exploit and where the remains of tool making activities may reside.

No objects or debris of archaeological significance were identified in the sub-bottom profiling geophysical data. Borehole evidence taken from within the Telford, Stevenson and MacColl Wind Farms identifies that the surviving deposits are for the most part pre-Holocene, with Holocene deposits reaching 2-3m in parts. The borehole records show a lithology which consists principally of sands and clays from both the Holocene and Quaternary deposits. Possible palaeotopographical features have been identified in the data, these being from likely glacial activity and illustrated in Figure 8. Due to the thin nature of Holocene deposits and the fact that the area has been submerged since before this time it is unlikely that any evidence for human habitation is present. Any archaeological remains that may be present have likely been transported from elsewhere or represent discarded debris from passing vessels. Potential wrecks associated debris remains both on and in the seabed have been identified in the vicinity of the *Unknown* wreck HA158 and is shown in Figure 4.

The nature of the seabed substrata is demonstrated in Figure 8. The result from the sub-bottom profiler data has highlighted one potential archaeological feature

present on the seabed in association with the known wreck sites and includes the *Unknown* vessel HA158 (Figure 4), however no isolated partially buried objects have been identified. The data has illustrated the geological nature of the wind farms, with areas of outcropping rocks and glacial till, particularly in the northeast area of the site being composed of more sand and gravel deposits and consisting of a greater water depth.

6.4.7.2 OfTI

The results of the geotechnical assessment carried out by Headland Archaeology has highlighted that the potential discovery of palaeotopographical features and the presence of relict submerged landscape surfaces and deposits within the development area is unlikely. The seismic data has allowed for the identification of the varying deposits and sub-seabed deposits across the OfTI.

Geological Data

In the offshore area of the OfTI the main types of sediments identified in the seismic data were well sorted soft clays and loose to coarse sands and gravels, as well as fine sands and glacial till material. In the majority of the OfTI the sand and gravel deposits show a high reflectivity with well-developed alternating bedding layers due to the changes in the fine to coarse grained density. Areas of exposed bedrock were also identified across the area. In the nearshore area of the seismic survey the reflections are higher due to the number of boulders, coarse mixed sediment deposits and bedrock encountered and thus less penetration is reached. The sidescan, bathymetry and geotechnical data can also be cross-referenced and changes in seabed density, characteristics and outcropping material identified across the OfTI.

Archaeological Potential

From an archaeological point of view, it is important to note that palaeotopographical features represent both zones of potential human habitation and areas of potential for the survival of evidence. The edges of palaeo-channels are likely to accumulate fluvial gravels that early humans would regularly exploit and where the remains of tool making activities may reside.

No archaeological objects or debris remains have been identified in the sub-bottom dataset, though the potential for buried, small archaeological remains is still possible, particularly in sandy extents. Due to the thin nature of Holocene deposits in the OfTI and the fact that the area has been submerged since before this time it is unlikely that any evidence for human habitation is present.

6.4.8 Bathymetric Survey

Telford, Stevenson and MacColl Wind Farms

The processed sunshaded bathymetric data is illustrated in Figure 10. This has enabled the cross-referencing of the targets identified by Osiris Projects and

Headland Archaeology with the sidescan sonar, magnetometer and sub-bottom profiler data. The multibeam data has been particularly useful in identifying the relationship between identified targets and areas of the seabed highlighting clear geological characteristics or, indeed, targets of potential cultural heritage interest. The relief of the seabed in the wind farms is recorded as ranging from 36.3m below LAT to 56.9m below LAT. A large channel feature is also present in the central and eastern area of the site with a NNW-SSE orientation measuring between 300m and 2600m wide with gently sloping sides. This feature has the potential to contain partially buried objects in the settling sediment.

Other features identified from the bathymetry survey data include outcropping glacial till and boulderfields. Two of the known shipwrecks were also identified (HW158 & HW157) these being the wreck of unknown origin (UKHO-WO-1182) and the *Carisbrook* (UKHO-WO-1328).

OfTI

The processed sunshaded bathymetric data has enabled the identification of seabed landscape variation across the extent of the OfTI. As well as this the bathymetry data has been useful in the cross-referencing of potential archaeological targets identified in the sidescan, magnetometer and sub-bottom profiler datasets with the geological characteristics of the local area.

The most offshore area of the OfTI is principally made up of sands and gravels with large areas containing sand megaripples periodically visible in the multibeam from KP001-KP007. Along the entire cable route area plateaus of outcropping bedrock and till are identifiable in the multibeam data particularly from KP037-KP045. Deep, huge channel features and gorges are present at KP's050, KP075 and KP078, which could potentially hold buried debris and deposits in their sandy fills. In the nearshore areas the varying seabed conditions are again clearly visible including huge expanses of rock outcrops and sand shelves.

Smaller more unique features can also be identified across the OfTI survey site, including depressions, seabed scars and also wrecks. Across the area the following medium and high potential targets were visible in the multibeam data HA52, HA55, HA65, HA66, HA92, HA95, HA137, HA141, HA168, HA302, HA352, HA357 and HA362.

6.5 Results of the Archaeological Assessment of Geotechnical Survey Data

6.5.1 Introduction

This report is prepared on behalf of Moray Offshore Renewables Ltd (MORL) and presents the results of an archaeological and palaeoenvironmental assessment of marine geotechnical survey data for the Telford, Stevenson and MacColl Wind Farms and OfTI in the outer Moray Firth off northeast Scotland.

6.5.2 Aims and Objectives

The aim of this report is to provide an archaeological assessment of the palaeoenvironmental potential of sediments affected by the planned windfarm construction. This will be undertaken through the examination of the geotechnical data (namely borehole logs) that have been taken to date. This assessment will provide specific site data that will add to the findings of the desk based assessment and aid in identifying potential impacts of the scheme on any sediments of palaeoenvironmental and archaeological interest.

The specific objectives of the assessment are:

- to review available data in respect of seabed and sub-seabed deposits likely to be of palaeoenvironmental interest; and
- to identify any deposits of palaeoenvironmental potential, particularly peats or organic silts;

6.5.3 Results

6.5.3.1 Telford, Stevenson and MacColl Wind Farms Geotechnical Data Assessment

The boreholes within the Telford, Stevenson and MacColl Wind Farms reached a maximum depth of 53.14m within BH14A, 6 other boreholes also exceeded 50m while the remainder reached depths of between approximately 47 to 37m. The borehole records show a sedimentological record that is principally made-up of sand (including gravelly sands and silty sands) and clay lithostratigraphic units. The upper part of the sequence (top 2m), which is thought to be of Holocene date consists largely of sands with some boreholes (e.g. BH7 and BH17) containing clays in these upper layers.

Underlying these deposits are sediments of probable Devensian age, which show little variation to those above; again consisting mainly of sands and stiff clays, with occasional cobbles and gravels noted in some sequences (e.g. BH15). Of particular interest from the borehole results is the recording of organic bands within two separate sedimentological units within BH12. The record for this core shows that black organic bands are present as laminae within a clay layer between 19.2-33m and an intercalated clay and sand layer between 33-40m.

Palaeoenvironmental Potential of the Material

The borehole records show a lithology which consists principally of sands and clays from both the Holocene and Quaternary deposits. The presence of shell fragments within some of the deposits found in the boreholes, such as the clay layer between 44.3-53.1m in BH14 indicates there is some palaeoenvironmental potential within the recorded strata. Such fossil marine fauna can provide palaeoclimate data (e.g. temperature) from glacial and interglacial events. This data could then be used to

give an approximate date for these deposits in terms of what period of the Devensian they relate to as well as being used for comparison with fauna from other such deposits around the Scottish coastline, such as the Errol Beds (Peacock, 1975). Those deposits relating to the Holocene period are seen to consist almost entirely of sands. Again some fossilized marine fauna are recorded and these could be used to provide some limited palaeoenvironmental data for the area for this period.

The presence of organic bands in the stratigraphic record from BH12 is significant in terms of palaeoenvironmental potential. These organic deposits if found to contain micro- (e.g. pollen, ostracods) and/or macrofossils (e.g. plant macrofossils, shell fragments), would be of great significance in obtaining palaeoenvironmental and palaeoclimate data for possible Quaternary inter-stadial events. The absence of organic sediments such as peats within the Holocene sediments indicates that there is no potential for palaeoenvironmental data from proxies such as pollen from these sediments. However, the presence of residual, scattered flints and lithic artefacts within the marine sediments remains a possibility.

6.5.3.2 OfTI Geotechnical Data Assessment

The boreholes taken throughout the OfTI reached maximum depths of 3.26m in the CPT samples and 4.80m in the vibrocore logs having targets depths of 3m (Scott, 2011). The key units identified across the site area were sands underlain by clay deposits with the upper parts of the sequence likely to be of Holocene dates (approximately 2m). The sands are recorded as being generally loose to medium density with depth and the underlying clays being very soft to soft, locally stiff clays.

The most offshore boreholes CPTs 1a to 11 contained very variable sediment deposits including silty sands in the earliest CPTs, followed by sands underlain by clays and also present across the group is stiff silt/clay units that underlies the soft clays. From cores CPT 12-AE6 the sediments recorded are slightly silty sands underlain by very soft to soft clay (Scott, 2011). These clays changed intermittently to stiff to very stiff clay layers at locations VC/CPT 17, VC 20, CPT 23 and CPT 28. A stiff to very stiff silt sediment layer was also recorded under some of the clay deposits at CPT 15, CPT 17 and VC 20 locations.

The most onshore borehole records contained two distinct soil layers with medium sand to firm sand identified overlying firm to stiff clay and in one vibrocore (VC 43) the upper sand unit is underlain by a silt layer (Scott, 2011). Many of the logs contain gravel and shell deposits within their sedimentology. Also recorded in six of the vibrocore samples namely VC 43, VC 45, VC 46 VC 47, VC 49 and VC 53 were organic staining pockets/deposits.

Due to ground conditions, no sample recovery was achieved at six potentially interesting vibrocore locations, namely VC 51- VC 52; VC 54; VC 56 and VC 60 - VC 61 (Scott, 2011). These locations were positioned at the nearshore areas of the OfTI.

Palaeoenvironmental Potential of the Material

The boreholes within the OfTI area show a general lithology comprising sands underlain with clay deposits across the route likely to be of Holocene date. The maximum depth reached by boreholes was 4.8m recovery in VC 6, for which the majority of sediments would be of Holocene and perhaps touching some early Quaternary sequences.

The sedimentary sequences recorded from the cable route in the Moray Firth hold low potential for palaeoenvironmental reconstruction. Dominant sands and clays across the site mean that the potential for the survival of preserved microfossils such as pollen and macrofossils is low, as well as this the likely reworking of sediments through the last glaciation will have altered a large number of in-situ deposits. There is some potential for the presence of micro-fauna such as ostracods to be present within the sands and clays which preserve better in these sediments, while shell fragments were also observed in 11 CPT's and 18 vibrocore samples, particularly in the uppermost (Holocene to modern) parts of the sequences. Such fossil marine fauna can provide palaeoclimate data (e.g. temperature) from glacial and interglacial events.

Although there is organic staining present in some of the samples there is no record of peat deposits being found in any of the cores which would suggest that there is little potential for palaeoenvironmental data recovery.

6.6 Key Onshore Receptors considered in relation to Setting

The pattern of designated onshore assets reflects the history of Caithness, which has seen settlement and agriculture concentrate on the more readily cultivable land along the coast. Two aspects of this are particularly important to the area's cultural heritage. In the more marginal land slightly inland less intensive land use has allowed multi period or palimpsest landscapes of great time depth to survive whilst the coast is dotted with traces of the herring boom of the early 18th century, at which time the traditional small scale fishing infrastructure was greatly extended and processes industrialised. As a result of these factors there are a large number of designated assets present within 25 km of the wind farms. These comprise:

- 32 scheduled monuments;
- 164 listed buildings (comprising two Category A, 99 Category B and 63 Category C(S)); and
- One conservation areas (Wick).

The scheduled monuments are largely prehistoric, with a notable concentration in the vicinity of Loch of Yarrows and Loch Watenan. Three are Properties in Care: Cairn of Get, Hill o'Many Stanes and Castle of Old Wick. Most of the listed buildings are within the Wick conservation area and have no visual relationship with the sea or landscape beyond the town.

Several assets outside the 25 km study area have been considered at the request of consultees.

7. CONCLUSIONS

Telford, Stevenson and MacColl Wind Farms

There are a number of known cultural heritage assets within the study area, including 6 recorded wrecks, four of which are located within the Inner Study Area. A geophysical survey undertaken within the wind farms has confirmed three of these wrecks in their recorded locations as well as identifying 17 further targets of medium archaeological potential (see Moray Offshore Windfarm Geophysical Survey Assessment, Volume 1, Headland Archaeology UK Ltd., February 2011). The NMRS data record more than 1500 wrecks as having been lost in the Moray Firth/ North Sea area, the majority of which the precise location of, or indeed any location at all is unknown. However, an extensive geophysical survey failed to identify any further wrecks than those previously recorded. However, despite this comprehensive geophysical assessment any wooden wreck or debris which was buried at the time of the survey may not have been detected by the magnetometer or acoustic survey techniques used, therefore the possibility that undiscovered wrecks or features may still be present remains, albeit low.

The location of the Telford, Stevenson and MacColl Wind Farms within the outer Moray Forth has been either under ice or submerged by the North Sea throughout the late Glacial/early Holocene. This has meant no organic sediments of palaeoenvironmental interest from this period such as peats have been able to form. The potential for the discovery of relict land surface deposits and features of archaeological interest therefore is regarded as low due to the nature of the outer Moray Firth having been submerged throughout the Holocene. Despite this, there is the potential for the discovery of residual artefacts in the marine sediments such as lithics.

The archaeological geophysical assessment undertaken for MORL has identified three anomalies of high archaeological potential (HW157; 158 and 159) and 17 anomalies of medium potential (HW 36; 44; 52; 61; 71; 72; 73; 74; 75; 76; 77; 78; 80; 100; 102, 108, and 117), all of which are located within the Inner and Outer Study Areas.

Any high or medium potential targets located in the Inner and Outer Study Areas could be subject to potential impacts from adverse direct and secondary effects such as the installation of turbine foundations and associated infrastructure such as inter-array cabling and vessel anchoring activities during the development operations. As such, and pending further investigation, it is recommended that temporary exclusion zones should be implemented for all anomalies of high and medium archaeological potential. HW157; 158 and 159 are classified as high potential and it is recommended that these targets be furnished with a 100m exclusion zone. It is recommended that those targets identified as exhibiting medium potential (HW 36; 44; 52; 61; 71; 72; 73; 74; 75; 76; 77; 78; 80; 100; 102, 108, and 117)

be furnished with a 50m exclusion zone. Although the *Minsk* vessel was not identified in either the sidescan or magnetometer data it is reported in the SeaZone database and as such should be included as a high potential anomaly pending further investigation.

The geotechnical assessment has revealed that the area containing the Telford, Stevenson and MacColl Wind Farms within the outer Moray Forth has been either under ice or submerged by the North Sea throughout the late Glacial/early Holocene. This has meant no organic sediments of palaeoenvironmental interest from this period such as peats have been able to form. Organic sediments have been recorded from Borehole 12, which may have formed during a previous interglacial period. These are of palaeoenvironmental interest as they have the potential to inform us of the environment and landscape during this period. The potential for archaeological finds is low due to the nature of the outer Moray Firth having been submerged throughout the Holocene.

The assessment of key onshore cultural heritage receptors established that there are a large number of designated assets present within 25 km of the wind farms. These comprise 32 scheduled monuments; 164 listed buildings (comprising two Category A, 99 Category B and 63 Category C(S)); and one conservation area (Wick).

OfTI

A number of cultural heritage assets have been identified along the OfTI. The study has identified 14 recorded wreck sites in the SeaZone dataset; where 11 were located in the OfTI Inner Study Area and 3 in the OfTI Outer Study Area. The geophysical survey along the cable route has affirmed all five of these wrecks, in addition to another 5 possible wreck locations.

The archaeological assessment of geophysical data has identified ten possible wrecks of which five were not recorded in either the NMRS data or SeaZone records. The high potential targets identified in the geophysical survey are HA52, 55, 65, 66, 87, 116, 129, 137, 141, 168, 179, 302, 352, 357 and 362. In addition to this the geophysical survey revealed forty-two targets of medium archaeological potential (HA5, 9, 21, 26, 28, 29, 53, 60, 63, 69, 72, 84, 85, 92, 95, 114, 122, 125, 136, 142, 150, 158, 160, 164, 169, 173, 174, 179, 180, 181, 182, 185, 188, 198, 200, 202, 211, 212, 296, 317, 366 and 386) in the OfTI inner and outer study areas.

As with the development any high or medium potential targets could be subject to potential impacts from direct and secondary effects and it is recommended that exclusion zones of 100m for high potential targets and 50m for medium potential targets be implemented.

The geotechnical assessment has revealed that the area containing the OfTI has been either under ice or submerged by the North Sea throughout the late

Glacial/early Holocene. This has meant no organic sediments of palaeoenvironmental interest from this period such as peats have been able to form. Six potentially interesting and palaeoenvironmentally important areas have been identified in the cable route namely vibrocores VC43, VC45, VC46, VC47, VC49 and VC53. These were all identified in the nearshore area of the OfTI and all contained organic staining generally present in the top 1m of the vibrocores. These deposits may be of palaeoenvironmental interest as they have the potential to inform us of the past landscapes and climate change of the region. The potential for archaeological finds is low due to the nature of the outer Moray Firth and North Sea having been submerged throughout the Holocene.

8. ONSHORE BASELINE ENVIRONMENT

8.1. Study Area

Telford, Stevenson and MacColl Wind

The initial study area for the consideration of impacts upon the setting of onshore assets resulting from the offshore generating station extended 25km from the boundaries of the Stevenson, Telford and MacColl Wind Farms. Assets beyond this distance were considered where raised by consultees. Assets considered are listed in Appendix 6.

OnTI

Data have been gathered from the sources listed above for the onshore study area, as issued by MORL. Assets identified in the course of the study are identified in Appendix 7.

8.2. General Background

The OnTI passes through land that is predominantly given over to intensive arable agriculture. As a result, relatively few assets predating the 19th century have been previously recorded along the route, earlier upstanding features having been removed by intensive agriculture. Knowledge of the distribution of prehistoric and Early Historic assets is therefore largely based upon cropmark sites, identified through assessment of aerial photography and isolated find spots. The density of cropmark sites along the cable route reflects the following factors:

- intensive occupation throughout history, owing to the agricultural quality of the land;
- the suitability of both the local geology and agricultural regime for the formation of cropmarks; and
- intensive campaigns of aerial reconnaissance.

The underlying geology of the route varies along its respective length. The predominant superficial geology consists of glacial sands and gravels around the

coastal area, and glacial till within the more inland areas. There are smaller areas of sand, alluvial deposits and peat. Areas of sand and gravel are generally considered to be of high archaeological potential, as they are well-suited to agriculture. Sand and gravel superficial geology is also conducive to the formation of cropmarks.

As mentioned above, numerous cropmarks have been identified along the route. With regards to archaeological sites recorded as cropmarks, the following limitations should be noted:

The formation of cropmarks is dependent on the underlying geology and agricultural regime. Cropmarks will be less evident in areas of pasture and as such there are potential lacunae in the cropmark evidence where the agricultural regime or geology has not been conducive to cropmark formation.

The morphology of the cropmarks recorded within the study area (largely recorded as pit clusters and enclosures) typically relates to later prehistoric features and it is likely that smaller associated assets survive in the immediate area, which would not be visible on aerial photography. Therefore features may extend outside the site extent recorded by the SMR. Likewise, the typically small features relating to early prehistoric activity are unlikely to be identified from aerial photographs.

Cropmarks tend to be clear where the archaeological features are suffering plough damage. Such features are being actively removed by ploughing and in some instances little will now remain of features recorded as cropmarks some years ago. Conversely, indistinct cropmarks may indicate better levels of preservation and some very well-preserved features will not present as cropmarks at all. The condition of many recorded features is consequently unknown.

Only two previous archaeological events are recorded along the route, neither of which focused on cropmarks and therefore there are no reliable indications of how well these cropmark sites survive as archaeological remains. However, excavation of cropmark sites elsewhere in Aberdeenshire has demonstrated that cropmark remains are often truncated and ephemeral. Work undertaken during the construction of the St Fergus Gas pipeline did, however, demonstrate that numerous archaeological sites are present that have not been recorded as cropmarks particularly in areas underlain by glacial till (Strachan 1998).

The baseline condition of the OnTI is discussed further below. More detailed information is presented in Appendix 7 and depicted on figures 10.5.4 & 10.5.5.

The NMRS holds 212 records and Aberdeenshire HER holds 135 records for the OnTI study area. The discrepancy arises from the NMRS holding numerous records relating to buildings in Fraserburgh, whilst the HER concentrates on archaeology. Many records held by the NMRS are irrelevant in the current context. However, many features of greater historical interest are present. These include assets as diverse as Mesolithic middens and World War II airfields. Assets are discussed briefly below, with particular reference to distribution, and detailed in Appendix A.

Designated Assets

There are three scheduled monuments within the OnTI study area:

- Fraserburgh cemetery pill box (SM 8220);
- Knockmonean cairn (SM 11138); and
- Trefor Hill motte (SM 11141).

There are 73 listed buildings in the OfTI study area, 17 of which are Category B. The remainder are Category C(S). Most (53) are within the Boddam conservation area.

Mesolithic

Very little evidence of Mesolithic activity has been recorded in the general area, but Mesolithic sites are generally under-recorded; they are rarely identified through means other than excavation or field-walking as the features typically present are very slight. However, one site that is likely to be of Mesolithic date, is recorded south of Fraserburgh. In the 19th century, during the excavation of grave plots in Kirktown Cemetery, several shell middens were noted, consisting of ash, stone and shell fragments (NK06NW0002). It is likely that further Mesolithic assets are nearby but are as yet unrecorded.

Neolithic and Bronze Age

The firmest evidence of activity relating to this period is provided by a scattering of findspots, where flint and stone tools and other artefacts have been found by chance. In one instance, a cinerary urn (NK06SW0003) was found north of Rathen in close proximity to two other find spots of flint arrowheads (NK06SW0004 & 9), and two cropmark enclosures, the morphology of which suggests a prehistoric date. It is likely that further remains of prehistoric date survive in the Rathen area.

Monuments that can be firmly assigned to this period are scarce and are restricted to a burial cairn (SM 11138), two burial cairns (HER NK06SW0005 & 6) that have been removed and a possible stone circle (NK05SW0002), which has also been removed. There is an appreciable correlation between the distribution of findspots, the location of the cairns and the superficial geology; the cairns and findspots are all concentrated on areas of sand and gravel and alluvium along the Water of Philorth. Whilst it is possible that this reflects archaeological visibility, it appears more likely that it is a true reflection of the patterns of prehistoric activity as it seems reasonable to assume that farming and hence settlement would have been focussed on the lighter easily worked soils of this area.

Late Prehistoric and Early Historic

The more substantial settlements of the later prehistoric and early historic period are more readily identifiable as cropmarks than those that preceded them and ten probable sites of this date have been identified as cropmarks (NJ96SE0074 & 75, NK04NE0042, NK04NW0008 & 31 and NK06SW0025, 41, 42, 44, 45 & 47). As with the

earlier prehistoric assets, these are concentrated on the sand and gravel and alluvium around the Water of Philorth.

Medieval and post-medieval

In contrast to records relating to earlier periods, records held by the NMRS and the HER for this period are dominated by documentary records. This is likely to result from the current pattern of scattered farms having largely developed from the pattern established during the medieval period, resulting in medieval farmsteads frequently underlying existing farmsteads. This is demonstrated by early cartographic sources (Blaeu, Moll). An exception to this rule of sites being overlain by later buildings is the scheduled motte at Trefor Hill (SM 11141), which survives as an upstanding mound, overlooking the surrounding farmland.

Areas of rig and furrow are also recorded along the OfTI as cropmarks. These are straight and broad and hence post-medieval at the earliest.

Analysis of vertical aerial photographs identified elements of an early enclosure, which partially survives today within the parkland associated with Philorth House. Documentary records show that Philorth House is of 17th century date, suggesting that if this is an earlier enclosure, that it could be post-medieval in date.

Aside from these largely agricultural assets, the HER holds a record for a causeway (NK05SW0007) that was supposedly built prior to the Battle of Inverurie in 1308. The exact location of the causeway is unknown.

18th and 19th century

The 18th and 19th century saw increasingly intensive farming of this area resulting in the improvement and enclosure of land and the construction of new more 'industrial' farm-buildings. This period also saw the growth of Fraserburgh. Most of the buildings constructed at this time are still occupied and hence not relevant to the current study. Most farmsteads of this period have survived, but some have been demolished, e.g. NK14SW0079. The ridge and furrow associated with the farmsteads has largely been ploughed away, but in one instance north of Longside, has survived as upstanding earthworks (NK04NW0033). Here the ridge and furrow is very well-preserved.

Two railways are also recorded within the OfTI study area – a small track way west of Boddam built to carry convicts from their prison to quarries (NK14SW0061) and a branch line associated with the Great North of Scotland Railway. Both no longer operate as railways, however the North of Scotland line has been converted into a cycle path.

20th century

This area of Aberdeenshire has a rich and well-preserved range of World War Two defence sites, ranging from RAF airbases and stop lines. The largest of these sites is the short lived RAF Longside (NK04NE0027), operational between 1941 and 1945. The

No 598 Squadron was formed at this site, but the squadron later moved to RAF Bircham Newton in 1945. Although short-lived the base did become fully operational and hence a variety of built structures (such as blister hangers, control tower, pill-boxes and air raid shelters) were constructed within the confines of the airbase. Only some of these features survive today. The site today is used as a training area for Bond helicopters.

RAF Buchan (NK14SW0088) is also within the OfTI study area, sited south of Boddam. The site was opened in 1952 as an Air Defence Radar Unit, and eventually became one of two 'Control and Reporting Centres' responsible for co-ordinating aspects of air defence during the Cold War period. Decommissioned in 2005, many of the original buildings, fixtures and fittings still survive; although part of the domestic quarters have been converted into a hotel.

Further sites are recorded within and near Fraserburgh, relating to WW2 home front defence features, such as tank defence blocks and pill-boxes. The beaches from Fraserburgh to Peterhead were considered extremely vulnerable to an invasion launched from Norway (Barclay 2005) and as such many of these locations were heavily fortified with stop lines comprising pillboxes, anti-tank blocks and ditches and barbed wire entanglements. While the anti-tank blocks were recorded in 1998 as no longer surviving, the pillboxes still survive, one of which is scheduled (SM 8220).

Palaeoenvironmental

The route passes through an area of peat east of New Leeds. The peat may have potential as a palaeoenvironmental resource, it does not appear to have been disturbed by recent agricultural activity. Recent work at St Fergus Moss to the east has provided an early Mesolithic inception date for the peat, there is potential for the peat therefore to provide a full palaeoenvironmental sequence from the Mesolithic onwards. This would provide valuable evidence regarding human interaction with the environment.

8.3. Importance of previously recorded assets

Most of the previously recorded undesignated subsurface assets that may be affected by construction work have not been subject to archaeological investigation but have been recorded as cropmarks. It is accepted that most cropmark sites, in particular those that are clear and readily interpretable, are subject to ongoing plough truncation. Consequently, features that were recorded several years ago as cropmarks are likely to have been substantially degraded or removed by subsequent ploughing. In the absence of specific information regarding their condition, it is difficult to assess importance and hence sensitivity to impacts. However, the features that have thus far been recorded are of no more than regional importance, and most are unlikely to be of more than local importance. Hence the features present are unlikely to be of greater than moderate sensitivity to impacts and most will be of low sensitivity.

8.4. Potential for previously unrecorded cultural heritage assets

The OfTI study area is large and it is evident that there will be unrecorded assets of all periods present. Therefore the discussion below aims only to identify areas of elevated archaeological potential and to outline the likely importance of the assets that may be encountered.

The following areas of elevated potential have been identified:

- Water of Philorth – general elevated potential for prehistoric assets;
- Water of Ugie – general elevated potential for prehistoric assets; and
- Fraserburgh Links – elevated potential for Mesolithic assets.

Regarding the importance of assets that may be encountered, it may be expected that unrecorded assets will be of regional or greater importance and hence medium or greater sensitivity for the following reasons:

Early prehistoric sites are clearly under-represented in the record, hence sites of this date are particularly important to our understanding of patterns of settlement during the early prehistoric period.

Later prehistoric and Early Historic assets are likely to have gone unrecorded where they have not been subject to severe plough truncation. They therefore have the potential to aid understanding of the numerous less well-preserved sites in the area.

Medieval and post-medieval assets are likely to be of no greater than medium importance, as the potential for these periods relates for the most part to agricultural remains, rather than settlement and similar.

18th century and later features are unlikely to be of greater than minor importance. The exception to this relates to World War II features, which could potentially be of greater importance if they are associated with more important features.

8.5. Conclusions

The OnTI study area takes in land that has seen continuous occupation from the Mesolithic period onwards. As a result, a wide range of assets are present and there is substantial potential for archaeological assets to be present throughout the study area.

At the OnTI landfall, a scheduled pill-box is present. The reinstatement of the pill-box will be important in order to preserve its setting. Overall the OnTI construction works are likely to affect archaeological features, both recorded and currently unrecorded, but these are unlikely to be of greater than regional importance, scheduled monuments excepted.

SOURCES CONSULTED

Published sources

Astill M., Firth A. and Gribble J. 2008 *UKCS Offshore Oil and Gas and Wind Energy Strategic Environmental Assessment: Archaeological Baseline*. Wessex Archaeology, Unpublished Client Report.

Atkinson D 2008 *APPENDIX 3: THE INCHMARNOCK BOAT AND SHIP GRAFFITI* in Lowe C. *INCHMARNOCK An early historic island monastery and its archaeological landscape* Society of Antiquaries of Scotland, Edinburgh

Baird, B. 2009 *Shipwrecks of the Forth and Tay* Dunbeath.

Bonsall C 2009 A Mesolithic site at Kilmore, near Oban, western Scotland.

Brady, N., Dr., 2002. Archaeological Monitoring and Excavation: Gas 2025 Irish Subsea Interconnector Gormanstown Landfall Co.Louth – Interim Report. The Archaeological Diving Company Ltd. (ADCO).

Carver M (2008) *Portmahomack: Monastery of the Picts*. Edinburgh University Press.

Clark, P 2005. The Dover Bronze Age boat in context: Society and water transport in prehistoric Europe.

Dawson A.G., Foster I.D.L., Shi S., Smith D.E. and Long D. 1991 'The identification of tsunami deposits in coastal sediment sequences'. *Science of Tsunami Hazards* **9** 73-82.

English Heritage, 2006. MoRPHE. Marine Archaeological Geophysical Survey.

Ferguson, D. M. 1991. *Shipwrecks of North-East Scotland 1444-1990* Aberdeen.Haggart, B.A. (1982) Flandrian sea-level changes in the Moray Firth area. Unpublished PhD thesis, University of Durham.

Flemming, N. C. 2004. The scope of Strategic Environmental Assessment of North Sea Area SEA5 in regard to prehistoric archaeological remains. Department of Trade and Industry.

Greenhill B and Morrison J 1998 *The Archaeology of Boats and Ships: An Introduction* Conway Maritime press

Haggart A.B. 1986 'Relative sea-level change in the Beaully Firth, Scotland' *Boreas* **15** 191-207.

Haggart A.B. 1987 'Relative sea-level change in the Moray Firth area, Scotland' in Tooley J. and Shennan I. (eds.) *Sea-level Changes*. Blackwell Scientific Publications, Oxford 67-108.

Haggart, B.A. (1988b) The stratigraphy, depositional environment and dating of a possible tidal surge deposit in the Beaully Firth area, north-east Scotland.

Palaeogeography, Palaeoclimatology, Palaeoecology, 66, 215–30.

Holmes, R., Bulat, J., Henni, P., Holt, J., James, C., Kenyon, N., Leslie, A., Long, D., Morri, C., Musson, R., Pearson, S., and Stewart, H. (2004) *DTI Strategic Environmental Assessment Area 5 (SEA5): Seabed and Superficial Geology and Processes*. Commercial Report CR/04/064N

ICOMOS 1996. Charter on the Protection and management of Underwater Cultural Heritage.

Lacaille, A.D. 1954, Stone Age in Scotland.

Lambeck K. 1992 'Glacial rebound and sea-level change in the British Isles'. *Terra Nova* **3** 379-389.

Larne, R. and Larne, B. 1998 *Shipwreck Index of the British Isles – Volume IV - Scotland* London.

Lawler, M, & Nayling, N, 1993 Investigations at Barlands Farm, Magor, 1993, *Archaeology in the Severn Estuary 1993*, 109-112

Long D., Dawson A.G. and Smith D.E. 1990 'Tsunami risk in northwestern Europe: a Holocene example' *Terra Nova* **1** 532-537.

Lynch, F., Aldhouse- Green, S., and Davies, J, L.,2000. Prehistoric Wales. Sutton Publishing.

Manley, J., 1989. Atlas of Prehistoric Britain. Phaidon. Oxford.

Martin, C. 1991 'Water Transport and the Roman occupation of Britain' in Smout T.C. (Ed) *Scotland and the Sea*. Barnes & Noble

McGee, B 2003 <http://casualtylist.tripod.com/> Accessed 06/12/2010

Mowat R J C 1996 The logboats of Scotland Oxbow Monograph in Archaeology No.68

Nash N S 2009 K Boat Catastrophe: Eight Ships and Five Collisions: The Full Story of the 'Battle' of the Isle of May Barnsley

NSA 1837 *New Statistical Account of Scotland* Edinburgh.

Ó Cróinín D 2005 *New History of Ireland, Vol. 1, Prehistoric & Early Medieval Ireland*. Royal Irish Academy. Oxford University Press.

Pannett and Baines, A and A (2002) 'Oliclett, Highland (Wick parish), Mesolithic lithic scatter', *Discovery Excav Scot*, vol.3

Peacock J.D. 1975 'Scottish late and post-glacial marine deposits' in Gemmell A.M.D. (ed.) *Quaternary Studies in North East Scotland*. University of Aberdeen 45-48.

Rodger N A M 1997 *The Safeguard of the Sea: A Naval History of Britain, Vol. 1: 660 –*

1649 London

Shennan I. and Horton B. 2002 'Holocene land- and sea-level changes in great Britain'. *Journal of Quaternary Science* **175, 5-6** 511-526.

Shennan, I., Lambeck, K., Horton, B., Innes, J.B., Lloyd, J., McArthur, J.J., Purcell, T. and Rutherford, M.M. 2000 'Late Devensian and Holocene records of relative sea-level changes in northwest Scotland and implications for glacio-hydro-isostatic modelling'. *Quaternary Science Reviews* 19 1103-1135.

Smith D.E., Firth C.R., Turbayne S.C. and Brookes C.L. 1992 'Holocene relative sea-level changes and shoreline displacement in the Dornoch Firth area, Scotland'. *Proceedings of the Geologists Association* **103** 237-257.

Sutehrland D.G. 1984 'The Quaternary deposits and landforms of Scotland and the neighbouring shelves: a review'. *Quaternary Science Reviews* **3** 157-254.

Synge F.M. and Smith J.S. 1980 '*A field guide to the Inverness area*' Quaternary Research Association.

The War Graves Photographic Project <http://twgpp.org/information.php?id=767103>
Accessed 06/12/2010

Unesco, 2001. The UNESCO Convention on the Protection of Underwater Cultural Heritage. UNESCO General Conference 31.C.

Wallace, Patrick F., O'Flóinn, Ragnall eds. *Treasures of the National Museum of Ireland: Irish Antiquities*, 2002, Gill & Macmillan, Dublin.

Wessex Archaeology Ltd. 2007 *Historical Environment Guidance for the Offshore Renewable Energy Sector*. Commissioned by Cowrie Ltd.

Wessex Archaeology Ltd. 2009. UKCS Offshore Oil and Gas and Wind Energy Strategic Environmental Assessment: Archaeological Baseline. Prepared by the Department of Energy and Climate Change.

Unpublished Sources

Gardener, D. 2011. 'MORL Offshore Windfarm Geophysical Survey. Volume 1: Operations Report'.

Osiris Projects 2011. Morl Offshore Windfarm Geophysical Survey Report, Volume 2A.

Senegy Survey and Geo-Engineering Ltd, 2009 Beatrice Offshore Windfarm Geotechnical Site Evaluation, July 2009 Unpublished Client Report.

Walters, J. 2011. 'MORL Offshore Windfarm Geophysical Survey. Report Volume 2a'.

Databases of Cultural Heritage Asset Consulted

Designated wreck data was downloaded from Historic Scotland's website © Historic Scotland

Offshore Sites and Monuments Record information derived from NMRS data (dated 15/02/2011) © Crown Copyright RCAHMS

Wrecks and Obstructions information derived from SeaZone data © Copyright UKHO

APPENDIX 1- GAZETTEER AND CONCORDANCE OF CULTURAL HERITAGE ASSETS WITH KNOWN LOCATIONS WITHIN THE Telford, Stevenson and MacColl Wind Farms.

HA No.	Name	Type	Description	Designations	UTM_WGS84
HA1001	Carisbrook (possibly)	Steamer	<p>Carisbrook (Possibly), a British Merchant Steamer built in 1907 by John Bulmer and Co. in Sunderland and owned by Miller and Richards Ltd. of Glasgow. The dimensions of the vessel were 91.4m long, 13.4m wide and 6.1m high. On the 21st June 1915 when 70 miles S ¼ W from Start Point, Orkneys, Scotland she was captured by German submarine U-38 whilst on an route from Montreal to Leith with a cargo of wheat and sunk by gunfire.</p> <p>The wreck is now reported to be spread over an area 80 x 40 m with a height of 1m above the seabed. The remains are quite collapsed and degraded</p>	None	<p>515045 6461955</p>
HA1002	Llanishen (probably)	Steamer	<p>The Llanishen She was built in 1929 by a firm called Bartram and Sons based in Sutherland and was owned at the time of loss by Evan Thomas Radcliffe. The original dimensions of the vessel were 122.2m long with a beam of 16.5m and was 7.9m high. She was bombed by a German aircraft and sank on the 23rd of August 1940 with the loss of eight crew. Admiralty records show the Llanishen had recently arrived with a convoy from New York (National Archives ADM 199/2185/55).</p> <p>This is a confirmed wreck lying at a maximum depth of 57m and located precisely through DGPS with an accuracy of 3m. It is well broken up with remains and cargo spread over a wide</p>	None	<p>514733 6458851</p>

HA No.	Name	Type	Description	Designations	UTM_WGS84
HA1003	Active	Fishing Trawler	area and appears as a strong magnetic anomaly. The wreck now appears to be around 163m long by 43m wide with a height of about 7m. A dive on the site in 1999 found remains of three large boilers and a steam engine with a cargo of electrical insulators, fire hoses, lead coated wire, bottles and stone ballast.	None	516145 6455801
HA1004	Unknown	Unclassified	This fishing trawler of Aberdeen built in 1899 was attacked by German aircraft and sunk by aerial torpedo in December 1939. UKHO data record this as a 'dead' wreck with unreliable coordinate data. A confirmed but unidentified wreck first discovered in 1949. Diver survey and subsequent geophysical surveys have revealed that the vessel is approximately 165m by 48m and appears to be broken in two. The ship has been described as a large steamship with two side by side boilers. The wreck was last surveyed by DGPS with an accuracy of 3m.	None	516574 6453645
HA1005	Minsk	Cargo Steamer	SS Minsk was a Danish Cargo steamer of 1,229 tons built in 1911. The vessel was 77m long with a beam of 11.3m and a height of 4.6m. It was hit by a torpedo and gunfire from U-19 on the 19th March 1940. The ship was struck in the engine room and sank within six minutes with the loss of 11 lives. Nine survivors were picked up by HMS Esk. The site is considered to be live and its position is recorded with an accuracy of 40m.	None	520562 6441757

HA No.	Name	Type	Description	Designations	UTM_WGS84
HA1006	HMS Lynx	Destroyer	The HMS Lynx, a destroyer built in 1913 was lost in 1915 after detonating a mine in the Moray Firth which had been laid by the German raider Meteor. At least 70 lives were lost. UKHO data record this as a 'dead' wreck with approximate coordinate data (see also HA8).	None	521994 6441416
HA1007	CHARKOW	Steamer	The Charkow is recorded in the UKHO as a Danish vessel reported to have been lost in March 1940. UKHO data record this as a 'dead' wreck with unreliable coordinate data.	None	520536 6438016
HA1008	HMS Lynx(Part)	Destroyer	The HMS Lynx, a destroyer built in 1913 was lost in 1915 after detonating a mine in the Moray Firth which had been laid by the German raider Meteor. At least 70 lives were lost. The coordinates of this site are accurately recorded having been confirmed by diver investigation, suggesting that the location of HA8 is the true location of the vessel or that the vessel was so badly damaged by the mine that it is spread across quite a large area.	None	528768 6447193
HA1009	Unknown	Unclassified	Little is known regarding this site except that a wreck is recorded at this location in the UKHO data. Not listed as 'live' or 'dead', so we must assume it is live.	None	528700 6447875
HA1010	Unknown	Unclassified	Little is known regarding this history of this site, the wreck was located accurately using DGPS and confirmed by divers.	None	529612 6447832

HA No.	Name	Type	Description	Designations	UTM_WGS84
HA1011	Unknown	Unclassified	Little is known regarding this history of this site, the wreck was located accurately using DGPS and confirmed by divers.	None	529646 6447577
HA1012	Unknown	Unclassified	Little is known regarding this history of this site, the wreck was located accurately using DGPS and confirmed by divers.	None	531733 6449230
HA1013	Marstenen (possibly)	Steamer	Marstenen (Possibly) The Marstenen, a steel steamship built in 1915. She was torpedoed by German aircraft off Duncansby Head in August 1940. It has been confirmed by survey as a large dispersed wreck (approximately 60m) in a general depth of 49m – 59m.	None	519439 6466361
HA1014	None	-	Obstruction Foul Ground	None	516351 6453014
HA1015	None	-	Obstruction	None	524948 6453838

GAZETTEER AND CONCORDANCE OF CULTURAL HERITAGE ASSETS WITH KNOWN LOCATIONS WITHIN THE CABLE ROUTE.

HA No.	Name	Type	Description	Designations	Status	UTM30N metres
HA1001	Unknown	Unclassified	Contact description is geological feature, type of wreck is recorded as wreckage and was recorded in 2003.	None	DEAD	544989.012, 6425679.569
HA1002	Unknown	Unclassified	This contact was identified to Seazone in 1957, there is little else known about it.	None	DEAD	562171.057, 6415801.273
HA1003	PRINCESS CAROLINE	Passenger Ship	PRINCESS CAROLINE SS was a British registered passenger/cargo ship of 888grt built in 1910 and sunk in 1915. This is recorded as an entire wreck though has only been located by its reported sinking thus its position is unreliable. She detonated a mine aft at 2120 under No.4 hatch blowing covers & deck area into the air and sank about 3min later 14 miles N by E½E of Kinnaird Head, Fraserburgh.	None	DEAD	558659.068, 6419365.863
HA1004	HILLFERN (POSSIBLY)	Cargo ship	The British coaster Hillfern, owned by Angel, Son & Co, Newcastle was sunk on 31 October 1940 sunk by an explosion. It was identified by multi-beam survey.	None	LIVE	549508.9, 6424832.91 3
HA1005	REMUERA	Passenger ship	The RMS Remuera was built by William Denny Co. in 1911 for the New Zealand Shipping Co. as a Refrigerated Passenger Cargo Vessel. With twin screws and triple	None	LIVE	566601.366, 6405076.73 9

HA No.	Name	Type	Description	Designations	Status	UTM30N metres
HA1006	KILDALE	Cargo ship	<p>expansion engines her size of 11,445 grt, 485' x 62' x 29' makes her one of the largest ships to sink off the North East coast of Scotland. Sunk by German aircraft in 1940 and identified by acoustic sensor.</p> <p>On the 3rd November 1940 while sailing in the coastal Convoy WN-29 for the final part of her trip the steamer KILDALE was attacked by German aircraft off the coast of Aberdeen. After being bombed and raked with machine gun fire, the ship sank in position 57' 45N - 01' 45W killing one of the 37 crew on board.</p>	None	DEAD	574283.234, 6402274.635
HA1007	Unknown	Unclassified	<p>Little is known of this Seazone entry, it is recorded as being logged by a merchant ship and into the database in 1956.</p>	None	DEAD	573824.367, 6400288.295
HA1008	Unknown	Unclassified	<p>This Seazone entry came from multibeam survey and a high magnetic anomaly identified by a Merchant ship in 2010.</p>	None	LIVE	575388.843, 6389108.60 6

HA No.	Name	Type	Description	Designations	Status	UTM30N metres
HA1009	SVARTON (PROBABLY)	Cargo ship	Svariton SS was a Swedish cargo steamer of 2,475 grt that was owned by Trafik-A/B Grängesberg-Oxelösund, Stockholm, Sweden. On the 3rd January 1940 when on route from Narvik for Middlebrough with a cargo of iron ore when she was torpedoed by German submarine U-58 and sunk off Kinnaird Head. It was identified by multi-beam data.	None	LIVE	567783.375, 6414501.14 5
HA1010	TRSAT	Cargo ship	The British MOWT-requisitioned coaster TRSAT, (owned by Kvarner Brodarsko D.D, Susak, Yugoslavia) was bombed and sunk by German aircraft on 7 September 1941, off Kinnearhead.	None	DEAD	568285.149, 6405135.192
HA1011	Northern Light	Small fishing boat	This fishing vessel was a British boat sunk in 1959. Little else is known about this wreck.	None	DEAD	559764.876, 6394734.604
HA1012	ROULETTE WORKER	Cargo ship	This was an Icelandic vessel recorded as being a fish carrier. This was identified/confirmed by multi-beam survey.	None	LIVE	573370.022, 6401899.45 2
HA1013	Unknown	Unclassified	There is little information recorded about this wreck, Seazone states there are notable debris remains and a moderate magnetic signal off the fishing vessel wreck.	None	LIVE	573616.85, 6398802.42
HA1014	TRSAT (PROBABLY)	Cargo ship	The British MOWT-requisitioned coaster TRSAT, (owned by Kvarner Brodarsko D.D, Susak, Yugoslavia) was bombed and sunk by German aircraft on 7 September 1941, off	None	LIVE	566218.334, 6403214.23 5

HA No.	Name	Type	Description	Designations	Status	UTM30N metres
			Kinneard head.			
HA1015	Unknown	Unclassified	Seazone classifies this as an entire wreck; it was originally recorded from a diver sighting in 1974. There is little else known about this contact.	None	LIVE	571813.019, 6394557.63 8
HA1016	Unknown	Unclassified	This record was first entered into Seazone in 1923, there is little else known about the contact.	None	DEAD	575016.891, 6389484.438
HA1018	Unknown	Unclassified	This is recorded in Seazone as an entire wreck first recorded by a diver sighting in 1973. No other information is recorded.	None	DEAD	573823.767, 6394874.331
HA1019	Unknown	Unclassified	No INFO	None	-	566604.719, 6405079.375
HA1020	Unknown	Unclassified	No INFO	None	-	571763.664, 6394529.172
HA1021	Unknown	Unclassified	No INFO	None	-	573795.284, 6400285.602

HA No.	Name	Type	Description	Designations	Status	UTM30N metres
HA1022	Unknown	Unclassified	No INFO	None	-	566217.677, 6403213.587
HA1023	Unknown	Unclassified	No INFO	None	-	549508.335, 6424806.919
HA1024	Unknown	Unclassified	No INFO	None	-	573613.829, 6398798.728
HA1025	Unknown	Unclassified	No INFO	None	-	575386.467, 6389130.325
HA1026	Unknown	Unclassified	No INFO	None	-	575018.755, 6389483.386
HA1027	Unknown	Unclassified	No INFO	None	-	567747.466, 6414500.713
HA1028	Unknown	Unclassified	No INFO	None	-	573362.252, 6401948.896

HA No.	Name	Type	Description	Designations	Status	UTM30N metres
HA1029	Unknown	Unclassified	No INFO	None	-	573828.602, 6394875.776
HA1030	Unknown	Unclassified	No INFO	None	-	574280.676, 6402271.612
HA1031	CHARLES GOODANE W	Cargo ship	On April 17th, 1917, the British steamer SS Charles Goodanew, on a voyage from Aberdeen to Scapa Flow with a cargo of Admiralty cargo, was sunk by a mine from the German submarine UC-45 (Hubert Aust), 3.5 miles ENE of Rattray Head. 13 persons were killed.	None	DEAD	572960.393, 6393158.266
HA1032	WATCHFUL	Small fishing boat	This is recorded in Seazone as sinking in 1994, this has been lifted.	None	LIFT	560202.584, 6395390.282
HA1033	VICTORY	Drifter	This vessel was sunk in 1923, its position is recorded as doubtful in the Seazone record. There is no other information on this wreck.	None	DEAD	572584.964, 6386347.796
HA1034	Unknown	Unclassified	No INFO	None	-	572968.658, 6393158.911
HA1035	Unknown	Small fishing boat	This wreck was sunk in 1979, it position is recorded as unreliable in Seazone. The wreck has now been lifted.	None	LIFT	559617.765, 6394609.062

HA No.	Name	Type	Description	Designations	Status	UTM30N metres
HA1036	Unknown	Aircraft	This logged aircraft wreck has an unreliable position recorded in the Seazone dataset.	None	DEAD	544891.116, 6429013.326
HO1	None	-	Obstruction – Foul Ground	None	-	524,988.318 6,453,803.73
HO2	None	-	Obstruction – Unclassified	-	-	567,136.745, 6,414,396.31 9
HO3	None	-	Obstruction – Unclassified	None	-	573,359.480, 6,398,106.96 7
HO4	None		Obstruction – Foul Ground	None	-	560,557.775, 6,394,870.67 9

APPENDIX 2 – RECORDS OF MARITIME LOSSES

Maritime losses recorded in the National Monument Record of Scotland (NMRS and the SeaZone dataset within the application boundary. Any sites in this database with known locations have been included in the gazetteer of sites and are shown on Illus. 1. Therefore these tables are intended to provide a general picture of the type of losses within the offshore study area rather than a list of confirmed remains.

National Monument Record for Scotland (NMRS) within the Telford, Stevenson and MacColl Wind Farms

Please note that the mapped position of most losses recorded in the NMRS databases ranges from exact to 'essentially arbitrary'. In addition data entry from a variety of published sources had not been completed to 'stage 5' level by RCAHMS across the area of the OfTI and this process was still ongoing at the time of creating this report. Therefore there may be some sites mentioned in the main published lists of wreck losses for this area which are not included on the list below.

Name	Type	NGRE	NGRN	NMRS No.
Carisbrook (Possibly):	CRAFT	515045	6461955	102003
Marstenen (Possibly):	STEAMSHIP (20TH CENTURY)	519439	6466361	101998

National Monument Record for Scotland (NMRS) within the OfTI

HA NO.	Name	Age	Desc	Eastings	Northings
1055	SVARTON: NORTH SEA	20TH CENTURY	STEAMSHIP (20TH CENTURY)	408510	886430
1056	UNKNOWN: FRASERBURGH BAY, NORTH SEA		OBSTRUCTION(S)	401040	866900
1057	DAUNTLESS: FRASERBURGH BAY, NORTH SEA	19TH CENTURY	SCHOONER (19TH CENTURY)	401000	866000
1058	NORTHERN MAID: FRASERBURGH HARBOUR, NORTH SEA	19TH CENTURY	SCHOONER (19TH CENTURY)	400200	866800
1059	MATHIEU: FRASERBURGH HARBOUR, NORTH SEA	19TH CENTURY	CRAFT (19TH CENTURY)	400200	866800
1060	EBENEZER: FRASERBURGH HARBOUR ENTRANCE, NORTH SEA	19TH CENTURY	LUGGER (19TH CENTURY)	400200	866800
1061	NEW ONWARD: FRASERBURGH HARBOUR ENTRANCE, NORTH SEA	19TH CENTURY	LUGGER (19TH CENTURY)	400200	866800

1062	ZODIAC: FRASERBURGH HARBOUR ENTRANCE, NORTH SEA	20TH CENTURY	LUGGER (20TH CENTURY)	400200	866800
1063	POMONA: FRASERBURGH HARBOUR ENTRANCE, NORTH SEA	20TH CENTURY	SCHOONER (20TH CENTURY)	400200	866800
1064	PORTLAND: FRASERBURGH HARBOUR, NORTH SEA	19TH CENTURY	SCHOONER (19TH CENTURY)	400200	866800
1065	JUDITH: FRASERBURGH HARBOUR ENTRANCE, NORTH SEA	19TH CENTURY	BRIGANTINE (19TH CENTURY)	400200	866800
1066	SUSAN: FRASERBURGH HARBOUR, NORTH SEA	19TH CENTURY	SCHOONER (19TH CENTURY)	400200	866800
1067	VETERAN: FRASERBURGH HARBOUR, NORTH SEA	19TH CENTURY	SHIP (19TH CENTURY)	400200	866800
1068	SOVEREIGN: FRASERBURGH HARBOUR, NORTH SEA	19TH CENTURY	CRAFT (19TH CENTURY)	400200	866800
1069	REFORM: FRASERBURGH HARBOUR ENTRANCE, NORTH SEA	19TH CENTURY	SLOOP (19TH CENTURY)	400200	866800
1070	JEAN AND MARY: FRASERBURGH HARBOUR, NORTH SEA	19TH CENTURY	LUGGER (19TH CENTURY)	400200	866800
1071	UNKNOWN: FRASERBURGH HARBOUR, NORTH SEA	19TH CENTURY	CRAFT (19TH CENTURY)	400200	866800
1072	HENRY AND ELIZABETH: FRASERBURGH HARBOUR ENTRANCE, NORTH SEA	20TH CENTURY	LUGGER (20TH CENTURY)	400200	866800
1073	HENRY: FRASERBURGH HARBOUR ENTRANCE, NORTH SEA	19TH CENTURY	SLOOP (19TH CENTURY)	400200	866800
1074	SISTERS: FRASERBURGH HARBOUR ENTRANCE, NORTH SEA	19TH CENTURY	CRAFT (19TH CENTURY)	400200	866800
1075	LOCHNAGAR: FRASERBURGH HARBOUR ENTRANCE, NORTH SEA	19TH CENTURY	CRAFT (19TH CENTURY)	400200	866800
1076	ERLEN: FRASERBURGH HARBOUR, NORTH SEA	19TH CENTURY	CRAFT (19TH CENTURY)	400200	866800
1077	JESSE AND ALEXANDER: FRASERBURGH HARBOUR ENTRANCE, NORTH SEA	19TH CENTURY	SCHOONER (19TH CENTURY)	400200	866800
1078	VICTORY: FRASERBURGH HARBOUR ENTRANCE, NORTH SEA	20TH CENTURY	LUGGER (20TH CENTURY)	400200	866800
1079	PERSERVERENCE: FRASERBURGH HARBOUR ENTRANCE, NORTH SEA	19TH CENTURY	CRAFT (19TH CENTURY)	400200	866800
1080	GIPSEY: FRASERBURGH HARBOUR, NORTH SEA	19TH CENTURY	CRAFT (19TH CENTURY)	400100	866900
1081	BARONESS STRATHSPEY: FRASERBURGH BAY, NORTH SEA	19TH CENTURY	SCHOONER (19TH CENTURY)	400000	865000

1082	ROYAL CONSORT: BOICH ROCK, FRASERBURGH BAY, NORTH SEA	19TH CENTURY	SCHOONER (19TH CENTURY)	400000	866000
1083	SOVEREIGN: BOICH HEAD, FRASERBURGH BAY, NORTH SEA	19TH CENTURY	SCHOONER (19TH CENTURY)	400000	866000
1084	HAPPY RETURN: FRASERBURGH, NORTH SEA	19TH CENTURY	CRAFT (19TH CENTURY)	400000	866000
1085	JEAN AND BETSEY: NORTH SEA	19TH CENTURY	SLOOP (19TH CENTURY)	400000	866000
1086	AUGUSTA: FRASERBURGH, NORTH SEA	19TH CENTURY	SCHOONER (19TH CENTURY)	400000	866000
1087	INTER NOS: FRASERBURGH, NORTH SEA	19TH CENTURY	LUGGER (19TH CENTURY)	400000	866000
1088	MARY COLVILLE: GLENBUCHTY, MORAY FIRTH	20TH CENTURY	SCHOONER (20TH CENTURY)	399000	866000
1091	THE 'ROUNABOUT' WRECK	20TH CENTURY		407230	877020
1092	UNKNOWN: NORTH SEA		CRAFT	407400	877000
1093	KINNAIRD HEAD, KINNAIRDS HEAD		CRAFT	408000	877000

SeaZone entries within the Telford, Stevenson and MacColl Wind Farms

UK Hydrographic Office data represents wrecks and obstructions which have been identified on the seabed through survey, usually through geophysical scans. There are a number of wrecks or obstruction sites recorded in the SeaZone dataset which were reported at one time but which later surveys (usually of higher quality) could not trace. These sites are now listed as 'dead'. This may be due to mistaken identification, degradation/destruction of the asset or through covering of the asset through sediment. Names in bold are 'live' entries.

UKHO No.	Name	NGR	State	Type	Flag	Date sunk
1328	Carisbrook (possibly)	515045 6461955	Live	Steamer	Great Britain	21/06/1915
1306	Llanishen (probably)	514733 6458851	Live	Steamer	Great Britain	23/08/1940
1184	Active	516145 6455801	Dead	Fishing Trawler	Great Britain	18/12/1939
1182	Unknown	516574 6453645	Live	-	-	-

1171	Minsk	520562 6441757	Live	-	-	-
1169	HMS Lynx	521994 6441416	Dead	-	-	-
1166	CHARKOW	520536 6438016	Dead	Cargo Steamer	Denmark	19/03/1940
1324	HMS Lynx(Part)	528768 6447193	Live	Destroyer	Great Britain	09/08/1915
1489	Unknown	528700 6447875	-	-		
8700	Unknown	529612 6447832	Live	-		
8701	Unknown	529646 6447577	Live	-		
8699	Unknown	531733 6449230	Live	-		
	Marstenen (possibly)	519439 6466361	Live	Steamer		30/08/1940
4280	None	516351 6453014	Dead	Obstruction		
1181	None	524948 6453838	Dead	Obstruction		

SeaZone entries within the OfTI

HA No.	Name	Type	Designations	UTM30N metres	Status
HA1001	Unknown	Unclassified	None	544989.012, 6425679.569	DEAD

HA No.	Name	Type	Designations	UTM30N metres	Status
HA1002	Unknown	Unclassified	None	562171.057, 6415801.273	DEAD
HA1003	PRINCESS CAROLINE	Passenger Ship	None	558659.068, 6419365.863	DEAD
HA1004	HILLFERN (POSSIBLY)	Cargo ship	None	549508.9, 6424832.913	LIVE
HA1005	REMUERA	Passenger ship	None	566601.366, 6405076.739	LIVE
HA1009	SVARTON (PROBABLY)	Cargo ship	None	567783.375, 6414501.145	LIVE
HA1010	TRSAT	Cargo ship	None	568285.149, 6405135.192	DEAD
HA1011	Northern Light	Small fishing boat	None	559764.876, 6394734.604	DEAD
HA1014	TRSAT (PROBABLY)	Cargo ship	None	566218.334, 6403214.235	LIVE
HA1032	WATCHFUL	Small fishing boat	None	560202.584, 6395390.282	LIFT
HA1035	Unknown	Small fishing boat	None	559617.765, 6394609.062	LIFT
HA1036	Unknown	Aircraft	None	544891.116, 6429013.326	DEAD
HA1037	Unknown	Unclassified	None	565439.941 6404747.357	DEAD
HA1038	Challenger	Fishing Trawler	None	571130.613 6409375.456	DEAD
HA1098	None	-	None	524,988.318 6,453,803.73	-
HA1099	None	-	-	567,136.745, 6,414,396.319	-
HA1100	None	-	None	573,359.480, 6,398,106.967	-
HA1101	None		None	560,557.775, 6,394,870.679	-

APPENDIX 3- LEGISLATIVE FRAMEWORK AND GUIDANCE

Marine (Scotland) Act 2010

The Marine Scotland Act 2010 contains a new power which allows Scottish Ministers to designate Marine Protected Areas (MPAs). This provides greater flexibility for Ministers to use area-based measures to conserve marine biodiversity as well as nationally important historic assets such as historic shipwrecks. The new power broadens the scope of what types of historic asset can be protected if they are of national importance and allows Scottish Ministers to target protection and management according to the preservation objectives of each Historic MPA.

Protection of Wrecks Act 1973

The *Protection of Wrecks Act 1973* enables the Secretary of State to protect wreck sites from unauthorized interference if they are of historic, archaeological or artistic importance. Under the Act it is an offence to carry out certain activities in a defined area surrounding the site, unless a license for those activities has been obtained from the Government. Section One of the PWA is administered by Historic Scotland (HS) in Scottish territorial waters. This Act also provides protection for wrecks that are designated as dangerous due to their contents and is administered by the Maritime and Coastguard Agency (MCA) through the Receiver of Wreck (ROW). It is possible that a dangerous wreck designated under this section might also be of archaeological or historic interest.

The Protection of Military Remains Act 1986

Under the *Protection of Military Remains Act 1986* the Ministry of Defence has powers to protect vessels that were in military service when they were wrecked. The MOD can designate named vessels as Protected Places even if the position of the wreck is not known. In addition, the MOD can designate Controlled Sites around wrecks whose position is known. In the case of Protected Places, the vessel must have been lost after the 4th August 1914, whereas in the case of a wreck protected as Controlled Sites, no more than 200 years must have elapsed since loss (MOD 2001). It is an offence to tamper with, damage, move or remove sensitive remains. However, diving, salvage and excavation are all prohibited on Controlled Sites, although licences for restricted activities can be sought from the MOD. Additionally, it is an offence to carry out unauthorized excavations for the purpose of discovering whether any place in UK waters contains remains of a vessel which has crashed, sunk or been stranded while in military service. It is worth noting that under the *Protection of Military Remains Act 1986*, all aircraft that have crashed in military service automatically constitute a Protected Place.

Ancient Monuments and Archaeological Areas Act 1979

The main legislation concerning archaeological remains in the UK is the *Ancient Monuments and Archaeological Areas Act 1979*. This Act primarily deals with land sites but there is provision to designate sites of vessels in territorial waters as Scheduled Monuments. Monuments are defined by the AMAA 1979 as including buildings, structures, works, caves, excavations, vehicles, vessels, aircraft or other movable structures. Monuments can only be scheduled if they are of national importance. Section 53 extends the AMAA 1979 to monuments situated in, on or under the seabed within UK territorial waters. Once a monument has been scheduled, visiting or diving on the site is not necessarily restricted. It is, however, an offence to demolish, destroy, alter or repair the monument without prior authorisation, in the form of Scheduled Monument Consent.

Merchant Shipping Act 1995

The *Merchant Shipping Act 1995* (MSA 1995) is used to regulate the reporting and disposal of wreck, including wreck of archaeological interest found or recovered from UK waters, or found or recovered outside UK waters but brought within those waters. Within the context of the MSA 1995, wreck refers to flotsam, jetsam, derelict and lagan found in or on the shores of the sea or any tidal water. It includes ships, aircraft and hovercraft, parts of these, their cargo and equipment. All wreck that is found or taken into possession must be notified to the Receiver of Wreck by the finder. The wreck is then delivered to the Receiver, or, more commonly, held by the finder to the order of the Receiver. The ownership and disposal of wreck is decided according to procedures contained within the MSA 1995. Provision is made for original owners to come forward to claim their property. Ownership of unclaimed wreck from within territorial waters lies with the Crown or in a person to whom rights of wreck have previously been granted by the Crown. The Receiver has a duty to ensure that finders who report their finds as required receive an appropriate salvage payment. In the case of material considered to be of historic or archaeological importance, a suitable museum is asked to buy the material at the current valuation and the finder receives the net proceeds of the sale as a salvage payment. If the right to, or the amount of salvage cannot be agreed, either between owner and finder or between competing salvors, the Receiver will hold the wreck until the matter is settled, either through amicable agreement or by court judgement.

European Legislation for Marine Cultural Heritage

International law is represented by customary law and the conventions to which the UK are party. The United Nations Convention on the Law of the Sea 1982 (UNCLOS 1982), the European Convention on the Protection of the Archaeological Heritage (Revised) 1992 (the Valletta Convention) and the UNESCO Convention on the Protection of the Underwater Cultural Heritage 2001 (UNESCO 2001) are all relevant in this regard.

UNCLOS 1982 was ratified the UK in 1997. Article 303 stipulates that 'states have the duty to protect objects of an archaeological and historical nature found at sea and shall co-operate for this purpose'. Article 303 also provides for coastal states to exert a degree of control over the archaeological heritage to 24 nautical miles, though no measures have been introduced to implement this right.

The Valletta Convention, ratified by the UK in 2000 and brought into force in 2001, bounds Scotland to implement protective measures for archaeological heritage within the jurisdiction, including sea areas. Insofar as the state exerts jurisdiction over the Continental Shelf, then it would appear that the provisions of the Valletta Convention apply to those jurisdictions.

The UNESCO Convention 2001 is a comprehensive attempt to codify the law internationally in respect of the underwater archaeological heritage. Although the UK abstained in the vote on the final draft of the Convention, it has stated that it supports most of the articles, particularly the provisions in the Annex governing the conduct of archaeological investigations.

The International Council on Monuments and Sites (ICOMOS) Charter on the Protection and Management of Underwater Cultural Heritage 1996 (the Sofia Charter) includes a series of statements regarding best practice, intending 'to ensure that all investigations are explicit in their aims, methodology and anticipated results so that the intention of each project is transparent to all'. The UK is a member of ICOMOS.

APPENDIX 4. GEOPHYSICAL SURVEY SPECIFICATIONS & SUITABILITY FOR ARCHAEOLOGICAL ASSESSMENT

The following outlines the methodology used by Osiris Projects during the geophysical survey and the methodology employed for the archaeological assessment of the data.

Osiris Projects Survey Methodology and Specifications

The geophysical data was acquired by Osiris Projects onboard survey vessel *SV Chartwell* between 22nd May and 25th September 2010. The geodetic parameters used throughout the survey were WGS84 UTM Projection zone 30 North. The techniques employed included Sidescan sonar, magnetometer, sub-bottom profiler and multi-beam bathymetry. Bathymetric, seabed features and sub-bottom profiling data (both analogue and digital) were acquired over an area of approximately 45km x 20km in maximum extents.

Survey parameters

The marine geophysical survey undertaken by Osiris Projects was initiated with a view to satisfying a number of requirements (eg. geological, engineering etc.) of the proposed Telford, Stevenson and MacColl Wind Farms. As such, the survey route was split into two phases. These include:

- A total of 2857 line kilometres of data collection were required to complete the phase 1 analogue scope of work. A further 1757 line kilometres were required to complete the phase 1 digital seismic survey.
- The analogue survey consisted of 157 main lines orientated 045°/225° at 150m line separation and 58 cross lines orientated 135°/315° at 500m line separation.
- The 2D high resolution digital seismic survey for phase 1 comprised 78 main lines orientated 045°/225° at 300m line separation and 58 cross lines orientated 135°/315° at 500m line separation.
- A total amount of 5765 line kilometres of data were collected for both phases of the geophysical survey.

Potential obstructions were identified before the survey commenced namely a number of seabed obstructions belonging to Aberdeen University and Partrac including seabed frames and their associated ground weights. As well as this two seabed installations that are likely foundation structures of the Beatrice Demonstrator wind turbines were identified as well as seabed installations associated with the 'jacky' complex and Beatrice platforms. Wellhead installations are present in both Phases 1 and 2 and are plotted on the Seazone data Figure 1.

Three known shipwrecks have been located by Headland and Osiris within the Telford, Stevenson and MacColl Wind Farms, a more in depth depiction of these and historic details can be found in the baseline assessment. The vessels are thought to be the 'Llanishen', 'Carisbrook' and a wreck of unknown origin. In addition to this a further two wrecks were expected to be located in the survey data (one in the Outer

Study Area) according to Seazone and wrecksite sources, however, these were not located by Headland Archaeology or Osiris Projects in any of the survey data taken in the two Phases.

Positioning

Primary positioning was provided by an Applanix POS MV 320 Navigation System (INS). This system currently provides the highest level of performance of any motion reference system commercially available and supplies positioning, orientation and attitude data to remove the effects of vessel dynamics even during periods of poor GPS signal and outages. The system is made up of three different components;

- Inertial Measurement Unit (IMU) containing high quality accelerometers and gyros installed as close as possible to the vessel's axis of rotation and gravity.
- Processing Control System (PCS) containing the GPS cards and main system interface.
- 2 x Dual Frequency Trimble GPS receivers mounted perpendicular to the vessel centreline.

The General Lighthouse Authority (GLA) differential correction service was used for the survey to provide positional accuracy of up to 1m at 95% confidence levels. This system uses fourteen coastal stations located at precisely known coordinates observing GPS satellite transmissions.

Secondary positioning accuracy was provided by a Hemisphere Crescent VS100 GPS compass. The Hemisphere dGPS was used to calibrate the navigation systems and GPS data logged within QPS QINSy.

A Valeport 'Midas' Serial number 32010 bottom-mounted tide gauge was used to correct raw bathymetry data to LAT.

Sidescan

A digital Klein 3000 dual frequency sidescan sonar system was used to acquire data at both 100 kHz and 455 kHz throughout the survey. The sidescan sonar is capable of ranges up to 600m coverage abeam of each transducer at 125kHz or 150m at 445kHz. The survey was performed in dual frequency mode at a maximum range scale of 200m across each survey line. The data was recorded using CODA DA2000 software using the network function in the windows based CODA Geosurvey acquisition software package.

Sound bursts are beamed from the transducers and produce echos from points on the seabed which are then picked up by sensors and relayed to the transceiver unit. These signals are processed and made into sonar images. Harder objects give stronger reflective signals and softer sediments weaker return signals thus giving classifications of seabed types during post-processing.

Magnetometer

A Geometrics G882 Caesium Vapour Marine Magnetometer was used for this part of the survey. The equipment contains a total magnetic field sensor and CM221 Larmour counter providing absolute readings of total magnetic field with a resolution of 0.004nT/Hz RMS. The survey detects variations in the total magnetic field of the underlying seafloor and sub-seabed geology on the basis of anomalies in the Earth's magnetic field. Materials high in ferrous or ferric compounds will be detected by the magnetometer. Data was logged in to the computer via an RS232 link and this was combined with positional data from the known tow distance for later post-processing work.

Sub-bottom seismic

Phase 1 of the seismic data acquisition consisted of a GeoResources GeoSpark Sparker Sub-bottom Profiling System was used to acquire sub-bottom profile data along all survey lines. This system incorporated four individually powered banks of submerged electrodes, with each containing 50 sparker tips. This was mounted on a depth adjustable, surface towed catamaran. Raw data were recorded directly to the CODA DA2000 digital data acquisition systems, for later post-processing and archiving. The system is capable of operating water depths of up to 500m and can provide penetration of up to 400ms below the seabed dependant on intrinsic factors. Acoustic energy is reflected from the seafloor dependant on the composition of the seabed. Raw data was recorded to the CODA DA2000 digital data acquisition systems.

The Phase 2 UHR Multi-channel seismic system comprised of an Applied Acoustics CSP-S6000 compact seismic source operating at 2100 joules along with an Applied Acoustics Squid 2000 Sparker. This system enables tuning to either favour high resolution or high penetration returns by altering the electrode tips within each candle.

Echo Sounder/Multibeam Bathymetry

The multibeam echosounder used was a hull mounted, Reson Seabat 7101 with a single frequency at 240kHz. This is a beam-forming system that creates virtual 'beams' mathematically and detects the range to the seabed for each returned. The data was acquired using QPS QINSy software to allow online processing and quality control during the survey incorporating POS MV 320, sound velocity and tidal observations data in concurrence. The system incorporates a Reson SVP70 which monitors the speed of sound of the water in real time with accuracies of ± 0.15 m/s. Full water column sound velocity data was provided by a Reson SVP15 to provide accurate measurements of the water column and thus precision for post-processing.

The echo sounder used was a Knudsen 320M Dual Frequency Hydrographic to provide a quality check on the absolute values of the swathe bathymetry system. This was operated in dual frequency mode using both 33kHz and 210kHz transducers

continuously. The echo sounder was calibrated twice each day at the start and finish of survey; the instruments accuracy is reported to be $\pm 0.25\%$ of full scale.

Archaeological suitability of the survey methodology and specifications

The following assesses the suitability of the specifications for each survey method for archaeological assessment and takes into consideration the guidelines presented by English Heritage 'Marine Archaeological Geophysical Survey Note 1' (2006).

After reviewing the methods of data collection utilised by Osiris Projects it is thought that the survey 'tracks' or 'lines' are sufficient enough to provide accurate coverage of the survey area.

The survey techniques and equipment employed on site were again found to be of a high standard for the acquisition of survey data needed to complete a marine geophysical survey assessment. Where equipment was found to be unsatisfactory it was soon rectified or replaced.

Sidescan Sonar

The sidescan sonar data was rated with regard to its suitability for the purpose of identifying and interpreting cultural heritage remains. Data of high frequency and short range will better distinguish the structure of any identified maritime losses such as wrecks and aircraft and may enable the discrimination between geological and archaeological features. However, data acquired at low frequency at larger ranges may only identify the outline of wrecks and may not be able to distinguish the presence of any associated debris.

Sidescan data along the proposed MORL windfarms has been rated as Good for the purpose of identifying cultural heritage remains. The operational frequency exceeded the requirements of archaeological survey where the high frequency range was set at 455kHz for high resolution data collection.

The main challenge faced during a marine geophysical survey assessment is the problem of accuracy. The survey was conducted using dGPS and corrected navigation was available to the archaeological reviewers. However there remain some inherent difficulties when using certain geophysical techniques which do not give precise measurements even when the location of the survey instrument has been precisely established. One example of this is the unidentified wreck UKHO 1182. This wreck appears on three different sidescan playbacks and in each case appears in a slightly different location, offset by up to 10m. This kind of inaccuracy is partly due to perspective shifts between playbacks as the sonar receiver will sense the wrecks from different angles during different playbacks. However, given the size of the vessel this level of accuracy is deemed sufficient for locational purposes and any possible construction exclusion zones which might be put in place by way of mitigation.

Magnetometer

The magnetometer survey data acquired on site was found to be of good quality for the identification and cross referencing of potential archaeological targets. Magnetometry data was collected over the entire site area for the Phase 1 works

Sub-bottom profiling (or seismic)

The shallow seismic data quality has been rated as Good for archaeological purposes. Again the survey was taken along each individual transect in order to give a good representation of the geological sediments and any evidence of archaeological or palaeoenvironmental remains on or beneath the seabed. The Geospark system used was capable of operating in water depths of up to 500m and penetration of up to 400m/s below the seabed.

APPENDIX 5. GEOPHYSICAL TARGETS IDENTIFIED BY HEADLAND ARCHAEOLOGY

Telford, Stevenson and MacColl Wind Farms Sidescan Targets

ID	Site Description	Source	Archaeological Potential	Length m	Width m	Height m	UTM30N MetresE	UTM30N MetresN
28	Scar/gouge	Sidescan	Low	165.03	12	0	525826.9	6444913
29	Possible debris/scatter	Sidescan	Low	45.82	30.25	0	524673.4	6443826
30	Boulderfield	Sidescan	Low	45.24	42.43	0	524663.3	6443747
31	Boulderfield/scatter area	Sidescan	Low	33.44	20.2	0	524249	6443758
32	Boulderfield/scatter area	Sidescan	Low	30.18	24.76	0	524730.8	6444025
33	Boulderfield/scatter area	Sidescan	Low	29.19	19.82	0	522543.4	6442757
34	Boulderfield/scatter area	Sidescan	Low	23.49	14.66	0	523754.6	6443557
35	Possible debris/scatter	Sidescan	Low	28.5	23.07	0.3	523430.5	6444578
36	Possible object	Sidescan	Medium	15.35	3.9	0.4	525711.5	6447161
38	Scar/gouge	Sidescan	Low	134.31	19.86	0.51	523096.5	6444512
39	Possible debris/scatter	Sidescan	Low	28.77	7.06	0	522192.4	6443599
40	Possible natural feature	Sidescan	Low	3.48	2.77	0.4	520255.1	6441619
41	Boulderfield/scatter area	Sidescan	Low	33.52	12.08	0	523783.3	6445150
42	Scar/gouge	Sidescan	Low	51.91	19.86	0	517981.1	6440666

ID	Site Description	Source	Archaeological Potential	Length m	Width m	Height m	UTM30N MetresE	UTM30N MetresN
43	Debris scatter	Sidescan	Low	40	10.23	0.24	523193.1	6447650
44	Possible natural feature/object	Sidescan	Medium	5.16	4.43	0.88	521132.4	6446479
45	Possible natural feature	Sidescan	Low	2.9	1.13	0.96	522180.4	6447579
46	Possible natural feature	Sidescan	Low	6.53	2	0.67	518349.3	6444392
47	Possible natural feature	Sidescan	Low	4.39	1.16	0.52	512342.5	6438392
48	Possible natural feature	Sidescan	Low	12.64	5.64	0.76	512338.8	6438390
49	Possible natural feature	Sidescan	Low	3.81	3.02	1.11	517003.9	6448610
49	Possible natural feature	Sidescan	Low	2.08	0.64	1.78	514743.9	6440865
50	Possible natural feature	Sidescan	Low	8.46	2.71	0	516941.3	6448672
51	Possible natural feature/boulder field	Sidescan	Low	23.67	12.55	1.98	516729.6	6448220
52	Possible natural feature/object?	Sidescan	Medium	4.23	3.13	1.07	520384.8	6447576

ID	Site Description	Source	Archaeological Potential	Length m	Width m	Height m	UTM30N MetresE	UTM30N MetresN
53	Possible natural feature	Sidescan	Low	7.1	1.62	0.32	522821.6	6450243
54	Possible natural feature	Sidescan	Low	3.88	2.46	0.43	519818.9	6445348
55	Possible natural feature	Sidescan	Low	5.27	0.58	1.2	512733.5	6439231
56	Possible natural feature	Sidescan	Low	6.48	1.04	0.75	518369.8	6445637
57	Possible natural feature	Sidescan	Low	6.79	1.58	0.62	522392.9	6449622
58	Possible natural feature	Sidescan	Low	4.18	1.04	0.77	522333.5	6453137
60	Possible natural feature	Sidescan	Low	2	1.99	0.64	522755.8	6453440
61	Possible natural feature/ object	Sidescan	Medium	4.3	1.59	1.58	523746.1	6454553
62	Possible natural feature	Sidescan	Low	5.8	0.52	1.13	518347.1	6444392
63	Possible natural feature	Sidescan	Low	4.89	0.7	0.31	522112.6	6449082
64	Possible natural feature/ object	Sidescan	Low	6.35	1.68	0.43	509965.7	6441479

ID	Site Description	Source	Archaeological Potential	Length m	Width m	Height m	UTM30N MetresE	UTM30N MetresN
65	Possible natural feature	Sidescan	Low	8.74	3.01	0.26	508071.3	6437035
66	Possible natural feature	Sidescan	Low	3.95	0.84	0.4	509695.7	6441462
67	Possible natural feature	Sidescan	Low	3.15	1.39	0.46	516142.5	6448482
68	Possible natural features	Sidescan	Low	5.62	0.83	0.95	523403	6455751
70	Possible natural feature Object?	Sidescan	Low	3.68	1.48	2.23	521770.6	6455036
71	Wellheads?	Sidescan	Medium	25.55	22.63	0.78	520779.5	6448862
72	Possible scar or gouge	Sidescan	Medium	25.32	0.77	0	516404.7	6447812
73	Possible natural object/line	Sidescan	Medium	12.73	1.74	0.2	509171.3	6446862
74	Possible natural object/feature	Sidescan	Medium	7.58	1.86	0.3	508985.4	6447061
75	Possible natural features/objects?	Sidescan	Medium	26.27	4.02	0	515055.2	6461947
76	Possible natural feature/object	Sidescan	Medium	12.31	2.76	0.25	515642.5	6462110

ID	Site Description	Source	Archaeological Potential	Length m	Width m	Height m	UTM30N MetresE	UTM30N MetresN
77	Possible natural feature/object	Sidescan	Medium	7.7	2.44	0.84	511513.2	6456395
78	Possible group of natural features/objects	Sidescan	Medium	8.16	3.24	0.25	513932.1	6454259
79	Possible group of natural features	Sidescan	Low	3.55	2.12	0.34	516896.6	6451023
81	Possible natural feature	Sidescan	Low	4.98	1.95	0.32	521984.5	6456279
82	Possible natural feature	Sidescan	Low	12.19	9.7	0	515044.3	6449418
84	Possible natural feature/object	Sidescan	Low	4.91	1.61	1.04	520980.1	6455800
86	Possible natural feature	Sidescan	Low	4.98	1.11	1.09	519059.5	6455773
89	Possible natural feature/object	Sidescan	Low	5.31	3.26	0.97	508932.3	6446452
91	Possible natural feature	Sidescan	Low	6.76	1.8	0.35	516405.2	6453834
92	Possible natural feature	Sidescan	Low	5.55	0.86	0.66	518058.1	6457209

ID	Site Description	Source	Archaeological Potential	Length m	Width m	Height m	UTM30N MetresE	UTM30N MetresN
93	Possible natural feature	Sidescan	Low	2.73	0.86	0.97	512706.7	6451911
94	Possible natural feature	Sidescan	Low	5.54	3.44	1.25	512051.8	6451704
96	Possible natural feature	Sidescan	Low	3.62	0.99	1.92	513075.6	6453985
98	Possible natural feature	Sidescan	Low	6.46	10.66	0	513624	6455567
99	Possible natural feature	Sidescan	Low	7.34	1.39	1.03	518408.6	6460300
100	Possible natural feature/ object	Sidescan	Medium	6.34	1.65	1.48	513356.5	6458593
101	Possible natural feature	Sidescan	Low	11.86	7.12	1.07	516915.3	6463698
102	Possible natural feature/ object	Sidescan	Medium	6.34	2.76	0.95	516052.1	6463919
103	Possible natural feature	Sidescan	Low	6.02	1.69	1.53	518988.9	6461193
104	Possible natural feature	Sidescan	Low	4.49	1.17	0.85	518606.5	6459988
105	Possible natural feature	Sidescan	Low	7.13	1.95	0.5	513982.4	6459136

ID	Site Description	Source	Archaeological Potential	Length m	Width m	Height m	UTM30N MetresE	UTM30N MetresN
106	Possible natural feature	Sidescan	Low	7.05	2.35	0.2	525715.2	6447164
107	Possible natural feature	Sidescan	Low	4.33	0.7	0.66	523691.9	6446611
108	Possible natural feature/ object	Sidescan	Low	4.97	2.67	1.13	517946	6450716
109	Possible natural feature	Sidescan	Low	6.72	1.99	0.44	520853.4	6447729
110	Possible natural feature	Sidescan	Low	4.9	1.21	1.33	523688.3	6445180
111	Possible natural feature	Sidescan	Low	3.81	1.41	0.83	524209	6443120
112	Possible natural feature	Sidescan	Low	3.92	0.98	0.99	521189.6	6443511
113	Possible natural feature	Sidescan	Low	1.36	1.22	0.83	517420.7	6447080
114	Possible natural feature/ scar	Sidescan	Low	15.73	0.58	0	518316.6	6446816
115	Possible natural feature/ boulder field	Sidescan	Low	27.77	19.99	0	509111.3	6437302
116	Possible natural feature	Sidescan	Low	3.5	2.29	0.87	515634.4	6444644

ID	Site Description	Source	Archaeological Potential	Length m	Width m	Height m	UTM30N MetresE	UTM30N MetresN
117	Possible natural feature/object	Sidescan	Medium	10.46	1.69	0.74	509730.2	6439767
118	Possible natural feature	Sidescan	Low	5.64	1.52	0.42	516381.4	6444096
119	Scar/gouge	Sidescan	Low	42.64	1.16	0	513139.7	6444532
120	Possible natural sandy deposit	Sidescan	Low	28.62	21.33	0	512519.3	6443696
123	Possible natural feature	Sidescan	Low	4.23	2	0.87	509726.5	6439180
124	Possible natural feature	Sidescan	Low	8.85	2.22	0.48	508534.8	6437829
125	Possible natural feature	Sidescan	Low	7.19	3.07	0.53	511912.5	6439734
126	Possible natural feature	Sidescan	Low	5.63	2.08	3.22	524355.5	6453035
127	Possible natural feature	Sidescan	Low	5.91	2.15	0.67	523014.3	6451457
128	Possible natural feature	Sidescan	Low	6.56	2.06	1.06	517073.2	6445588
129	Possible natural feature	Sidescan	Low	10.28	2.51	0.9	510999.5	6439708

ID	Site Description	Source	Archaeological Potential	Length m	Width m	Height m	UTM30N MetresE	UTM30N MetresN
130	Possible natural feature	Sidescan	Low	4.77	1.94	1.18	517158	6446209
131	Possible natural feature	Sidescan	Low	8.72	2.26	0.61	518709.7	6447807
132	Possible natural features	Sidescan	Low	3.02	1.31	0.79	509728.4	6439177
133	Possible natural feature	Sidescan	Low	3.46	1.59	1.79	508529.8	6437822
134	Scar/gouge/ mattressing	Sidescan	Low	111.9 3	7.86	0.2	509020.6	6438787
135	Possible natural feature	Sidescan	Low	6.37	1.06	1.57	508869.8	6438707
136	Possible natural feature	Sidescan	Low	3.17	3.52	1.13	511652.5	6441268
137	Possible natural feature	Sidescan	Low	6.14	0.87	1.15	512679.6	6.44E+09
138	Possible natural feature	Sidescan	Low	4.17	0.89	1.11	517644.7	6447234
139	Possible natural feature/ boulder field	Sidescan	Low	11.89	7.08	0.92	524320.5	6454011
140	Possible natural feature	Sidescan	Low	15.51	2.12	0.9	509727.5	6439766

ID	Site Description	Source	Archaeological Potential	Length m	Width m	Height m	UTM30N MetresE	UTM30N MetresN
141	Possible natural features	Sidescan	Low	3.07	1.54	0.83	514442.8	6444767
142	Possible natural feature	Sidescan	Low	2.94	1.78	0.78	512348	6443481
143	Possible natural feature	Sidescan	Low	19.69	15.63	0	511192	6442534
144	Possible natural feature	Sidescan	Low	6.55	2.94	0.64	511295.9	6443103
145	Possible natural feature	Sidescan	Low	4.82	1.38	0.7	517950.3	6450711
146	Possible natural feature	Sidescan	Low	5	5.13	1.05	511239.9	6444032
147	Possible natural feature	Sidescan	Low	10.11	1.27	0	510354.9	6443340
148	Possible natural feature	Sidescan	Low	8.08	2.67	1.19	521776.8	6455037
149	Possible natural feature	Sidescan	Low	14.87	2.68	0.48	522471	6456039
150	Possible natural feature	Sidescan	Low	6.24	1.51	1.94	513400	6447968
151	Possible natural feature	Sidescan	Low	3.46	2.18	1.14	520987.8	6455803

ID	Site Description	Source	Archaeological Potential	Length m	Width m	Height m	UTM30N MetresE	UTM30N MetresN
152	Possible natural feature	Sidescan	Low	11.46	2.31	0.77	519755.3	6455411
153	Possible natural feature	Sidescan	Low	14.74	1.96	0	513907.7	6451139
157	Wreck	Sidescan	High	68.11	17.38	1.14	515050.8	6461979
158	Wreck	Sidescan	High	150.23	34.59	3.96	516485.9	6453673
159	Wreck	Sidescan	High	137.7	49.94	4.28	514759.9	6458894
160	Possible natural feature	Sidescan	Low	18.09	8.51	1.91	513439.8	6451993
161	Possible natural feature	Sidescan	Low	4.27	1.83	1.47	517233.5	6457833
162	Possible natural feature	Sidescan	Low	7.22	3.07	2.03	518989.6	6461190
164	Possible natural feature	Sidescan	Low	142.38	30.53	0	514775.3	6458901
165	Possible natural feature	Sidescan	Low	10.45	4.25	0.14	517504.5	6461324
166	Possible natural feature	Sidescan	Low	6.67	2.28	1.23	511515	6456392
168	Possible natural feature	Sidescan	Low	6.27	2.41	0.66	514741.2	6462269

ID	Site Description	Source	Archaeological Potential	Length m	Width m	Height m	UTM30N MetresE	UTM30N MetresN
169	Possible natural feature	Sidescan	Low	12	1.25	0.84	522307.1	6456971
170	Possible natural feature	Sidescan	Low	6.54	1.03	1.21	522070	6454653
171	Possible natural features	Sidescan	Low	4.91	1.23	0.43	522552.8	6449931
172	Possible natural feature	Sidescan	Low	8.6	4.82	1.15	519788.4	6443994
173	Possible natural feature	Sidescan	Low	6.44	1.44	0.75	519103.7	6443226
174	Possible natural feature	Sidescan	Low	11.07	5.21	1.06	514233.6	6443901
175	Possible natural feature	Sidescan	Low	6.79	1.85	1.59	511243.4	6444031

Telford, Stevenson and MacColl Wind Farms Magnetometer Targets

ID	Site description	Geophys Source	Mag potential	DD Lon	DD Lat	DDM Lon	DDM Lat
9	Carisbrook Wreck	Magnetometer	High	-2.743255	58.298521 6700	-2 44.5953	58 17.9113
10	Unknown Wreck	Magnetometer	High	-2.719388333	58.223925 0000	-2 43.1633	58 13.4355
11	Llanishen Wreck	Magnetometer	High	-2.748253333	58.270970 0000	-2 44.8952	58 16.2582
12	Possible wreck	Magnetometer	Medium				

ID	Site description	Geophys Source	Mag potential	DD Lon	DD Lat	DDM Lon	DDM Lat
15	A mid-size magnetic anomaly. Possibly a piece of debris.	Magnetometer	Low	-2.73695	58.32	-2 44.21702 9	58 19.31312 7
16	A relatively small magnetic anomaly.	Magnetometer	Low	-2.72814	58.31	-2 43.68818 9	58 18.69227 1
17	A single small magnetic anomaly.	Magnetometer	Low	-2.75403	58.30	-2 45.24149 7	58 18.21868 3
18	Three small magnetic anomalies close together.	Magnetometer	Low	-2.69106	58.29	-2 41.46339	58 17.60074 7
19	A single small magnetic anomaly.	Magnetometer	Low	-2.72103	58.27	-2 43.26188 3	58 16.16762 5

ID	Site description	Geophys Source	Mag potential	DD Lon	DD Lat	DDM Lon	DDM Lat
20	A large magnetic anomaly, smaller than most of the known wrecks but far larger than most of the other magnetic anomalies. This is a strong possible candidate for a wreck or other manmade object.	Magnetometer	Medium	-2.71576	58.25	-2 42.94572 1	58 15.09753 9

ID	Site description	Geophys Source	Mag potential	DD Lon	DD Lat	DDM Lon	DDM Lat
21	A large magnetic anomaly, smaller than most of the known wrecks but far larger than most of the other magnetic anomalies. This is a strong possible candidate for a wreck or other manmade object.	Magnetometer	Medium	-2.64042	58.25	-2 38.42510 5	58 15.19737
22	Wellhead remains	Magnetometer	Low	-2.64515	58.18	-2 38.70874 4	58 10.83358 2
23	A single small magnetic anomaly	Magnetometer	Low	-2.78206	58.14	-2 46.92366 2	58 8.486491
24	A single small magnetic anomaly, possibly geological	Magnetometer	Low	-2.7375	58.15	-2 44.25005	58 9.058937

ID	Site description	Geophys Source	Mag potential	DD Lon	DD Lat	DDM Lon	DDM Lat
25	A single small magnetic anomaly at the very edge of the survey. It lies close to the site of an obstruction recorded in the SeaZone dataset but does not appear to be particularly large.	Magnetometer	Low	-2.55995	58.22	-2 33.59695 6	58 13.39280 1
26	A single small magnetic anomaly close to a known wreck. It lies close to the site of an obstruction recorded in the SeaZone dataset but does not appear to be particularly large.	Magnetometer	Low	-2.72567	58.21	-2 43.53998	58 12.86936 4

ID	Site description	Geophys Source	Mag potential	DD Lon	DD Lat	DDM Lon	DDM Lat
27	An area of low-level magnetic anomalies in an area with very few. Probably geological in origin.	Magnetometer	Low	-2.84946	58.08	-2 50.96760 7	58 4.536365

OfTI Sidescan Targets

ID	Site Description	Source	Potential	Length m	Width m	Height m	UTM30N mE	UTM30N mN
1	Possible natural feature	Sidescan	Low	4.5	1.22	0.1	524621.43	6455450.07
2	Possible natural feature	Sidescan	Low	14.8	0.6	0	523525.67	6458177.23
3	Possible natural feature	Sidescan	Low	45.71	3.21	0.02	520684.9	6460139.76
4	Possible natural feature	Sidescan	Low	2.89	2.5	0.1	521670.58	6457628.87
5	Debris	Sidescan	Medium	6.05	0.86	0.33	520204.28	6460925.28
6	Possible natural feature	Sidescan	Low	2.28	0.84	0.6	520314.82	6461046.77
7	Possible natural feature	Sidescan	Low	6.13	1.7	0.12	520467.73	6460645.95
8	Possible natural feature	Sidescan	Low	6.38	0.62	0.09	520904.08	6459853.94
9	Debris	Sidescan	Medium	9.97	3.2	0.38	520680.1	6460835.52
10	Possible natural feature	Sidescan	Low	6.15	0.93	0.2	521333.72	6459277.17
11	Possible natural feature	Sidescan	Low	1.89	0.66	0.95	522704.88	6456805.1

ID	Site Description	Source	Potential	Length m	Width m	Height m	UTM30N mE	UTM30N mN
12	Possible natural feature	Sidescan	Low	10.17	1.58	0.1	521506.58	6459083.66
13	Possible natural feature	Sidescan	Low	7.45	0.87	0.21	521524.16	6459589.35
14	Possible natural feature	Sidescan	Low	4.97	1.03	0.23	520566.89	6461529.8
15	Possible natural feature	Sidescan	Low	4.01	0.47	0.46	522080.89	6458576.58
16	Possible natural feature	Sidescan	Low	4.79	1.93	0.08	522568.44	6457852.09
17	Possible natural feature	Sidescan	Low	4.89	2.5	0.44	522070.34	6458570.46
18	Possible natural feature	Sidescan	Low	41.31	8.17	0.03	521299.17	6460527.5
19	Possible natural feature	Sidescan	Low	2.43	1.78	0.69	521239.91	6460531.55
20	Possible natural feature	Sidescan	Low	5.93	2.74	0.27	522168.92	6459083.8
21	Debris	Sidescan	Medium	14.06	6.04	0.13	524596.08	6453925.37
22	Possible natural feature	Sidescan	Low	12.23	7.97	0.28	524619.87	6454018.87
23	Possible natural feature	Sidescan	Low	5.73	2.48	0.23	522177.91	6459066.79
24	Possible natural feature	Sidescan	Low	8.73	2.71	0.53	522029.33	6459630.25
25	Possible natural feature	Sidescan	Low	3.56	1.95	0.29	522035.01	6459643.96
26	Debris	Sidescan	Medium	9.89	7.8	0.16	524250.76	6454980.82
27	Possible natural feature	Sidescan	Low	9.78	2.12	0.21	523518.11	6457195.24
28	Debris	Sidescan	Medium	6	2.48	1.79	522427.98	6459665.05
29	Debris?	Sidescan	Medium	6.49	2.87	0.4	525408.5	6454631.95

ID	Site Description	Source	Potential	Length m	Width m	Height m	UTM30N mE	UTM30N mN
30	Possible natural feature	Sidescan	Low	5.39	1.25	0.1	523555.27	6458544.22
31	Possible natural feature	Sidescan	Low	65.5	8.5	0.43	520566.29	6459689.26
32	Possible natural feature	Sidescan	Low	6.97	1.09	0.2	520318.92	6460178.77
33	Possible natural feature	Sidescan	Low	7.86	0.23	0.14	519913.53	6461031.02
34	Possible natural feature	Sidescan	Low	2.07	2.14	0.64	520223.79	6460265.44
35	Possible natural feature	Sidescan	Low	5.83	0.64	0.65	519765.16	6460192.29
36	Possible natural feature	Sidescan	Low	4.26	1.15	0.28	525536.31	6450689.22
37	Possible natural feature	Sidescan	Low	12.61	2.48	0.02	525254.26	6453221.12
38	Possible natural feature	Sidescan	Low	5.1	2.65	0.18	525340.36	6447253.81
39	Possible natural feature	Sidescan	Low	9.44	9.33	0.36	547933.11	6423033.28
40	Possible natural feature	Sidescan	Low	2.12	1.87	0.23	545067.09	6425625.77
41	Possible natural feature	Sidescan	Low	45.49	1.45	0.04	546997.06	6423949.38
42	Possible natural feature	Sidescan	Low	18.43	8.88	0.96	548144.3	6422999.46
43	Possible natural feature	Sidescan	Low	5.33	1.95	0.68	544213.61	6426527.25
44	Possible natural feature	Sidescan	Low	1.93	1.78	1.1	544192.2	6426521.11
45	Possible natural feature	Sidescan	Low	21.68	2.12	0.15	547724.46	6423613.05
46	Line/Possible natural feature	Sidescan	Low	30.75	1.37	0.28	548391.89	6423230.3

ID	Site Description	Source	Potential	Length m	Width m	Height m	UTM30N mE	UTM30N mN
47	Possible natural feature	Sidescan	Low	24.87	21.35	0.11	547362.83	6424244.12
48	Possible natural feature	Sidescan	Low	5.06	3.24	0.52	545518.09	6426436.65
49	Possible natural feature	Sidescan	Low	6.21	4.27	0.55	547548.25	6425279.99
50	Possible natural feature	Sidescan	Low	3.07	0.95	0.31	544842.59	6427913.85
51	Possible natural feature	Sidescan	Low	4.98	0.47	0.3	544464.45	6428422.81
52	Wreck SeaZone entry 20226	Sidescan	High	32.6	16.71	1.01	549507.45	6424777.67
53	Wreck debris	Sidescan	Medium	11.05	9.68	0.15	549485.11	6424821.26
54	Possible natural feature	Sidescan	Low	6.04	0.94	0.32	545017.5	6428476.4
55	HA52 debris	Sidescan	High	12.61	3.91	2.09	549509.59	6424797.79
56	Possible natural feature	Sidescan	Low	27.96	14.59	1	548417.18	6422179.3
57	Possible natural feature	Sidescan	Low	3.96	1.15	0.59	550500.87	6421605.78
58	Possible natural feature	Sidescan	Low	12.84	5.71	1.93	551827.1	6420945.85
59	Possible natural feature	Sidescan	Low	18.88	16.34	0.03	551583.59	6421111.92
60	Chain	Sidescan	Medium	178.37	1.91	0.22	550331.72	6422362.07
61	Possible natural feature	Sidescan	Low	5.32	1.25	0.87	551673.5	6421587.4
62	Possible natural feature	Sidescan	Low	52.75	16.48	2.15	549410.73	6422975.15
63	Debris	Sidescan	Medium	10.7	4.94	0.56	549598.7	6423337.09
64	Possible natural feature	Sidescan	Low	17.13	6.58	0.67	551419.26	6422011.1

ID	Site Description	Source	Potential	Length m	Width m	Height m	UTM30N mE	UTM30N mN
65	Wreck same as HA52?	Sidescan	High	34.78	11.37	3.02	549485.85	6424785.76
66	Wreck	Sidescan	High	24.03	7.14	1.69	549509.25	6424838.2
67	Possible natural feature	Sidescan	Low	4.63	0.85	0.32	552249.92	6423788.24
68	Possible natural feature	Sidescan	Low	5.54	0.99	0.39	549081.26	6421910.05
69	Debris	Sidescan	Medium	10.65	4.3	0.31	553189.35	6419773.53
70	Possible natural feature	Sidescan	Low	3.55	3.31	0.52	552560.58	6420169.87
71	Possible natural feature	Sidescan	Low	9.83	2.51	0.43	573309.22	6409900.12
72	Debris	Sidescan	Medium	6.36	1.01	0.74	572036.12	6409225.78
73	Possible natural feature	Sidescan	Low	3.17	1.7	0.86	570913.38	6409195.45
74	Possible natural feature	Sidescan	Low	2.71	0.99	0.78	570928.28	6409197.56
75	Debris	Sidescan	Medium	20.6	1.95	0.55	571150.36	6409377.37
76	Possible natural feature	Sidescan	Low	5.43	1.09	0.37	572925.83	6410434.55
77	Possible natural feature	Sidescan	Low	5.36	2.23	0.47	573379.24	6411227.38
78	Possible natural feature	Sidescan	Low	8.22	3.09	0.15	573244.58	6411394.12
79	Possible natural feature	Sidescan	Low	6.59	3.41	0.67	571836.21	6410945.27
80	Possible natural feature	Sidescan	Low	6.04	1	0.14	571080.39	6410946.96
81	Possible natural feature	Sidescan	Low	35.05	2.16	0.21	573138.11	6411814.22
82	Possible natural feature	Sidescan	Low	13.95	0.48	0.14	568713.97	6410885.57

ID	Site Description	Source	Potential	Length m	Width m	Height m	UTM30N mE	UTM30N mN
83	Possible natural feature	Sidescan	Low	9.24	3.36	0.85	572538.69	6412196.56
84	Debris	Sidescan	Medium	28.45	0.54	0.34	549209.29	6423551.71
85	Debris	Sidescan	Medium	21.53	2.65	0.1	567096.67	6415732.69
86	Possible natural feature	Sidescan	Low	7.95	3.54	0.23	557847.22	6418625.54
87	Debris	Sidescan	High	16.47	4.68	0.26	562914.76	6417183.16
88	Possible natural feature	Sidescan	Low	4.25	2.48	0.84	570315.57	6413865.3
89	Possible natural feature	Sidescan	Low	15.67	13.17	0.15	554710.65	6421529.69
90	Possible natural feature	Sidescan	Low	8.16	1.08	0.18	570127.25	6414141.1
91	Possible natural feature	Sidescan	Low	4.78	2.52	0.92	565987.97	6416284.94
92	Debris	Sidescan	Medium	12.85	4.97	0.36	562500.94	6417272.75
93	Possible natural feature	Sidescan	Low	37.19	1.84	0.38	570030.85	6414468.56
94	Possible natural feature	Sidescan	Low	4.3	1.06	0.36	558499.87	6418458.6
95	Debris same as 92?	Sidescan	Medium	8.78	3.76	0.35	562505.92	6417287.08
96	Possible natural feature	Sidescan	Low	3.97	1.75	0.65	558503.34	6418437.03
97	Possible natural feature	Sidescan	Low	10.65	1.09	0.27	555980.71	6420078.09
98	Possible natural feature	Sidescan	Low	4.45	4.27	0.18	571146.41	6413380.28
99	Possible natural feature	Sidescan	Low	8.57	3.95	0.05	570510.86	6413983.33
100	Possible natural feature	Sidescan	Low	2.84	1.26	0.14	521423.76	6461810.11

ID	Site Description	Source	Potential	Length m	Width m	Height m	UTM30N mE	UTM30N mN
101	Possible natural feature	Sidescan	Low	1.98	1.42	0.17	523533.53	6457434.88
102	Possible natural feature	Sidescan	Low	2.86	1.61	0.23		
103	Possible natural feature	Sidescan	Low	2.56	1.48	0.19	536670.02	6434154.2
104	Possible natural feature	Sidescan	Low	3.14	1.13	0.21	525533.37	6452714.48
105	Possible natural feature	Sidescan	Low	3.68	1.87	0.34	525598.74	6449090.41
106	Possible natural feature	Sidescan	Low	3.96	2.11	0.39	525540.45	6448837.84
107	Possible natural feature	Sidescan	Low	2.24	1.13	0.11	525591.42	6443572.93
108	Possible natural feature	Sidescan	Low	4.73	2.25	0.22	524409.21	6455410.87
109	Possible natural feature	Sidescan	Low	8.02	2.65	0.14	525489.69	6447510.13
110	Possible natural feature	Sidescan	Low	2.53	1.37	0.05	526322.12	6450516.45
111	Possible natural feature	Sidescan	Low	2.82	2.64	0.22	525989.6	6450491.59
112	Possible natural feature	Sidescan	Low	2.78	1.2	1.08	544366.1	6427655.63
113	Possible natural feature	Sidescan	Low	2.13	1.61	0.17	527379.61	6441976.7
114	Debris	Sidescan	Medium	22.18	8.1	2.65	527681.22	6441736.24
115	Possible natural feature	Sidescan	Low	3.87	2.56	1.23	531001.95	6438932.31
116	Wreck	Sidescan	High	21.66	8.09	2.82	527301.22	6442005.93
117	Possible natural feature	Sidescan	Low	4.56	2.34	0.45	541829.03	6429722.79

ID	Site Description	Source	Potential	Length m	Width m	Height m	UTM30N mE	UTM30N mN
118	Possible natural feature	Sidescan	Low	4.96	1.46	0.42	543063.1	6429985.69
119	Possible natural feature	Sidescan	Low	5.77	2.12	0.96	543079.95	6429204.58
120	Possible natural feature	Sidescan	Low	6.82	1.51	0.22	556337.07	6419979.55
121	Possible natural feature	Sidescan	Low	7.36	4.44	0.24	558298.41	6418809.34
122	Debris	Sidescan	Medium	12.26	3.97	0.4	571716.06	6413088.65
123	Possible natural feature	Sidescan	Low	3.2	2.63	0.65	569621.56	6415074.14
124	Possible natural feature	Sidescan	Low	10.42	4.36	0.56	556321.78	6419977.53
125	Debris with scour	Sidescan	Medium	13.43	5.69	0.12	569569.61	6415493.47
126	Possible natural feature	Sidescan	Low	20.97	11.42	0.83	569801.56	6415238.76
127	Possible natural feature	Sidescan	Low	25.11	16.6	0.32	570157.92	6414922.5
128	Possible natural feature	Sidescan	Low	10.1	7.59	0.13	570507.8	6414246.91
129	Buried wreck?	Sidescan	High	6.04	5.76	0.84	570669.48	6414087.14
130	Possible natural feature	Sidescan	Low	8.51	3.42	0.48	571523.31	6413543.83
131	Possible natural feature	Sidescan	Low	6.77	1.99	0.5	569176.25	6416003.63
132	Possible natural feature	Sidescan	Low	7.65	3.99	0.12	570975.88	6414091.37
133	Possible natural feature	Sidescan	Low	6.4	2.16	0.24	558247.32	6419304.34
134	Possible natural feature	Sidescan	Low	4.3	1.96	0.22	570864.15	6412965.06
135	Possible natural feature	Sidescan	Low	45.75	6.03	0.24	568236.97	6414446.97

ID	Site Description	Source	Potential	Length m	Width m	Height m	UTM30N mE	UTM30N mN
136	Debris/chai n/scour	Sidescan	Medium	99.26	7.48	0.72	568530. 38	6413905. 88
137	Wreck	Sidescan	High	63.84	13	0.71	567751. 03	6414518. 83
138	Possible natural feature	Sidescan	Low	5.7	3.89	0.29	559956. 34	6417661. 36
139	Possible natural feature	Sidescan	Low	13.77	9.25	1.7	569794	6414024. 62
140	Possible natural feature	Sidescan	Low	3.8	2.48	0.76	560528. 06	6417444. 53
141	Same as 137?	Sidescan	High	63.81	11.46	2.16	567766. 3	6414546. 9
142	Wreck debris	Sidescan	Medium	3.05	2.84	0.23	567823. 54	6414607. 63
143	Possible natural feature	Sidescan	Low	11.03	0.63	0.49	569773. 2	6412305. 52
144	Possible natural feature	Sidescan	Low	2.84	1.83	0.67	560513. 72	6417421. 85
145	Possible natural feature	Sidescan	Low	7.7	2.85	0.2	567584. 84	6415607. 46
146	Possible natural feature	Sidescan	Low	9.95	8.62	0.19	555576. 83	6419360. 54
147	Possible natural feature	Sidescan	Low	6.54	5.54	0.21	570649. 9	6412722. 61
148	Possible natural feature	Sidescan	Low	10.83	4.27	0.5	570348. 19	6412993. 74
149	Possible natural feature	Sidescan	Low	4.96	2.53	0.29	569402. 82	6414047. 36
150	Debris	Sidescan	Medium	5.69	1.25	0.3	568135. 88	6415298. 18
151	Possible natural feature	Sidescan	Low	6.91	3.59	0.38	543080. 49	6429201. 74
152	Possible natural feature	Sidescan	Low	4.12	0.99	1.2	536402. 96	6435113. 09
153	Possible natural feature	Sidescan	Low	6.8	0.53	0.66	536363. 8	6435328. 48

ID	Site Description	Source	Potential	Length m	Width m	Height m	UTM30N mE	UTM30N mN
154	Possible natural feature	Sidescan	Low	4.82	3.56	0.88	536394.42	6435107.77
155	Possible natural feature	Sidescan	Low	4.29	0.74	0.58	536362.19	6435338.7
156	Possible natural feature	Sidescan	Low	4.28	2.47	0.41	531242.67	6439735.23
157	Possible natural feature	Sidescan	Low	14.57	3.16	0.16	544153.29	6428776.19
158	Debris	Sidescan	Medium	7.48	8.2	0.37	533677.7	6434712.67
159	Possible natural feature	Sidescan	Low	3.56	1.32	0.62	542248.44	6428208.75
160	Buried debris?	Sidescan	Medium	12.35	1.87	0.81	527645.11	6441737.04
161	Possible natural feature	Sidescan	Low	3.06	2.51	0.32	531006.98	6438928.82
162	Possible natural feature	Sidescan	Low	7.82	0.65	0.17	543349.86	6428139.28
163	Possible natural feature	Sidescan	Low	4.26	0.86	0.12	537633.29	6432944.54
164	Debris	Sidescan	Medium	4.65	1.5	0.42	542705.36	6428552.86
165	Possible natural feature	Sidescan	Low	4.4	0.91	0.33	526938.81	6441868.72
166	Possible natural feature	Sidescan	Low	11.7	8.3	0.35	529152.2	6439605.56
167	Possible natural feature	Sidescan	Low	9.58	2.29	0.34	539970.19	6430417.64
168	Wreck	Sidescan	High	12.55	9.93	1.24	529157.23	6439611.87
169	Debris	Sidescan	Medium	15.06	7.62	0.29	529158.31	6439601
170	Possible natural feature	Sidescan	Low	4.17	0.15	0.42	560497.35	6394498.11
171	Possible natural feature	Sidescan	Low	2.23	0.61	0.2	560510.69	6394497.52

ID	Site Description	Source	Potential	Length m	Width m	Height m	UTM30N mE	UTM30N mN
172	Possible natural feature	Sidescan	Low	2.43	3.28	0.28	560527.53	6394511.73
173	Debris	Sidescan	Medium	3.27	1.93	1.33	560572.61	6394565.45
174	Debris	Sidescan	Medium	18.76	1.97	0.19	560606.3	6394582.45
175	Possible natural feature	Sidescan	Low	3.81	0.85	0.33	560589.58	6394536.38
176	Possible natural feature	Sidescan	Low	4.85	2.53	0.22	560604.5	6394497.5
177	Possible natural feature	Sidescan	Low	1.63	2.13	0.5	560407.79	6394396.82
178	Possible natural feature	Sidescan	Low	7.29	4.15	0.25	560403.57	6439438.91
179	Wreck	Sidescan	High	10.21	5.28	1.84	560649.28	6394483.69
180	Debris	Sidescan	Medium	5.87	0.73	0.18	560518.47	6394350.29
181	Debris	Sidescan	Medium	4.36	4.88	0.89	560659.02	6394487.44
182	Chain	Sidescan	Medium	6.34	0.74	0.1	560248.21	6394176.6
183	Possible natural feature	Sidescan	Low	3.98	1.46	0.34	560485.67	6394277.67
184	Possible natural feature		Low	3.93	0.97	0.24	560666.32	6394382
185	Debris	Sidescan	Medium	8.22	0.73	0.5	560748.64	6394451.05
186	Possible natural feature	Sidescan	Low	4.51	1.3	0.29	560662.17	6394308.54
187	Possible natural feature	Sidescan	Low	17.81	9.8	0.15	560534.68	6394207.81
188	Debris	Sidescan	Medium	12.65	10.92	0.02	560575.92	6394204.38
189	Possible natural feature	Sidescan	Low	4.35	2.87	0.7	560559.23	6394096.28
190	Possible natural feature	Sidescan	Low	10.08	7.89	0.18	560863.52	6393991.56

ID	Site Description	Source	Potential	Length m	Width m	Height m	UTM30N mE	UTM30N mN
191	Possible natural feature	Sidescan	Low	10.85	2.27	0.47	560904.33	6393980.18
192	Possible natural feature	Sidescan	Low	7.65	3.17	0.65	539005.31	6432250.51
193	Possible natural feature	Sidescan	Low	9.22	4.62	1.04	561016.08	6394060.7
194	Possible natural feature	Sidescan	Low	6.34	5.83	0	560921.21	6393987.38
195	Possible natural feature	Sidescan	Low	8.3	2.51	0.27	560361.66	6394440.01
196	Possible natural feature	Sidescan	Low	4.49	0.62	0.36	560565.19	6394508.28
197	Possible natural feature	Sidescan	Low	13.93	3.09	0.74	559903.87	6394833.62
198	Chain	Sidescan	Medium	27.56	0.33	0.07	559903.91	6394827.38
199	Possible natural feature	Sidescan	Low	13.27	7.63	0.47	560519.6	6394998.16
200	Chain	Sidescan	Medium	35.8	0.35	0.19	560262.29	6394776.3
201	Possible natural feature	Sidescan	Low	2.61	2.01	0.34	560455.51	6394799.51
202	Debris	Sidescan	Medium	5.08	3.22	0.61	560480.92	6394709.55
203	Possible natural feature	Sidescan	Low	15.32	4.82	0.18	560330.28	6394649.81
204	Possible natural feature	Sidescan	Low	8.7	2.4	0.74	560474.68	6394710.59
205	Possible natural feature	Sidescan	Low	12.52	1.58	0.21	560418.68	6394489.61
206	Possible natural feature	Sidescan	Low	5.14	2.28	0.02	560525.05	6394495.47
207	Possible natural feature	Sidescan	Low	8.58	7.75	0.16	560652.69	6395235.24
208	Possible natural feature	Sidescan	Low	3.22	2.2	0.2	560560.45	6395230.83

ID	Site Description	Source	Potential	Length m	Width m	Height m	UTM30N mE	UTM30N mN
209	Possible natural feature	Sidescan	Low	43.32	0.41	0.08	560796.42	6395179.3
210	Possible natural feature	Sidescan	Low	5.43	1.22	0.17	560708.39	6395226.86
211	Wreck debris	Sidescan	Medium	24.29	2.58	0.54	560642.97	6395082.23
212	Wreck debris	Sidescan	Medium	1.5	1.32	0.2	560639.29	6395080.56
213	Possible natural feature	Sidescan	Low	9.25	2.55	0.53	560624.43	6394899.25
214	Possible natural feature	Sidescan	Low	19.29	1.45	0.22	560640.38	6395072.17
273	Possible natural feature	Sidescan	Low	3.48	0.69	0.55	572404.82	6408426.63
275	Possible natural feature	Sidescan	Low	15.54	1.16	0.11	572435.44	6409147.28
280	Possible natural feature	Sidescan	Low	16.18	5.43	0.04	573047.51	6408247.07
281	Possible natural feature	Sidescan	Low	13.16	4.49	4.51	572991.43	6408547.4
282	Possible natural feature	Sidescan	Low	21.51	17.66	1.26	572883.26	6408078.96
285	Possible natural feature	Sidescan	Low	20.15	12.64	0.32	562176.53	6396238.35
286	Possible natural feature	Sidescan	Low	8.34	2.28	0.57	560984.35	6395319.48
287	Possible natural feature	Sidescan	Low	5.95	1.25	0.44	561010.64	6395484.6
288	Possible natural feature	Sidescan	Low	2.71	0.34	1.42	562263.43	6396130.21
289	Possible natural feature	Sidescan	Low	3.06	1.03	0.38	562345.22	6396279.38
290	Possible natural feature	Sidescan	Low	6.34	1.92	0.31	562477.82	6396230.12

ID	Site Description	Source	Potential	Length m	Width m	Height m	UTM30N mE	UTM30N mN
291	Possible natural feature	Sidescan	Low	8.24	2.67	0.26	562608.98	6396310.11
292	Possible natural feature	Sidescan	Low	5.42	1.74	1.56	562410.4	6395693.67
293	Possible natural feature	Sidescan	Low	14.75	1.32	0.13	563074.98	6396003.05
294	Possible natural feature	Sidescan	Low	8.92	0.5	0.15	562720.6	6395685.71
295	Possible natural feature	Sidescan	Low	16.48	1.85	0.3	562444.13	6395486.77
296	Debris	Sidescan	Medium	16.48	6.8	0.49	562131.18	6395132.74
297	Possible natural feature	Sidescan	Low	12.38	1.7	0.11	562144.38	6395131.93
298	Possible natural feature	Sidescan	Low	4.65	1.01	0.13	562914.11	6395717.99
299	Possible natural feature	Sidescan	Low	3.84	2.07	0.41	571412.97	6415341.58
300	Possible natural feature	Sidescan	Low	9.3	0.88	0.11	571450.25	6415352.73
301	Possible natural feature	Sidescan	Low	15.36	13.75	0.33	572107.4	6414339.65
302	Wreck	Sidescan	High	18.43	5.66	0.49	571143.86	6415234.08
303	Possible natural feature	Sidescan	Low	7.93	0.99	0.48	571771.04	6414675.73
304	Possible natural feature	Sidescan	Low	6.07	3.73	0.04	572514.63	6413891.24
305	Possible natural feature	Sidescan	Low	14.39	1.84	0.13	570276.8	6415783.13
306	Possible natural feature	Sidescan	Low	15.86	6.05	0.54	570603.95	6415386.13
307	Possible natural feature	Sidescan	Low	4.45	1.41	0.29	571874.16	6414054.2

ID	Site Description	Source	Potential	Length m	Width m	Height m	UTM30N mE	UTM30N mN
308	Possible natural feature	Sidescan	Low	2.41	1.55	0.22	571336.38	6414417.94
309	Possible natural feature	Sidescan	Low	22.7	3.06	0.1	570147.24	6415786.2
310	Possible natural feature	Sidescan	Low	13.79	6	0.29	570612.12	6415376.51
311	Possible natural feature	Sidescan	Low	16.91	11.86	3.17	574918.98	6411180.3
312	Possible natural feature	Sidescan	Low	2.14	0.97	0.27	574205.21	6410944.01
313	Possible natural feature	Sidescan	Low	1.36	1.64	0.59	573328.26	6410653.65
314	Possible natural feature	Sidescan	Low	2.83	1.29	0.26	574202.07	6411062.63
315	Possible natural feature	Sidescan	Low	4.89	0.53	0.14	573830.6	6411073.14
316	Possible natural feature	Sidescan	Low	5.6	1.42	0.18	573824.82	6411071.24
317	Debris	Sidescan	Medium	12.2	4.94	0.39	573666.88	6411290.4
318	Possible natural feature	Sidescan	Low	3.27	0.88	0.13	574648.13	6411652.74
319	Possible natural feature	Sidescan	Low	13.12	1.93	0.28	574400.82	6411803.91
320	Possible natural feature	Sidescan	Low	3.09	0.86	0.14	574173.3	6411974.73
321	Possible natural feature	Sidescan	Low	4.86	1.99	0.36	574156.18	6411989.1
322	Possible natural feature	Sidescan	Low	3.75	0.58	0.33	573778.64	6412356.81
323	Possible natural feature	Sidescan	Low	6.13	0.75	0.11	573434.3	6412456.57
324	Possible natural feature	Sidescan	Low	6.04	0.98	0.11	573888.91	6412597.25

ID	Site Description	Source	Potential	Length m	Width m	Height m	UTM30N mE	UTM30N mN
325	Possible natural feature	Sidescan	Low	37.63	25.71	0.8	572679.08	6412487.67
326	Possible natural feature	Sidescan	Low	10.93	4.53	0.23	572869.21	6412762.66
327	Possible natural feature	Sidescan	Low	8.7	7.98	0.09	572837.94	6412925.83
328	Possible natural feature	Sidescan	Low	10.55	1.51	0.5	573240.05	6412858.93
329	Possible natural feature	Sidescan	Low	22.62	18.58	1.63	572505.44	6412826.14
330	Possible natural feature	Sidescan	Low	10.31	4.39	0.56	573560	6409605.29
331	Possible natural feature	Sidescan	Low	7.44	1.55	0.16	573331.23	6408861.82
332	Possible natural feature	Sidescan	Low	4.76	2.71	0.24	573660.19	6409696.96
333	Possible natural feature	Sidescan	Low	11.66	2.62	0.32	574015.4	6409860.12
334	Possible natural feature	Sidescan	Low	5.34	0.68	0.31	574128.23	6409404.86
335	Possible natural feature	Sidescan	Low	6.34	2.48	0	574219.88	6409780.27
337	Possible natural feature	Sidescan	Low	3.91	2.36	0.22	574611	6409596.93
341	Possible natural feature	Sidescan	Low	2.59	1.81	0.43	564934.34	6398982.54
342	Possible natural feature	Sidescan	Low	6.03	0.78	1.28	564663.22	6398367.07
343	Possible natural feature	Sidescan	Low	11.06	4.98	0.33	564637.32	6398642.1
344	Possible natural feature	Sidescan	Low	4.44	0.76	0.2	565939.08	6406160.46
345	Possible natural feature	Sidescan	Low	6.05	1.46	0.24	564781.83	6401418.29

ID	Site Description	Source	Potential	Length m	Width m	Height m	UTM30N mE	UTM30N mN
346	Possible natural feature	Sidescan	Low	8.59	1.51	0.1	564855.17	6402052.72
347	Possible natural feature	Sidescan	Low	4.66	2.06	0.38	568511.13	6406981.44
348	Possible natural feature	Sidescan	Low	4.66	0.94	0.41	569226.15	6407037.61
349	Possible natural feature	Sidescan	Low	5.78	1.13	0.11	570367.25	6407515.93
350	Possible natural feature	Sidescan	Low	6.48	0.68	0.13	567517.8	6405803.99
351	Possible natural feature	Sidescan	Low	13.27	2.22	0.06	567083.31	6405579.77
352	Wreck	Sidescan	High	41.19	6.77	0.69	566636.97	6405082.18
353	Possible natural feature	Sidescan	Low	14.3	2.88	0.27	570446.17	6406624.89
354	Possible natural feature	Sidescan	Low	11	3.94	0.81	568288.55	6405395.26
355	Possible natural feature	Sidescan	Low	3.02	2.86	0.53	568038.32	6405410.18
356	Debris	Sidescan	Medium	12.57	8.58	0.42	566183.17	6403215.91
357	Wreck	Sidescan	High	42.79	11.26	1.34	566202.38	6403193.8
358	Possible natural feature	Sidescan	Low	4.26	1.96	0.2	565473.41	6408813.82
359	Possible natural feature	Sidescan	Low	5.56	2.57	0.62	565313.87	6398402.62
360	Possible natural feature	Sidescan	Low	4.97	1.22	0.11	565598.4	6401230
361	Possible natural feature	Sidescan	Low	3.93	2.92	1.19	565861.56	6401031.38
362	Buried Wreck same as 357?/352?	Sidescan	High	39.37	10.1	1.26	566191.42	6403202.87

ID	Site Description	Source	Potential	Length m	Width m	Height m	UTM30N mE	UTM30N mN
363	Possible natural feature	Sidescan	Low	24.21	10.54	0.92	565871.17	6399919.91
364	Possible natural feature	Sidescan	Low	11.64	0.89	0.56	565894.98	6399953.24
365	Possible natural feature	Sidescan	Low	3.18	0.61	0.15	566827.33	6403644.45
366	Debris	Sidescan	Medium	4.77	1.86	0.55	567013.52	6402338.48
367	Possible natural feature	Sidescan	Low	38.93	8.62	0.67	566655.16	6400378.81
368	Possible natural feature	Sidescan	Low	4.2	1.16	0.17	567014.07	6402335.4
369	Possible natural feature	Sidescan	Low	2.51	1.67	0.04	566825.27	6400406.54
370	Possible natural feature	Sidescan	Low	10.79	0.73	0.33	567658.15	6403745.64
371	Possible natural feature	Sidescan	Low	3.69	0.72	0.33	572054.49	6407921.86
372	Possible natural feature	Sidescan	Low	4.49	0.86	0.1	571879.53	6408426.69
373	Possible natural feature	Sidescan	Low	6.18	2.04	1.08	572063.51	6409695.35
375	Possible natural feature	Sidescan	Low	3.78	1.29	0.91	572043.24	6408728.83
378	Possible natural feature	Sidescan	Low	4.41	1.27	0.12	571248.84	6408500.43
379	Possible natural feature	Sidescan	Low	7.24	3.37	0.12	573358.4	6408476.41
380	Possible natural feature	Sidescan	Low	4.9	2.01	0.61	571113.92	6408808.75
381	Possible natural feature	Sidescan	Low	13.77	5.75	0.3	562531.58	6396208.25
382	Possible natural feature	Sidescan	Low	20.01	14.52	0	562794.58	6392794.58

ID	Site Description	Source	Potential	Length m	Width m	Height m	UTM30N mE	UTM30N mN
383	Possible natural feature	Sidescan	Low	8.95	2.86	1.13	564647.29	6397704.69
384	Possible natural feature	Sidescan	Low	7.72	2.67	0.29	563364.16	6396865.8
385	Possible natural feature	Sidescan	Low	16.49	3.32	0.33	564693.07	6398057.23
386	Debris	Sidescan	Medium	17.87	2.92	0.75	564846.02	6398078.35
387	Possible natural feature	Sidescan	Low	8.66	7.53	0.81	562389.4	6396352.67
388	Possible natural feature	Sidescan	Low	17.7	5.78	0.19	562632.45	6396787.93
389	Possible natural feature	Sidescan	Low	5.89	2.05	1.43	565356.2	6398715.17
390	Possible natural feature	Sidescan	Low	3.83	0.4	0.39	565822.13	6398861.11
391	Possible natural feature	Sidescan	Low	6.85	5.67	0.36	564763.4	6398397.13
392	Possible natural feature	Sidescan	Low	6.01	1.68	0.4	565272.07	6398711.98

APPENDIX 6 – DESIGNATED ASSETS CONSIDERED IN RELATION TO IMPACT UPON SETTING

Listed Buildings

HBNUM	ADDRESS	ENTITY_REF	CATEGORY	LB_DOC	NGR
7935	THE CORR	THE CORR	A	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=7935	320250 935706
7936	DUNBEATH CASTLE, WALLED GARDENS AND GARDEN PAVILION	DUNBEATH CASTLE	A	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=7936	315801 928264
42286	19 - 27 (ODD) BANK ROW (WICK HERITAGE CENTRE)	WICK, 19 - 27 BANK ROW, WICK HERITAGE CENTRE	A	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=42286	336525 950671
44956	HIGH STREET, WICK OLD PARISH CHURCH CHURCHYARD, DUNBAR MEMORIAL	WICK, HIGH STREET, OLD ST FERGUS CHURCH AND GRAVEYARD	A	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=44956	336188 951137
7945	DUNBEATH, PORTOMIN HARBOUR, FISHING STORE AND ICE HOUSE	DUNBEATH, PORTOMIN HARBOUR, FISHING STORE	B	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=7945	316565 929439
7946	FORSE HOUSE HOTEL	FORSE HOUSE	B	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=7946	321277 935343
7954	LYBSTER HARBOUR AT INVERSHORE	LYBSTER HARBOUR, WAREHOUSES	B	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=7954	324395 934872
14064	THRUMSTER HOUSE	THRUMSTER HOUSE	B	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=14064	333150 945270
14066	ULBSTER SINCLAIR MAUSOLEUM AND ST MARTIN'S BURIAL GROUND WITH GATE PIERS	ULBSTER, ST MARTIN'S BURIAL GROUND AND SINCLAIR MAUSOLEUM	B	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=14066	333568 941857
14069	WHALIGOE FORMER CURING YARD AND DWELLING	WHALIGOE, SQUARE OF WHALIGOE, CURING YARD AND HOUSE	B	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=14069	332039 940312

HBNUM	ADDRESS	ENTITY_REF	CATEGORY	LB_DOC	NGR
14070	WHALIGOE STEPS AND QUAY	WHALIGOE STEPS	B	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=14070	332105 940273
14071	WHALIGOE MILL	WHALIGOE, MILL	B	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=14071	332140 940484
14079	HEMPRIGGS HOUSE AND STABLE / CARRIAGE HOUSE	HEMPRIGGS HOUSE	B	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=14079	335488 947234
42267	1 AND 2 ARGYLE SQUARE	WICK, 1 ARGYLE SQUARE	B	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=42267	336640 950408
42268	4, 5 AND 6 ARGYLE SQUARE	WICK, 5 - 6 ARGYLE SQUARE	B	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=42268	336619 950391
42269	11, 12, 13, 14, 15,17,18 ARGYLE SQUARE	WICK, 11 ARGYLE SQUARE	B	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=42269	336583 950410
42270	20 AND 22 ARGYLE SQUARE	WICK, 20 ARGYLE SQUARE	B	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=42270	336525 950439
42272	30, 31, 33 ARGYLE SQUARE	WICK, 32 -33 ARGYLE SQUARE	B	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=42272	336445 950510
42274	35-41 (INCLUSIVE NOS) AND 43, 45, 46, 48 AND 49 ARGYLE SQUARE	WICK, 1 LOWER DUNBAR STREET	B	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=42274	336558 950504
42280	51- 55(INCLUSIVE NOS) AND 57-59 (INCLUSIVE NOS) ARGYLE SQUARE	WICK, 51 ARGYLE SQUARE	B	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=42280	336583 950493
42280	51- 55(INCLUSIVE NOS) AND 57-59 (INCLUSIVE NOS) ARGYLE SQUARE	WICK, 53 ARGYLE SQUARE	B	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=42280	336603 950482
42280	51- 55(INCLUSIVE NOS) AND 57-59 (INCLUSIVE NOS) ARGYLE SQUARE	WICK, 54 ARGYLE SQUARE	B	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=42280	336613 950477
42280	51- 55(INCLUSIVE NOS) AND 57-59 (INCLUSIVE NOS) ARGYLE SQUARE	WICK, 55 ARGYLE SQUARE	B	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=42280	336620 950474

HBNUM	ADDRESS	ENTITY_REF	CATEGORY	LB_DOC	NGR
42280	51- 55(INCLUSIVE NOS) AND 57-59 (INCLUSIVE NOS) ARGYLE SQUARE	WICK, 59 SQUARE	B	http://hsewsf.sedsh.gov.uk/hsive/portal.hsstart?P_HBNUM=4228 0	336647 950461
42280	51- 55(INCLUSIVE NOS) AND 57-59 (INCLUSIVE NOS) ARGYLE SQUARE	WICK, 57 SQUARE	B	http://hsewsf.sedsh.gov.uk/hsive/portal.hsstart?P_HBNUM=4228 0	336629 950473
42280	51- 55(INCLUSIVE NOS) AND 57-59 (INCLUSIVE NOS) ARGYLE SQUARE	WICK, 52 SQUARE	B	http://hsewsf.sedsh.gov.uk/hsive/portal.hsstart?P_HBNUM=4228 0	336591 950488
42280	51- 55(INCLUSIVE NOS) AND 57-59 (INCLUSIVE NOS) ARGYLE SQUARE	WICK, 58 SQUARE	B	http://hsewsf.sedsh.gov.uk/hsive/portal.hsstart?P_HBNUM=4228 0	336636 950471
42283	62 AND 63 ARGYLE SQUARE	WICK, 63 SQUARE	B	http://hsewsf.sedsh.gov.uk/hsive/portal.hsstart?P_HBNUM=4228 3	336655 950449
42283	62 AND 63 ARGYLE SQUARE	WICK, 62 SQUARE	B	http://hsewsf.sedsh.gov.uk/hsive/portal.hsstart?P_HBNUM=4228 3	336654 950453
42284	65 ARGYLE SQUARE AND 1 GRANT STREET	WICK, 65 SQUARE	B	http://hsewsf.sedsh.gov.uk/hsive/portal.hsstart?P_HBNUM=4228 4	336655 950438
42284	65 ARGYLE SQUARE AND 1 GRANT STREET	WICK, 1 GRANT STREET	B	http://hsewsf.sedsh.gov.uk/hsive/portal.hsstart?P_HBNUM=4228 4	336649 950432
42287	1 BREADALBANE CRESCENT INCLUDING REAR GARDEN WALL	WICK, 1 BREADALBANE CRESCENT	B	http://hsewsf.sedsh.gov.uk/hsive/portal.hsstart?P_HBNUM=4228 7	336717 950514
42288	4 AND 6 BREADALBANE CRESCENT INCLUDING BOUNDARY WALL, RAILINGS AND STABLES	WICK, 6 BREADALBANE CRESCENT	B	http://hsewsf.sedsh.gov.uk/hsive/portal.hsstart?P_HBNUM=4228 8	336693 950541
42288	4 AND 6 BREADALBANE CRESCENT INCLUDING BOUNDARY WALL, RAILINGS AND STABLES	WICK, 4 BREADALBANE CRESCENT	B	http://hsewsf.sedsh.gov.uk/hsive/portal.hsstart?P_HBNUM=4228 8	336701 950543

HBNUM	ADDRESS	ENTITY_REF	CATEGORY	LB_DOC	NGR
42288	4 AND 6 BREADALBANE CRESCENT INCLUDING BOUNDARY WALL, RAILINGS AND STABLES	WICK, 6 BREADALBANE CRESCENT, STABLE	B	http://hsewsf.sedsh.gov.uk/hsive/portal.hsstart?P_HBNUM=4228 8	336701 950554
42289	8 AND 9 BREADALBANE CRESCENT INCLUDING BOUNDARY WALL, RAILINGS AND STABLES	WICK, 8 BREADALBANE CRESCENT	B	http://hsewsf.sedsh.gov.uk/hsive/portal.hsstart?P_HBNUM=4228 9	336678 950544
42289	8 AND 9 BREADALBANE CRESCENT INCLUDING BOUNDARY WALL, RAILINGS AND STABLES	WICK, 8 BREADALBANE CRESCENT, STABLE	B	http://hsewsf.sedsh.gov.uk/hsive/portal.hsstart?P_HBNUM=4228 9	336686 950568
42289	8 AND 9 BREADALBANE CRESCENT INCLUDING BOUNDARY WALL, RAILINGS AND STABLES	WICK, 9 BREADALBANE CRESCENT	B	http://hsewsf.sedsh.gov.uk/hsive/portal.hsstart?P_HBNUM=4228 9	336666 950547
42289	8 AND 9 BREADALBANE CRESCENT INCLUDING BOUNDARY WALL, RAILINGS AND STABLES	WICK, 9 BREADALBANE CRESCENT, STABLE	B	http://hsewsf.sedsh.gov.uk/hsive/portal.hsstart?P_HBNUM=4228 9	336681 950571
42290	10, 11, 12 13 BREADALBANE CRESCENT INCLUDING BOUNDARY WALL AND RAILINGS	WICK, 12 BREADALBANE CRESCENT	B	http://hsewsf.sedsh.gov.uk/hsive/portal.hsstart?P_HBNUM=4229 0	336644 950559
42290	10, 11, 12 13 BREADALBANE CRESCENT INCLUDING BOUNDARY WALL AND RAILINGS	WICK, 11 BREADALBANE CRESCENT, STABLE	B	http://hsewsf.sedsh.gov.uk/hsive/portal.hsstart?P_HBNUM=4229 0	336661 950578

HBNUM	ADDRESS	ENTITY_REF	CATEGORY	LB_DOC	NGR
42290	10, 11, 12 13 BREADALBANE CRESCENT INCLUDING BOUNDARY WALL AND RAILINGS	WICK, 13 BREADALBANE CRESCENT	B	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=42290	336640 950561
42290	10, 11, 12 13 BREADALBANE CRESCENT INCLUDING BOUNDARY WALL AND RAILINGS	WICK, 10 BREADALBANE CRESCENT	B	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=42290	336655 950554
42290	10, 11, 12 13 BREADALBANE CRESCENT INCLUDING BOUNDARY WALL AND RAILINGS	WICK, 11 BREADALBANE CRESCENT	B	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=42290	336650 950555
42291	14, 15, 16, 17, 18 BREADALBANE CRESCENT	WICK, 14 BREADALBANE CRESCENT	B	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=42291	336626 950559
42291	14, 15, 16, 17, 18 BREADALBANE CRESCENT	WICK, 17 - 18 BREADALBANE CRESCENT	B	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=42291	336612 950567
42296	48 AND 49 BREADALBANE TERRACE	WICK, 49 BREADALBANE TERRACE	B	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=42296	336475 950596
42296	48 AND 49 BREADALBANE TERRACE	WICK, 48 BREADALBANE TERRACE	B	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=42296	336480 950595
42297	BRIDGE STREET, BRIDGE OVER WICK RIVER	WICK BRIDGE	B	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=42297	336234 950882
42298	BRIDGE STREET, ROYAL BANK OF SCOTLAND	WICK, 1 BRIDGE STREET, ROYAL BANK OF SCOTLAND	B	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=42298	336271 950903
42299	BRIDGE STREET, TOWN HALL	WICK, BRIDGE STREET, TOWN HALL	B	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=42299	336293 950911
42300	BRIDGE STREET, SHERIFF COURT	WICK, BRIDGE STREET, SHERIFF COURT HOUSE	B	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=42300	336308 950923

HBNUM	ADDRESS	ENTITY_REF	CATEGORY	LB_DOC	NGR
42301	BRIDGE STREET. BRIDGE STREET PARISH CHURCH	WICK, BRIDGE STREET, BRIDGE STREET PARISH CHURCH	B	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=42301	336269 950947
42302	BRIDGE STREET, CLYDESDALE BANK	WICK, 28 BRIDGE STREET, CLYDESDALE BANK	B	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=42302	336314 950981
42303	BRIDGE STREET, BANK OF SCOTLAND	WICK, 16 - 18 BRIDGE STREET, BANK OF SCOTLAND	B	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=42303	336285 950954
42304	26 BROADHAVEN (W MCDONALD)	26 BROADHAVEN	B	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=42304	338028 951402
42306	COASTGUARD STATION, OLD LOOKOUT TOWER	WICK, COASTGUARD STATION	B	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=42306	337401 949875
42308	DEMPSTER STREET, WICK CENTRAL CHURCH (CHURCH OF SCOTLAND)	WICK, DEMPSTER STREET, WICK CENTRAL CHURCH	B	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=42308	336436 950456
42309	WICK HARBOUR, SOUTH PIER LIGHTHOUSE AND NORTH PIER LIGHTHOUSE	WICK, LOWER PULTENEYTOWN, HARBOUR, NORTH PIER, LIGHTHOUSE	B	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=42309	336940 950635
42309	WICK HARBOUR, SOUTH PIER LIGHTHOUSE AND NORTH PIER LIGHTHOUSE	WICK, HARBOUR, SOUTH PIER, LIGHTHOUSE	B	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=42309	337110 950586
42310	HARBOUR PLACE, THE ROUND HOUSE	WICK, 1, 2 HARBOUR PLACE, THE ROUNDHOUSE	B	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=42310	336682 950629
42311	HIGH STREET, WICK OLD PARISH CHURCH	WICK, HIGH STREET, WICK OLD PARISH CHURCH	B	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=42311	336153 951162

HBNUM	ADDRESS	ENTITY_REF	CATEGORY	LB_DOC	NGR
42312	HIGH STREET, GRAVEYARD WITH REMAINS OF OLD ST FERGUS CHURCH AND ENCLOSED WALLS	WICK, HIGH STREET, OLD ST FERGUS CHURCH AND GRAVEYARD	B	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=42312	336188 951137
42313	HIGH STREET, WOOLWORTHS	WICK, 82 - 86 HIGH STREET, WOOLWORTHS	B	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=42313	336394 951023
42315	HILLHEAD FARM EAST AND WEST KILNS AND ABUTTING RANGES OF FARM BUILDINGS	HILLHEAD FARM, EAST KILN AND STEADING	B	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=42315	337403 951449
42315	HILLHEAD FARM EAST AND WEST KILNS AND ABUTTING RANGES OF FARM BUILDINGS	HILLHEAD FARM, WEST KILN AND STEADING	B	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=42315	337270 951430
42316	MALCOLM STREET, ST JOACHIM'S ROMAN CATHOLIC CHURCH	WICK, MALCOLM STREET, ST JOACHIM'S ROMAN CATHOLIC CHURCH	B	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=42316	336451 950592
42320	MARKET PLACE, HIGH STREET POST OFFICE	WICK, HIGH STREET, MARKET PLACE, HEAD POST OFFICE	B	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=42320	336420 950959
42321	WICK RAILWAY STATION	WICK, STATION ROAD, WICK RAILWAY STATION	B	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=42321	336070 950889
42323	SHORE LANE, MOUNT HOOLEY AND GATEPIERS	WICK, SHORE LANE, MOUNT HOOLEY	B	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=42323	336540 951062
42324	SINCLAIR TERRACE, PUBLIC LIBRARY	WICK, SINCLAIR TERRACE, CARNEGIE PUBLIC LIBRARY	B	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=42324	336238 950740
42325	SINCLAIR TERRACE, WICK MARTYRS' FREE CHURCH	WICK, SINCLAIR TERRACE, WICK MARTYRS' FREE CHURCH	B	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=42325	336408 950596

HBNUM	ADDRESS	ENTITY_REF	CATEGORY	LB_DOC	NGR
42331	17 SINCLAIR TERRACE	WICK, 17 SINCLAIR TERRACE	B	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=42331	336271 950681
42332	18 SINCLAIR TERRACE	WICK, 18 SINCLAIR TERRACE	B	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=42332	336255 950693
42335	25-31 (ODD NOS) WILLOWBANK ROAD	WICK, 25 WILLOWBANK ROAD	B	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=42335	336655 951152
42335	25-31 (ODD NOS) WILLOWBANK ROAD	WICK, 29 - 31 WILLOWBANK ROAD	B	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=42335	336675 951153
42335	25-31 (ODD NOS) WILLOWBANK ROAD	WICK, 27 WILLOWBANK ROAD	B	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=42335	336663 951153
44582	ULBSTER, BYRE AT IVY COTTAGE	ULBSTER, IVY COTTAGE, BYRE	B	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=44582	331562 939778
44723	MORAY STREET, ST JOHN THE EVANGELIST EPISCOPAL CHURCH WITH BOUNDARY WALLS AND RAILINGS	WICK, MORAY STREET, ST JOHN'S EPISCOPAL CHURCH	B	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=44723	336254 950510
48408	15 AND 16 SINCLAIR TERRACE	WICK, 16 SINCLAIR TERRACE	B	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=48408	336280 950679
48408	15 AND 16 SINCLAIR TERRACE	WICK, 15 SINCLAIR TERRACE	B	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=48408	336286 950673
48411	42 UNION STREET, (NORTH OF SCOTLAND NEWSPAPERS)	WICK, 42 UNION STREET, PRINTING WORKS	B	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=48411	336228 950775
49297	STAXIGOE GRAIN STORE	STAXIGOE, GRANARY	B	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=49297	338466 952431

Scheduled Monuments

SM No.	Name	Link	NGR
429	Broughwhin, cairn and stone row 190m NW of Groat's Loch	http://data.historic-scotland.gov.uk/pls/htmldb/f?p=2300:35:::P35_SELECTED_MONUMENT:00429	331241 940957
433	Cairn Hanach, chambered cairn S side of Warehouse Hill	http://data.historic-scotland.gov.uk/pls/htmldb/f?p=2300:35:::P35_SELECTED_MONUMENT:00433	331004 940849
436	Cairns of Warehouse, cairns at N end of Warehouse Hill	http://data.historic-scotland.gov.uk/pls/htmldb/f?p=2300:35:::P35_SELECTED_MONUMENT:00436	330676 942204
451	Gansclet School, standing stone 275m WNW of Thrumster	http://data.historic-scotland.gov.uk/pls/htmldb/f?p=2300:35:::P35_SELECTED_MONUMENT:00451	333826 944734
455	Barns of Hempriggs, chambered cairn 550m SSE of	http://data.historic-scotland.gov.uk/pls/htmldb/f?p=2300:35:::P35_SELECTED_MONUMENT:00455	336176 946802
466	Mains of Ulbster, chambered cairn 900m NNW of	http://data.historic-scotland.gov.uk/pls/htmldb/f?p=2300:35:::P35_SELECTED_MONUMENT:00466	333224 942937
501	Ulbster School, standing stone, Ulbster	http://data.historic-scotland.gov.uk/pls/htmldb/f?p=2300:35:::P35_SELECTED_MONUMENT:00501	332429 941649
504	Watenan, cairn & stone setting 400m W of, Ulbster	http://data.historic-scotland.gov.uk/pls/htmldb/f?p=2300:35:::P35_SELECTED_MONUMENT:00504	331384 941292
505	Loch of Yarrows, standing stones and cairn 500m ESE of S end of loch	http://data.historic-scotland.gov.uk/pls/htmldb/f?p=2300:35:::P35_SELECTED_MONUMENT:00505	331648 943092
527	Borrowston, broch 260m S of	http://data.historic-scotland.gov.uk/pls/htmldb/f?p=2300:35:::P35_SELECTED_MONUMENT:00527	332882 943534
529	Bruan, broch, Ulbster	http://data.historic-scotland.gov.uk/pls/htmldb/f?p=2300:35:::P35_SELECTED_MONUMENT:00529	331026 939505

SM No.	Name	Link	NGR
532	Cairn of Elsay, broch, Staxigoe	http://data.historic-scotland.gov.uk/pls/htmldb/f?p=2300:35:::P35_SELECTED_MONUMENT:00532	338715 951991
533	Cairn of Humster,broch 200m N of Northfield	http://data.historic-scotland.gov.uk/pls/htmldb/f?p=2300:35:::P35_SELECTED_MONUMENT:00533	335299 948490
548	Garrywhin, fort and settlement, Ulbster	http://data.historic-scotland.gov.uk/pls/htmldb/f?p=2300:35:::P35_SELECTED_MONUMENT:00548	331255 941376
557	Greenhill, broch 60m NE of	http://data.historic-scotland.gov.uk/pls/htmldb/f?p=2300:35:::P35_SELECTED_MONUMENT:00557	329457 937332
570	Bridge of Occumster,broch 320m SSW of	http://data.historic-scotland.gov.uk/pls/htmldb/f?p=2300:35:::P35_SELECTED_MONUMENT:00570	326932 935665
578	The Pap,broch 350m E of Hillhead	http://data.historic-scotland.gov.uk/pls/htmldb/f?p=2300:35:::P35_SELECTED_MONUMENT:00578	337630 951413
589	Thrumster Little,broch,Thrumster	http://data.historic-scotland.gov.uk/pls/htmldb/f?p=2300:35:::P35_SELECTED_MONUMENT:00589	333838 945836
595	Ulbster School,broch 90m S of	http://data.historic-scotland.gov.uk/pls/htmldb/f?p=2300:35:::P35_SELECTED_MONUMENT:00595	332432 941495
599	The Tulloch (Usshilly), broch and field system WNW of Forse House	http://data.historic-scotland.gov.uk/pls/htmldb/f?p=2300:35:::P35_SELECTED_MONUMENT:00599	320758 935527
605	Warehouse,hut circles 800m N of,Ulbster	http://data.historic-scotland.gov.uk/pls/htmldb/f?p=2300:35:::P35_SELECTED_MONUMENT:00605	330400 941839
607	Watenan,fort 100m SSW of,Ulbster	http://data.historic-scotland.gov.uk/pls/htmldb/f?p=2300:35:::P35_SELECTED_MONUMENT:00607	331716 941148
614	Mid Clyth, cross slab 130m E of Greenhill	http://data.historic-scotland.gov.uk/pls/htmldb/f?p=2300:35:::P35_SELECTED_MONUMENT:00614	329558 937245
664	Warehouse, broch and outworks 100m N of, Ulbster	http://data.historic-scotland.gov.uk/pls/htmldb/f?p=2300:35:::P35_SELECTED_MONUMENT:00664	330348 941223
696	Watenan,broch 140m N of,Ulbster	http://data.historic-scotland.gov.uk/pls/htmldb/f?p=2300:35:::P35_SELECTED_MONUMENT:00696	331801 941460
883	Hempriggs House Lodge,broch	http://data.historic-scotland.gov.uk/pls/htmldb/f?p=2300:35:::P35_SELECTED_MONUMENT:00883	335135 947173

SM No.	Name	Link	NGR
2301	Wag of Forse, settlement 800m WSW of Forse House	http://data.historic-scotland.gov.uk/pls/htmldb/f?p=2300:35:::P35_SELECTED_MONUMENT:02301	320485 935200
4255	Broughwhin,hut circle & cists 130m E of	http://data.historic-scotland.gov.uk/pls/htmldb/f?p=2300:35:::P35_SELECTED_MONUMENT:04255	331368 941108
4289	Watenan,fort 165m NW of,Ulbster	http://data.historic-scotland.gov.uk/pls/htmldb/f?p=2300:35:::P35_SELECTED_MONUMENT:04289	331648 941361
4338	Groats Loch,cairn 200m W of,Watenan	http://data.historic-scotland.gov.uk/pls/htmldb/f?p=2300:35:::P35_SELECTED_MONUMENT:04338	331182 940763
5073	Inver,fort,post medieval house and look-out post 570m SE of	http://data.historic-scotland.gov.uk/pls/htmldb/f?p=2300:35:::P35_SELECTED_MONUMENT:05073	317031 929457
5182	Latheronwheel House,promontory fort 1100m SE of	http://data.historic-scotland.gov.uk/pls/htmldb/f?p=2300:35:::P35_SELECTED_MONUMENT:05182	319045 932029
7242	Forse House, settlement, field system, burnt mounds and cairns WSW of	http://data.historic-scotland.gov.uk/pls/htmldb/f?p=2300:35:::P35_SELECTED_MONUMENT:07242	320520 935017
8516	Loch of Yarrows, hut circle 450m SSE of S end of loch	http://data.historic-scotland.gov.uk/pls/htmldb/f?p=2300:35:::P35_SELECTED_MONUMENT:08516	331239 942724
90040	Brechin,Maison Dieu Chapel	http://data.historic-scotland.gov.uk/pls/htmldb/f?p=2300:35:::P35_SELECTED_MONUMENT:90040	359662 760325
90048	Cairn of Get	http://data.historic-scotland.gov.uk/pls/htmldb/f?p=2300:35:::P35_SELECTED_MONUMENT:90048	331327 941124
90065	Wick,Castle of Old Wick	http://data.historic-scotland.gov.uk/pls/htmldb/f?p=2300:35:::P35_SELECTED_MONUMENT:90065	336945 948852
90162	Hill o'Many Stanes,stone rows	http://data.historic-scotland.gov.uk/pls/htmldb/f?p=2300:35:::P35_SELECTED_MONUMENT:90162	329524 938410

APPENDIX 7 – CULTURAL HERITAGE ASSETS WITHIN THE ONSHORE ONTI STUDY AREA

Listed Buildings

HB num	Name	Category	Easting	Northing	Link to Listed Building Record
9411	Longside, 15 Inn Brae, Parish Church With Gateway And Burial Ground	B	403736	847258	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=9411
9416	Longside, 40 Main Street, Marshlands	B	403695	847478	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=9416
9417	Longside, 56 Main Street, Rowanlea	B	403552	847550	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=9417
9419	Longside, Saint John's Church And Chapel Well	B	404003	847183	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=9419
9421	Millbank House	B	404391	849040	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=9421
9422	Bridge Of Rora	B	404192	849292	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=9422
9423	Mill Of Rora	B	404175	849714	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=9423
9588	Fraserburgh, St Medan's Church And Philorth Churchyard	B	400051	865486	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=9588
9589	Bridge Of Philorth	B	401875	864406	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=9589
9591	Kinbog Farm, Dovecot	B	400085	862756	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=9591
9593	Fraserburgh, South Middleburgh, Tollbar	B	398951	865495	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=9593
13888	Boddam Castle	B	413209	841800	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=13888

HB num	Name	Category	Easting	Northing	Link to Listed Building Record
13889	Boddam, 12a Earl's Court	B	413400	842300	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=13889
16080	North Ugie Water, Old Bridge Of Gaval	B	399508	851721	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=16080
16139	Rathen, St Ethernan's Church	B	400115	860961	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=16139
16315	Burnhaven, Low Street, Fisher Houses	B	412617	844100	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=16315
16316	Burnhaven, High Street, Fisher Houses	B	412615	844115	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=16316
16337	Boddam, 5, 7, 9 Rocksley Drive, Masonic Lodge No. 1087	B	413351	842264	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=16337
16346	Boddam, 1 Queen's Road	B	413451	842375	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=16346
16363	Peterhead, Glenugie Distillery, Windmill Tower	B	412356	844196	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=16363
16364	Sandford Lodge	B	412397	843401	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=16364
16366	Boddam, Buchanness Cottage	B	413306	841919	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=16366
16390	Richmondhill, Richmondhill House	B	410572	845453	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=16390
16394	Berryhill	B	409564	846606	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=16394
16396	Wellington	B	410546	844025	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=16396
16546	New Leeds, Church And Manse	B	399568	854435	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=16546
19778	Cortés House	B	399987	859489	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=19778

HB num	Name	Category	Easting	Northing	Link to Listed Building Record
31865	Fraserburgh, Old Parish Church	B	399829	867076	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=31865
31866	Fraserburgh, Old Parish Church, Saltoun Mausoleum	B	399831	867065	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=31866
31868	Fraserburgh, 1, 3 Saltoun Square, Town House	B	399817	867105	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=31868
31868	Fraserburgh, 3 Kirk Brae, Police Station	B	399836	867108	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=31868
31869	Fraserburgh, 14-16 Saltoun Square	B	399782	867137	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=31869
31870	Fraserburgh, Saltoun Square, Saltoun Arms Hotel	B	399767	867113	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=31870
31871	Fraserburgh, 34 Broad Street, Clydesdale Bank	B	399782	866990	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=31871
31872	Fraserburgh, 50, 52, 54 Broad Street	B	399791	866945	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=31872
31874	Fraserburgh, 81, 83 Broad Street, Britannic Assurance Company	B	399827	866846	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=31874
31875	Fraserburgh, 7, 9 Commerce Street	B	399835	866844	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=31875
31876	Fraserburgh, 3, 5 Commerce Street	B	399850	866845	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=31876
31877	Fraserburgh, 10 Commerce Street, Government Offices	B	399834	866822	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=31877

HB num	Name	Category	Easting	Northing	Link to Listed Building Record
31878	Fraserburgh, Seaforth Street, South Parish Church	B	399853	866679	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=31878
31880	Fraserburgh, 11 Dalrymple Street, World's End	B	399857	866788	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=31880
31891	Fraserburgh, 66 Frithside Street, Salvation Army Citadel	B	399834	866870	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=31891
31896	Fraserburgh, 24 Saltoun Place	B	399720	866743	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=31896
31896	Fraserburgh, 30-32 Saltoun Place	B	399723	866715	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=31896
31896	Fraserburgh, 26-28 Saltoun Place	B	399723	866727	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=31896
31901	Fraserburgh, 62, 64, 66, 68 Saltoun Place	B	399752	866447	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=31901
31901	Fraserburgh, 70 Saltoun Place	B	399755	866423	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=31901
31901	Fraserburgh, 60 Saltoun Place	B	399750	866465	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=31901
31902	Fraserburgh, Saltoun Place, War Memorial	B	399730	866353	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=31902
31903	Fraserburgh, Victoria Street, St Peter's School	B	399581	866708	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=31903
31904	Fraserburgh, 39 Victoria Street, St Peter's Rectory	B	399527	866687	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=31904

HB num	Name	Category	Eastings	Northing	Link to Listed Building Record
31905	Fraserburgh, Charlotte Street, St Peter's Episcopal Church	B	399516	866717	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=31905
31906	Fraserburgh, Charlotte Street, Central School	B	399406	866795	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=31906
31908	Fraserburgh, Windmill Stump	B	399389	866876	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=31908
31909	Fraserburgh, 16 College Bounds	B	399377	867184	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=31909
31909	Fraserburgh, 2 College Bounds	B	399455	867180	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=31909
31909	Fraserburgh, 8 College Bounds	B	399418	867184	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=31909
31909	Fraserburgh, 12 College Bounds	B	399401	867183	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=31909
31909	Fraserburgh, 10 College Bounds	B	399409	867180	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=31909
31909	Fraserburgh, 14 College Bounds	B	399386	867184	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=31909
31909	Fraserburgh, 4 College Bounds	B	399442	867181	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=31909
31909	Fraserburgh, 6 College Bounds	B	399430	867183	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=31909
31970	Fraserburgh, Saltoun Place, Fountain	B	399734	866527	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=31970
9260	Kininmonth, Church	C(S)	401014	852632	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=9260
9269	Craigellie, West Gate-Lodge	C(S)	401788	860387	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=9269
9413	Longside, 15 Inn Brae, Parish Church With Gateway And Burial Ground	C(S)	403736	847258	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=9413

HB num	Name	Category	Easting	Northing	Link to Listed Building Record
9414	Longside, 20 Inn Brae, 'Dun-Na-Cluath'	C(S)	403610	847090	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=9414
9415	Longside, 39 Main Street, Bruce Arms Hotel	C(S)	403725	847423	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=9415
9418	Longside, 5 Inverquhomery Road, Viewfield	C(S)	403659	847240	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=9418
9420	Cairgall House, House And Garden Walls	C(S)	404198	847349	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=9420
9590	Fraserburgh, Bridge Over Water Of Philorth	C(S)	400254	862415	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=9590
9592	Kinglasser	C(S)	399618	863487	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=9592
13890	Boddam, 1a Queen's Road, Workshop And Garage	C(S)	413450	842355	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=13890
16081	North Ugie Water, New Bridge Of Gavall	C(S)	399950	851320	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=16081
16121	Mormond House, West Lodge	C(S)	399967	859918	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=16121
16138	Rathen West Parish Church	C(S)	400030	860915	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=16138
16140	Rathen, St Ethernan's Church	C(S)	400115	860961	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=16140
16141	Rathen House	C(S)	400100	860993	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=16141

HB num	Name	Category	Easting	Northing	Link to Listed Building Record
16142	Kirkmill House	C(S)	400152	861018	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=16142
16312	Boddam, 22 Queen's Road	C(S)	413364	842307	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=16312
16313	Boddam, 26 Gordon Street, Brethren Meeting House	C(S)	413265	842344	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=16313
16314	Boddam, Manse Terrace, Parish Church Of Boddam	C(S)	413215	842373	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=16314
16335	Boddam, 22 Earl's Court	C(S)	413351	842241	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=16335
16336	Boddam, 24 Earl's Court	C(S)	413353	842230	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=16336
16338	Boddam, 13 Rocksley Drive	C(S)	413336	842233	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=16338
16338	Boddam, 11 Rocksley Drive	C(S)	413338	842242	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=16338
16339	Boddam, 15 Rocksley Drive	C(S)	413331	842219	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=16339
16340	Boddam, 2 Rocksley Drive	C(S)	413339	842283	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=16340
16341	Boddam, 6 Rocksley Drive	C(S)	413327	842262	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=16341
16345	Boddam, Harbour Street, Three Seats	C(S)	413447	842381	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=16345
16347	Boddam, 3 Queen's Road	C(S)	413442	842364	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=16347
16348	Boddam, 5 Queen's Road	C(S)	413437	842354	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=16348
16349	Boddam, 7 Queen's Road	C(S)	413423	842343	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=16349

HB num	Name	Category	Easting	Northing	Link to Listed Building Record
16350	Boddam, 9 Queen's Road	C(S)	413412	842333	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=16350
16351	Boddam, 11 Queen's Road	C(S)	413394	842309	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=16351
16352	Boddam, 13 Queen's Road	C(S)	413386	842305	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=16352
16353	Boddam, 15 Queen's Road	C(S)	413372	842291	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=16353
16354	Boddam, 17 Queen's Road	C(S)	413363	842284	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=16354
16355	Boddam, 2 Queen's Road	C(S)	413427	842371	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=16355
16356	Boddam, 6 Queen's Road	C(S)	413415	842355	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=16356
16357	Boddam, 8 Queen's Road	C(S)	413406	842346	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=16357
16358	Boddam, 10, 12 Queen's Road	C(S)	413400	842339	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=16358
16359	Boddam, 16 Queen's Road	C(S)	413379	842323	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=16359
16360	Boddam, 18, 20 Queen's Road	C(S)	413371	842311	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=16360
16361	Whitehill House, Lodge	C(S)	411307	844542	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=16361
16365	Sandford Lodge, Walled Garden	C(S)	412353	843457	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=16365
16370	Boddam, Harbour Street And Bridge Street, Retaining Wall	C(S)	413471	842330	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=16370
16371	Boddam, 1 Bridge Street	C(S)	413408	842328	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=16371
16372	Boddam, 3 Bridge Street	C(S)	413426	842322	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=16372

HB num	Name	Category	Easting	Northing	Link to Listed Building Record
16373	Boddam, 5 Bridge Street	C(S)	413440	842322	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=16373
16374	Boddam, 7 Bridge Street	C(S)	413439	842330	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=16374
16375	Boddam, 9 Bridge Street	C(S)	413453	842337	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=16375
16376	Boddam, 11 Bridge Street	C(S)	413451	842343	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=16376
16377	Boddam, 1 Earl's Court	C(S)	413387	842301	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=16377
16378	Boddam, 5 Earl's Court	C(S)	413410	842305	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=16378
16379	Boddam, Outbuildings Between 7 And 9 Earl's Court	C(S)	413441	842291	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=16379
16380	Boddam, 7 Earl's Court	C(S)	413452	842295	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=16380
16381	Boddam, 2 Bridge Street, Bridgend	C(S)	413455	842304	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=16381
16382	Boddam, 11 Earl's Court	C(S)	413421	842265	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=16382
16383	Boddam, 2 Earl's Court	C(S)	413379	842293	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=16383
16383	Boddam, 4 Earl's Court	C(S)	413388	842284	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=16383
16384	Boddam, 8, 10 Earl's Court	C(S)	413376	842270	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=16384
16385	Boddam, 14 Earl's Court	C(S)	413361	842259	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=16385
16386	Boddam, 16 Earl's Court	C(S)	413365	842251	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=16386
16387	Boddam, 18 Earl's Court	C(S)	413345	842257	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=16387

HB num	Name	Category	Easting	Northing	Link to Listed Building Record
16389	Howe O'buchan	C(S)	410579	846426	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=16389
16391	Cocklaw Mains	C(S)	410124	845284	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=16391
18960	Richmond Farm, Farmhouse	C(S)	410734	845833	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=18960
19794	Boddam, 1 Rocksley Drive	C(S)	413365	842276	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=19794
19795	Boddam, 4 Rocksley Drive	C(S)	413335	842270	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=19795
19796	Boddam, 4 Queen's Road	C(S)	413423	842362	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=19796
19797	Boddam, 14 Queen's Road	C(S)	413385	842325	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=19797
19798	Boddam, 3 Earl's Court	C(S)	413400	842291	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=19798
31879	Fraserburgh, Harbour Works Office At Middle Jetty	C(S)	399875	866960	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=31879
31881	Fraserburgh, 13, 15 Dalrymple Street, Dalrymple Hall	C(S)	399860	866765	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=31881
31882	Fraserburgh, 3 Duke Lane	C(S)	399857	867257	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=31882
31883	Fraserburgh, 3 And 1/2 Duke Lane	C(S)	399849	867257	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=31883
31884	Fraserburgh, 5 Duke Lane	C(S)	399842	867255	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=31884
31885	Fraserburgh, 7 Duke Lane	C(S)	399855	867270	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=31885
31886	Fraserburgh, 9 Duke Lane	C(S)	399846	867269	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=31886

HB num	Name	Category	Eastings	Northing	Link to Listed Building Record
31887	Fraserburgh, 2 Duke Lane	C(S)	399871	867251	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=31887
31890	Fraserburgh, 89 High Street	C(S)	399525	867140	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=31890
31892	Fraserburgh, 62 Frithside Street	C(S)	399644	866875	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=31892
31893	Fraserburgh, 41 Commerce Street	C(S)	399706	866835	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=31893
31894	Fraserburgh, 1, 3 Lodge Walk	C(S)	399582	866845	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=31894
31895	Fraserburgh, 7 Saltoun Place, Craigielea	C(S)	399659	866777	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=31895
31897	Fraserburgh, 21-23 Saltoun Place	C(S)	399691	866745	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=31897
31898	Fraserburgh, 25 Saltoun Place	C(S)	399695	866730	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=31898
31899	Fraserburgh, 27 Saltoun Place	C(S)	399695	866718	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=31899
31899	Fraserburgh, 29 Saltoun Place	C(S)	399694	866711	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=31899
31900	Fraserburgh, 35 Saltoun Place	C(S)	399694	866693	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=31900
31900	Fraserburgh, 31-33 Saltoun Place	C(S)	399693	866704	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=31900
31907	Fraserburgh, 113 Charlotte Street	C(S)	399444	866765	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=31907
31910	Fraserburgh, 13 Main Street	C(S)	399273	867244	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=31910
31929	Fraserburgh, 6 Main Street	C(S)	399322	867243	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=31929
31930	Fraserburgh, 10 Main Street	C(S)	399302	867254	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=31930

HB num	Name	Category	Easting	Northing	Link to Listed Building Record
31930	Fraserburgh, 8 Main Street	C(S)	399311	867249	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=31930
31931	Fraserburgh, 12 Main Street	C(S)	399292	867261	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=31931
31964	Fraserburgh, 4-1/2 George Street	C(S)	399265	867207	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=31964
31964	Fraserburgh, 4 George Street	C(S)	399265	867201	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=31964
31966	Fraserburgh, 3 Noble Street	C(S)	399327	867225	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=31966
31967	Fraserburgh, 5 Noble Street	C(S)	399318	867227	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=31967
31968	Fraserburgh, 16, 18, 20 Noble Street	C(S)	399300	867202	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=31968
31968	Fraserburgh, 12, 14 Noble Street	C(S)	399316	867204	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=31968
31968	Fraserburgh, 3, 5 Broadsea Road	C(S)	399356	867201	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=31968
31968	Fraserburgh, 4, 6 Noble Street	C(S)	399344	867202	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=31968
31968	Fraserburgh, 8, 10 Noble Street	C(S)	399331	867204	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=31968
31968	Fraserburgh, 26, 28 Noble Street	C(S)	399275	867207	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=31968
31968	Fraserburgh, 22, 24 Noble Street	C(S)	399288	867206	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=31968
31969	Fraserburgh, 3, 5 Broadsea Road	C(S)	399356	867201	http://hsewsf.sedsh.gov.uk/hslive/portal.hsstart?P_HBNUM=31969

Conservations Area

Name	Eastings	Northing
Boddam (Article 4 - Bus Shelters)	413482	842312

Non-designated sites

SMR reference num	Name	Description	Site form	NGR
NJ95SE0052	New Leeds War Memorial	War Memorial; the New Leeds war memorial stands in the village towards its southern end. It commemorates the dead of both World War I & II.	Standing Structure	399582, 854513
NJ96NE0007	Fraserburgh Market Cross	Market cross, erected in the early 17th Century. In 1858 only the shaft remained and that had been moved from the E side of the square, where it once stood on the hexagonal basement, to the centre of the square.	Standing Structure	399792, 867096
NJ96NE0009	Old Parish Church	Old Parish Church; the present church occupies the site of the old 16thC church which was built in 1571 & repaired in 1698. The present church was built in 1803 and has interior remodelled in 1898.	Standing Structure	399827, 867077
NJ96NE0011	Fraserburgh Station	Remains of station; opened in 1865 by the Formartine & Buchan railway and subsequently rebuilt. A three platform terminus, with awnings over the platform. The street frontage is a single-story, of granite ashlar with two crow-stepped gables.	Standing Structure	399877, 866626
NJ96NE0015	Ice Factory	Ice factory; built 1899; a 1 & 2 storey rubble building. An early example of the provision of artificial ice for fishing boats.	Standing Structure	399906, 867198
NJ96NE0016	South Middleburgh	Tollhouse; early 19thC; a single storey, pinned rubble building with semi-octagonal end; stands on the SE side of the A981 public road, on the southern outskirts of Fraserburgh.	Standing Structure	398952, 865495
NJ96NE0021	Kessock Road	Railway Bridge; over a public road; originally built 1864, then 1902 reconstruction. Steel trussing on plate girders, troughing filled with balast. Steel parapets with masonry abutment and wing walls. Removed due to height restriction in 1983.	Standing Structure	399986, 865993

SMR reference num	Name	Description	Site form	NGR
NJ96NE0022	Links Road	Bridge; public road overline; built 1864, bridge had cast-iron work, abutment and girder as parapet; altered 1898; bridge now main plate girders with concrete filled steel troughing.	Standing Structure	399973, 866368
NJ96NE0024	Fraserburgh Town House	Town House; a 19th century Town House built in the Renaissance style. It is 2-storey, ashlar, with an arched ground floor and curved corner with Doric columns.	Standing Structure	399821, 867108
NJ96NE0026	Wordies Close, Fraserburgh	Site of houses; although these houses no longer survive, an illustration shows that they were two parallel ranges on either side of an enclosed courtyard; their gables being on the street frontage.	Documentary Record Only	399700, 867000
NJ96NE0031	Cairn Hill	A small hill feature. No trace of any antiquity.	Earthwork	398924, 865222
NJ96NE0034	Fish House Smoking	Fish smoking house; has three marine type ventilators.	Standing Structure	399914, 867264
NJ96NE0035	Fish House Smoking	Fish smoking house; late 19thC to early 20thC; a 2-storey 2-bay rubble building, with a tall slate-roofed smoking house with 4 marine-type ventilators, and a more conventional 13-bay kiln with associated processing houses.	Standing Structure	399910, 867233
NJ96NE0036	The World's End	Remains of townhouse; c18thC; 2-storey & basement, 3-window squared heathen stone with freestone dressings; quoins, shaped wallhead gable with arched window and ball finials; stairs to pedimented doorpiece obscured by wooden porch.	Standing Structure	399857, 866790
NJ96NE0041	Fraserburgh War Memorial	The Fraserburgh war memorial stands at the junction of Saltoun Road and South Road. It commemorates the dead of both World War I and II.	Standing Structure	399730, 866354
NJ96NE0044	Fraserburgh Lifeboat Station	R.N.L.I. Lifeboat station. On the 26 October 1858 the RNLi established the station, its first in Scotland, and a boathouse was built.	Standing Structure	399930, 867098
NJ96NE0059	Saltoun Arms Hotel, Fraserburgh	Hotel, built in 1801 designed by Alexander Morrice. A substantial and well-built classical hotel of 3-storeys, built in heathen rubble with granite dressings and a slim Greek doric column porch; a Victorian mansard roof was added later.	Standing Structure	399757, 867118
NJ96SE0003	College, Broomhead	Site of college; stood on the croft of the same name; was traceable in the early part of the 19thC, but has been subsequently ploughed out. A Simpson recalls the remains of two chapels (see also OS NJ96SE014).	Documentary Record Only	398618, 864122
NJ96SE0023	College Well	Site of well; a fine spring well situated close to the site of the college (OS NJ96SE005) and on the edge of the College Burn. No further information.	Documentary Record Only	398683, 864129

SMR reference num	Name	Description	Site form	NGR
NJ96SE0050	Lochhead Kinglasser	Site of a now destroyed farmstead which is depicted on the 1867 1st edition OS map. The farm comprised of an L-shaped range of buildings with a small rectangular building, and a rectangular enclosure to the east.	Documentary Record Only	399248, 863212
NJ96SE0051	West Kinglasser	Site of a ruined farmstead which is depicted on the 1867 1st edition OS map. The farm comprises of a large U - shaped range of buildings, with a small rectangular building to the SE. By the time of the 2nd edition only one building remained.	Documentary Record Only	399012, 863497
NJ96SE0060	Philorth	Site of an icehouse; depicted at this location on the OS maps of 1867 & 1888. It is unknown if anything survives as it is not depicted on present maps.	Documentary Record Only	399695, 863664
NJ96SE0067	Dicken's Well	Site of a well depicted on the 1867 1st edition, and 1888 2nd edition, OS maps, named Diker's Well on the 1st edition sheet. It is not shown on current OS maps.	Documentary Record Only	399979, 861061
NJ96SE0070	Kinglassie Croft	Site of small rectangular building, possibly a croft, depicted on the 2nd edition OS map of 1888. Now no trace.	Documentary Record Only	399376, 862544
NJ96SE0071	Kinbog	Farmstead; depicted on the 1st edition OS map of 1867 as an L-plan steading with rectangular building to the S.	Standing Structure	399843, 862143
NJ96SE0073	Kinbog	Cropmarks; two possible pits have been identified while checking aerial photographs, situated on a gentle S-facing slope in agricultural ground at an altitude of about 15m OD.		0, 0
NJ96SE0074	Kinbog	Cropmarks; an area of indeterminate cropmarks, including three solid blobs which may represent pits and a large solid circular mark which may be a hut stance. Identified whilst checking aerial photographs.	Crop Mark (Includes Soil Mark)	399994, 862552
NJ96SE0075	Kinbog	Cropmark; circular feature, possibly a mound, identified whilst checking aerial photographs.	Crop Mark (Includes Soil Mark)	399977, 862229
NJ96SE0076	Fordafourie	A 10% evaluation was carried out at this site in 2003 by MAS in advance of a propose sand quarry. In total, 24 trenches were excavated varying in length from 10 - 100m long. A small number of finds of flint and prehistoric pottery were recovered.	Documentary Record Only	399497, 861580
NK04NE0007	South Ugie	Railway bridge, over burn and cattle creep, with original coped wing walls; super structure renewed. 38.75 miles from Aberdeen, No. 724.	Standing Structure	405099, 848051
NK04NE0008	South Ugie	Railway bridge, over the South Ugie Water. Originally 3 x 31ft span, in 1861, then reconstructed with widened span of 3 x 37.6ft. 39 miles from Aberdeen, No. 725.	Standing Structure	405233, 848108

SMR reference num	Name	Description	Site form	NGR
NK04NE0018	Cairngall Quarry	Remains of quarry, depicted on the 1st and 2nd edition OS maps. The granite for the Bell Rock lighthouse was extracted from this quarry. Now disused and has become a shooting range.	Standing Structure	405283, 847073
NK04NE0020	Faichfield	Site of manor house, now demolished. No further information. A later house built c.1700 stands on, or near, the site of the earlier house which has a moulded doorpiece with a coat-of-arms over it.	Documentary Record Only	406492, 846646
NK04NE0023	Faichfield	Remains of dovecot dating to late 18th Century. Rectangular lean-to, rubble-built and brick-lined with brick gables above a moulded rat-course. Now roofless, with no boxes.	Standing Structure	406579, 846549
NK04NE0027	Longside Airfield	Remains of a World War II airfield, in use by July 1941 although construction had not been finished by this date. It was attacked by a single Ju88 on November 30, 1941.	Standing Structure	407929, 847160
NK04NE0035	Denholm	Linear ditched feature running NE/SW. It contained four fills, the uppermost containing modern artifacts. It is probably the remains of a field boundary. Found in 1998 during watching brief of St Fergus gas pipeline by CFA.	Earthwork	407971, 845443
NK04NE0042	East Thunderton	A crop mark of a possible rectangular enclosure is visible on a vertical aerial photograph. It is not clear enough to say if it is related to the airfield or of an earlier date.	Crop Mark (Includes Soil Mark)	407901, 846399
NK04NE0043	Denholm	Farmstead and enclosure, still in use. The 1867 OS 1st edition map shows a U-shaped steading open to the west and with an attached horsemill at its northeast corner. Another long range stands immediately to the west of the court.	Standing Structure	408133, 845533
NK04NE0052	Brownhill	Rectangular building, still in use, depicted on the 1st and 2nd edition OS maps.	Standing Structure	407476, 845317
NK04NE0053	Monyrui	Site of a now destroyed rectangular building depicted on the 1st and 2nd edition OS maps.	Documentary Record Only	405553, 847438
NK04NE0054	Thunderton	Remains of the hospital block for Longside Airfield lie to the south of the main airfield area. It is brick-built with roof and walls still standing though in a very dilapidated state.	Standing Structure	407861, 846267
NK04NE0057	Cairngall	Site of a now destroyed croft that is depicted on the 1867 1st edition OS map but not on the 1888 2nd edition OS map. It shows two rectangular buildings and a possible L-shaped building.	Documentary Record Only	405128, 847371

SMR reference num	Name	Description	Site form	NGR
NK04NE0058	Cairngall	Site of a now destroyed croft that is depicted on the 1867 1st edition OS map but not on the 1888 2nd edition. The map shows two rectangular buildings.	Documentary Record Only	405030, 847208
NK04NE0059	Cairngall	Site of a now destroyed farmstead that is depicted on the 1867 1st edition OS map but not on the 1888 2nd edition. The map shows a long and a short rectangular building at right angles to each other.	Documentary Record Only	405146, 847061
NK04NE0063	Brownhill	Croft still in use. It is shown on the 1st edition OS map as two small rectangular buildings, the southern with an attached partially wooded garden. By the 2nd edition map the two buildings have been modified into a compact C-shaped building with...	Standing Structure	407578, 845517
NK04NE0064	Brownhill	Site of a now destroyed building, probably a cottage, which is shown only on the 1st edition OS map. It is depicted as a small rectangular building with an attached, partially wooded, garden.	Documentary Record Only	407602, 845534
NK04NE0065	Brownhill	Cottage still in use which is shown on the 2nd edition OS map. The 2005 map shows it has an extension, probably a porch, to the south.	Standing Structure	407576, 845635
NK04NE0066	Brownhill	Site of a now destroyed building, probably a croft, which is shown only on the 1st edition OS map. It is depicted as a long rectangular building.	Documentary Record Only	407574, 845667
NK04NE0067	West Thunderton	Site of a possible quarry which is shown only on the 1st edition OS map.	Documentary Record Only	407790, 845862
NK04NE0068	Stockbridge	Site of a now destroyed building, probably a cottage, which is shown on both the 1st and 2nd edition OS maps. It is depicted with a garden on the 1st edition map.	Documentary Record Only	407374, 845678
NK04NE0069	Stockbridge	Farmstead still in use. On the 1st edition OS map it is shown as a U-shaped building with narrow court facing south and another building. A garden lies to the west of the U-shaped building.	Standing Structure	407259, 845676
NK04NE0070	Burn Of Faichfield	Croft still in use. It is shown on both the 1st and 2nd edition OS maps as an L-shaped building and a rectangular building. The 2005 map shows that parts of these structures are surviving in use.	Standing Structure	407000, 845586
NK04NE0071	Longside Airfield	Memorial Cairn, of granite, erected in 2003 to commemorate the men and women who served at Longside Airfield (RAF Peterhead) from 1941-5. The cairn is located at the south-west of the runway and is opposite the site of the now demolished control ...	Standing Structure	406994, 846556

SMR reference num	Name	Description	Site form	NGR
NK04NW0008	Auchlee	An enclosure is visible as a cropmark in a cereal crop. It is round ended with an entrance in the south-east.	Crop (Includes Mark)	403945, 848816
NK04NW0018	Bridge End	Railway bridge, with wing walls, over a road. 38 miles from Aberdeen, No.719.	Standing Structure	403682, 847939
NK04NW0019	Longside Road	Bridge, carrying public road over now disused railway. Bridge has segmental brick arch, 4 rings, masonry parapet, abutment and wing walls. 38 miles from Aberdeen, No.720.	Standing Structure	403760, 847932
NK04NW0020	Auchlee	Railway bridge over cattle creep; coped but with no parapets. 38.25 miles from Aberdeen, No.722.	Standing Structure	404236, 847938
NK04NW0021	Strawberry Bank	Bridge carrying farm road over railway line. The original had a steel parapet and coped wing walls, but was reconstructed 1937 in concrete. 38.50 miles from Aberdeen, No.723.	Standing Structure	404608, 847939
NK04NW0023	Cairngall House	Mansion house and site of manor. The house dates from the 18th Century with large 19th Century reconstruction, and lies on or near the site of the "manner of Cairngall" which in 1721 belonged to Alexander Arbutnott.	Standing Structure	404199, 847351
NK04NW0028	Bridge Of Rora	Bridge over the North Ugie Water. The SE part dates from at least the early 18th Century.	Standing Structure	404194, 849292
NK04NW0031	Auchlee	Linear and curvilinear cropmarks have been recorded in this area.		0, 0
NK04NW0032	Ardlaw Hill	A well-preserved area of rig & furrow survives on the west side of Ardlaw Hill. A number of different plots are visible on vertical aerial photographs. The area was still under woodland in 1888 and thus escaped damaged from agricultural ploughing.	Earthwork	402805, 848987
NK04NW0033	Woodside	An area of reasonably well-preserved rig & furrow lie on the east side of Ardlaw Hill. The area was still covered in woodland in 1888 giving it protection from damage by agricultural ploughing. There are some modern drainage ditches cut through t...	Earthwork	403558, 848795
NK04NW0035	Ardlaw Hill	Remains of possible cairn. Within an area of rig & furrow, five contiguous stones have been recorded which form the SE quadrant, or perimeter, of a possible robbed kerb cairn.	Standing Structure	403040, 848830
NK04NW0036	Ardlaw Hill	Remains of a possible cairn lie near the edge of an area of rig & furrow on Ardlaw Hill		0, 0

SMR reference num	Name	Description	Site form	NGR
NK04NW0037	Millbank	Site of enclosure with drystone wall, depicted on the 2nd edition OS map.	Standing Structure	404360, 848962
NK04NW0038	Millbank	Site of three buildings, depicted on the 1st and 2nd edition OS maps. Not clear if any upstanding remains survive.	Documentary Record Only	404658, 848822
NK04NW0039	Knaps Of Auchlee	Small farmstead. May now be restored. The OS 1st edition map shows an L-plan building with a small rectangular building to the northeast. To the southeast, on the other side of a track is another rectangular building and small garden enclosure.	Standing Structure	403705, 849549
NK04NW0040	Bridge Of Rora	Mill Croft is depicted on the OS map of 1867 as U-shaped with open court to the south. A rectangular enclosure is adjoined to the western side, with a possible building in its NW corner. By 1888 it appears L-shaped with the court built over.	Standing Structure	404349, 849374
NK04NW0045	Ardlaw	Two small buildings are depicted at this location on the OS map of 1867 and 1888. Nothing is depicted at this location on present maps thus it is not known if anything survives.	Documentary Record Only	402730, 849408
NK04NW0048	Hillhead	Site of a now destroyed croft that is depicted on the 1867 1st edition OS map but not on the 1888 2nd edition. The map shows a long rectangular building with a long attached rectangular garden.	Documentary Record Only	404939, 846993
NK04NW0081	Loch Of Auchlee	Cropmark of what appears to be a roughly circular enclosure visible on recent aerial photography. However, a 1974 AP shows this area to be part of an extensive quarry, now infilled.	Crop Mark (Includes Soil Mark)	404703, 848574
NK04NW0084	Mill Of Rora	Mill of Rora; depicted on the OS map of 1867 as a corn mill with a lade leading from the North Ugie Water to feed it. To the NE of the mill is the millhouse and six other buildings, two of which almost form a rectangular court behind the house.	Standing Structure	404011, 849733
NK04NW0087	Knapps Of Auchlee, Rora	A watching brief was undertaken by AOC in February and April 2008 on this site, but no finds or features of archaeological significance were uncovered.	Documentary Record Only	403996, 849536
NK04SE0074	East Den	The remains of at least two possible hut platforms were found on the eastern side of East Den during a survey of the proposed gas pipeline from St Fergus to Peterhead carried out by CFA in 1997.	Earthwork	408112, 844848
NK04SE0111	Westerton Auchtygall	Farmstead still in use. On the 1st edition OS map it is shown as consisting of three buildings, the two to the south of the road are L-shaped and form a central courtyard open at the east and south-west.	Standing Structure	409442, 844009
NK05NW0006	Lonmay Station	Lonmay Railway Station. A single platform through station, with a single-storey rubble building of typical NE design. Now disused.	Standing Structure	401401, 858750

SMR reference num	Name	Description	Site form	NGR
NK05NW0008	Cortes	Railway bridge, underline public road. The original bridge, dated 1864, had coped wing walls and was made of cast-iron. It was reconstructed in 1927 with steel troughing on plate girders and parapet steel railings.	Standing Structure	400855, 858232
NK05NW0009	Cortes	Railway bridge, underline public road. The original bridge, dated 1864, was constructed of masonry with coped wing walls and abutment and cast-iron parapet. In 1891, steel work and a new siding were introduced. A new rail parapet and recent work.	Standing Structure	401505, 858953
NK05NW0010	Cortes	Railway bridge, underline farm road and burn. The original had coped wing walls and a cast-iron parapet. It was renewed in 1927 under the "nine bridge scheme" with steel work. 42 miles from Aberdeen, bridge No.844.	Standing Structure	401635, 859230
NK05NW0012	Knowsie	Site of manor and house, known variously as Knowsie, Blairmormond, and Blairmormunth House. Demolished in c.1950. Photographs show this house to have been a plain one and a half storey harled structure, which had been greatly extended in the 19th Century.	Documentary Record Only	401714, 858402
NK05NW0014	Mains Of Park	Site of Barony, variously known as Park, Parkreichmond, Park de Crechmond, and Park of Creichmond. Although the lands of Park were, on occasion, amongst those included within the barony of Crimond.	Documentary Record Only	400501, 856729
NK05NW0015	Cortie Brae	Stone, prominently situated on top of a hill. The stone is set on top of a turf-covered mound, c.1m high. There is no evidence for an antiquity at this spot. The stone is evidently a natural boulder. Alleged site of a stone circle.	Standing Structure	401017, 859232
NK05NW0018	Belfatton	Farmstead still in use. The OS 1st edition 1867 map shows a T-plan building with a small square enclosure to the south. Only the south part of this building remains on the 2nd edition 1888 map, with an attached enclosure on its south side.	Standing Structure	401421, 855706
NK05NW0019	Belfatton	Farmstead still in use. The OS 1st edition 1867 map shows an L-plan and rectangular building arranged in a U-plan enclosing a court open to the south. Another possible building stands to the south. The layout is essentially unchanged on the OS 2 nd Edition.	Standing Structure	401415, 855315
NK05NW0020	Belfatton	Site of a small farmstead. The OS 1st edition 1867 map shows a T-plan building with a well to the north.	Documentary Record Only	401202, 855466
NK05NW0021	Belfatton	Site of a small building, depicted on the 1st and 2nd edition OS maps. Now no trace.	Documentary Record Only	401228, 855378
NK05NW0028	Belfatton	Site of a poorhouse, depicted on the 1st and 2nd edition OS maps.	Documentary Record Only	401172, 855052

SMR reference num	Name	Description	Site form	NGR
NK05NW0029	Hepburn's Croft	Remains of a ruined farmstead or croft, depicted on the OS 1st and 2nd edition maps. The 1st edition 1867 map shows two rectangular buildings linked to form a long range with an attached enclosure to the east.	Standing Structure	400500, 857594
NK05NW0036	Blackhills	Site of a now destroyed croft that is depicted on the 1867 1st edition OS map but not on the 1888 2nd edition one. The map shows two rectangular buildings, one of which has an attached small rectangular enclosure.	Documentary Record Only	401175, 856910
NK05NW0037	Nether Park	Farmstead still in use that is depicted on the 1867 1st edition OS map. The map shows two large U-shaped ranges of steadings and two other rectangular buildings. To the NE is a rectangular threshing mill which is fed by a lade running from the North.	Standing Structure	400786, 856790
NK05NW0038	Wardhead	Farmstead depicted on the 1867 1st edition OS map. The map shows a L-shaped steading, which still stands today, a U-shaped building with attached triangular enclosure of which some footings can still be seen on the 2005 map and a rectangular building	Standing Structure	401224, 856301
NK05NW0039	North Cairnchina	Farmstead still in use. On the 1st edition OS map it is shown as comprising of a U-shaped building with the court open to the south, and two compact L-shaped buildings. The westernmost of these latter buildings has an attached enclosure.	Standing Structure	400708, 855962
NK05NW0048	Spillarsford	Farmstead, in use, depicted on the 1st edition OS map of 1867 as an L-plan steading open to the SW.		0, 0
NK05SW0002	The Gray Stone	Site of standing stone. This stone was completely destroyed c.1948. It was locally believed to be the last stone stone of a circle, and is traditionally the site where a bull's hide, full of gold, is said to have been found. No further information.	Documentary Record Only	402716, 850716
NK05SW0007	Corse	Site of causeway. One mile to the W of Kinmonth House there was a "causay" (presumably a causeway) through the mass. It is said that it was built by the Comyns prior to the Battle of Inverurie in 1308.	Documentary Record Only	401000, 853000
NK05SW0013	Lock Croft	Site of a building, depicted on the 1st and 2nd edition OS maps.	Standing Structure	401334, 854103
NK05SW0015	North Croft	Remains of a croft and cottage. The cottage may be clay-built with remains of a thatched roof surviving underneath a later roof. It is depicted on both the OS maps of 1967 & 1888.	Standing Structure	400918, 851335
NK05SW0016	Nether Hythie	Cottages, still in use, depicted on the 1st and 2nd edition OS maps.	Standing Structure	401467, 850761

SMR reference num	Name	Description	Site form	NGR
NK05SW0017	Middle Hythie	Remains of a small rectangular building depicted on the 1st and 2nd edition OS maps.	Standing Structure	401544, 851184
NK05SW0018	Middle Hythie	Building still in use.	Standing Structure	401503, 851338
NK05SW0019	Hythie House	Remains of a croft. The OS 1st and 2nd edition maps show two rectangular buildings set at right angles.	Standing Structure	400988, 851942
NK05SW0020	Cortiecrum	Remains of a farmstead. The OS 1st edition map shows an L-plan building with attached garden enclosure, a rectangular building to the west, and to the north three ranges, one of them on an L-plan.	Standing Structure	402783, 851059
NK05SW0023	Mill Croft	Small farmstead or croft. The OS 1st edition map shows two linked rectangular buildings. To the east is another rectangular building marked as a smithy, which is also shown on the OS 2nd edition.	Standing Structure	401910, 850782
NK05SW0024	Fortrie	Site of a small building depicted on the 2nd edition OS map.	Documentary Record Only	403416, 850386
NK05SW0025	Nether Hythie	Remains of a ruined croft or small farmstead. Both the OS 1st and 2nd edition maps show an L-plan and a rectangular building.	Standing Structure	401239, 850680
NK05SW0026	North Croft	Site of a croft or small farmstead, depicted on the 1st and 2nd edition OS maps as a central L-plan building with a small square building to the SW and a rectangular building to the NE.	Documentary Record Only	400617, 851001
NK05SW0027	North Croft	Remains of a ruined farmstead which is depicted on the 1867 1st edition OS map. It shows an L-plan and two rectangular buildings, with a rectangular enclosure to the SE.	Standing Structure	400328, 851455
NK05SW0028	West Pitscow	Remains of a disused quarry, now filled with water, depicted on the 1st and 2nd edition OS maps.	Earthwork	400251, 851694
NK05SW0029	Kininmonth War Memorial	Kininmonth war memorial is located at Kirkton and commemorates the dead of both World War I and II. It is a squat, tapering rectangular 'needle' standing on top of a rectangular, slightly angled base on a two-step base.	Standing Structure	401023, 852535
NK05SW0030	Denhead	Site of a small L-shaped building with a single structure to the south depicted on the 1st and 2nd edition OS maps. Nothing is visible at this position now.	Documentary Record Only	400079, 852421
NK05SW0031	Kirkton	The remains of a building stand c200m to the E/SE of Kirkton farm. On the 1st edition OS map of 1867 three small buildings and an enclosure are depicted.	Standing Structure	401549, 852283

SMR reference num	Name	Description	Site form	NGR
NK06NW0002	Kirktown	Shell middens, found in this area while opening graves on the S side of the 1866 addition to the cemetery and in agricultural operations on the S side of the graveyard.	Documentary Record Only	400187, 865306
NK06NW0004	Kirkton	Overline public road bridge across now disused railway, built in 1864. Cast-iron parapet, coped wing walls and abutment. Steel reconstruction with concrete-filled steel troughing and a parapet of stiffened steel acting as a girder.	Standing Structure	400302, 865424
NK06NW0008	Fraserburgh Harbour	Fraserburgh Harbour complex, first established c.1576, is a fishing harbour still in use as such. The harbour was expanded again in 1738, while several new piers were added throughout the 19th century.	Standing Structure	400131, 867005
NK06NW0009	Fraserburgh Bay	A six-sided pill-box, with 1 door, 5 loop-holes and a blast wall by the door, still in good condition.	Standing Structure	400029, 865647
NK06NW0015	Fraserburgh Bay	Remains of a shipwreck in Fraserburgh Bay exposed in Spring 2006 after a storm washed away overlying sand. The remains are of a section of the hull, with parts of the ribs and outer planking timbers projecting up to around half a metre above the sand.	Documentary Record Only	401296, 865402
NK06SW0003	Bourtreebush	An urn was found here in 1828, containing blackish earth. No further information.	Findspot	400385, 861216
NK06SW0004	Bourtreebush	A number of flint arrowheads were found in this area in 1862. No further information.	Findspot	400600, 861330
NK06SW0005	Cat Cairn	Site of a cairn. A large cairn of stones, generally supposed to be a burial cairn as it much resembles one which stood near it but was removed by Mr Hay of Concraigs (NK06SW0006). All traces of this cairn have been masked by a large heap of field clearance.	Standing Structure	401571, 860969
NK06SW0009	Gallows Hill	Three flint arrowheads were found in this area - two barbed & stemmed and one leaf-shaped arrowhead in yellow flint.	Findspot	400201, 861197
NK06SW0025	Bourtreebush	A well developed crop mark of a pennanular ring ditch is visible in a field of cereal crop.	Crop Mark (Includes Soil Mark)	400497, 861175
NK06SW0028	Trefor Hill	Site of an alleged encampment, situated on a prominent natural knoll with a flat oval top, c.20m by 25m. The N arc is sharply defined by artificial scarping, but no other evidence of fortification. Several stones, some of quartz, in-situ.	Earthwork	400022, 861532

SMR reference num	Name	Description	Site form	NGR
NK06SW0029	Rathen	A raised, curved area which may be the remains of a possible motte. There is also a possibility of this being an earlier enclosure. There are faint traces of a possible ditch showing on a vertical aerial photograph.	Earthwork	400072, 861147
NK06SW0031	St Ethernan's Church	Site of church and well, and remains of later church. The earliest church is said to have been consecrated by St Ethernan or Eddran in the 6th Century and was subsequently dedicated to him. Another church was built on the site in the 12-13th Century.	Standing Structure	400114, 860957
NK06SW0032	Cairnbulg	Cropmark of a possible large enclosure with double ditch.	Crop (Includes Mark)	401423, 864480
NK06SW0038	Philorth Dovecot	Dovecot, dating from c.1800, which takes the form of a 2-stage octagon with a parapet on the corbel course. Constructed of coursed heathen stone with granite in and out voussoirs at angles.	Standing Structure	400085, 862757
NK06SW0042	Gallows Hill	A circular enclosure with several other possible enclosures showing as cropmarks. There are also other indeterminate features in the area, some of which are geomorphic.	Crop (Includes Mark)	400612, 861445
NK06SW0045	Black Folds	Various linear and other indeterminate cropmarks are visible on aerial photographs.	Crop (Includes Mark)	400201, 863423
NK06SW0046	Philorth Halt	A small area of rig and furrow is visible as cropmarks on the aerial photograph.	Crop (Includes Mark)	400491, 864494
NK06SW0047	Mains Of Philorth	A square enclosure is visible as a cropmark on aerial photographs.	Crop (Includes Mark)	400244, 862833
NK06SW0048	Philorth Halt	Pits showing as cropmarks are visible on aerial photographs, although they may not be archaeological.	Crop (Includes Mark)	400446, 864795
NK06SW0057	South Concraigs	Remains of a ruined farmstead which is depicted on the 1867 1st edition OS map. The buildings have a central U-shaped range open to the west with a rectangular building attached to the east side.	Standing Structure	401429, 860756

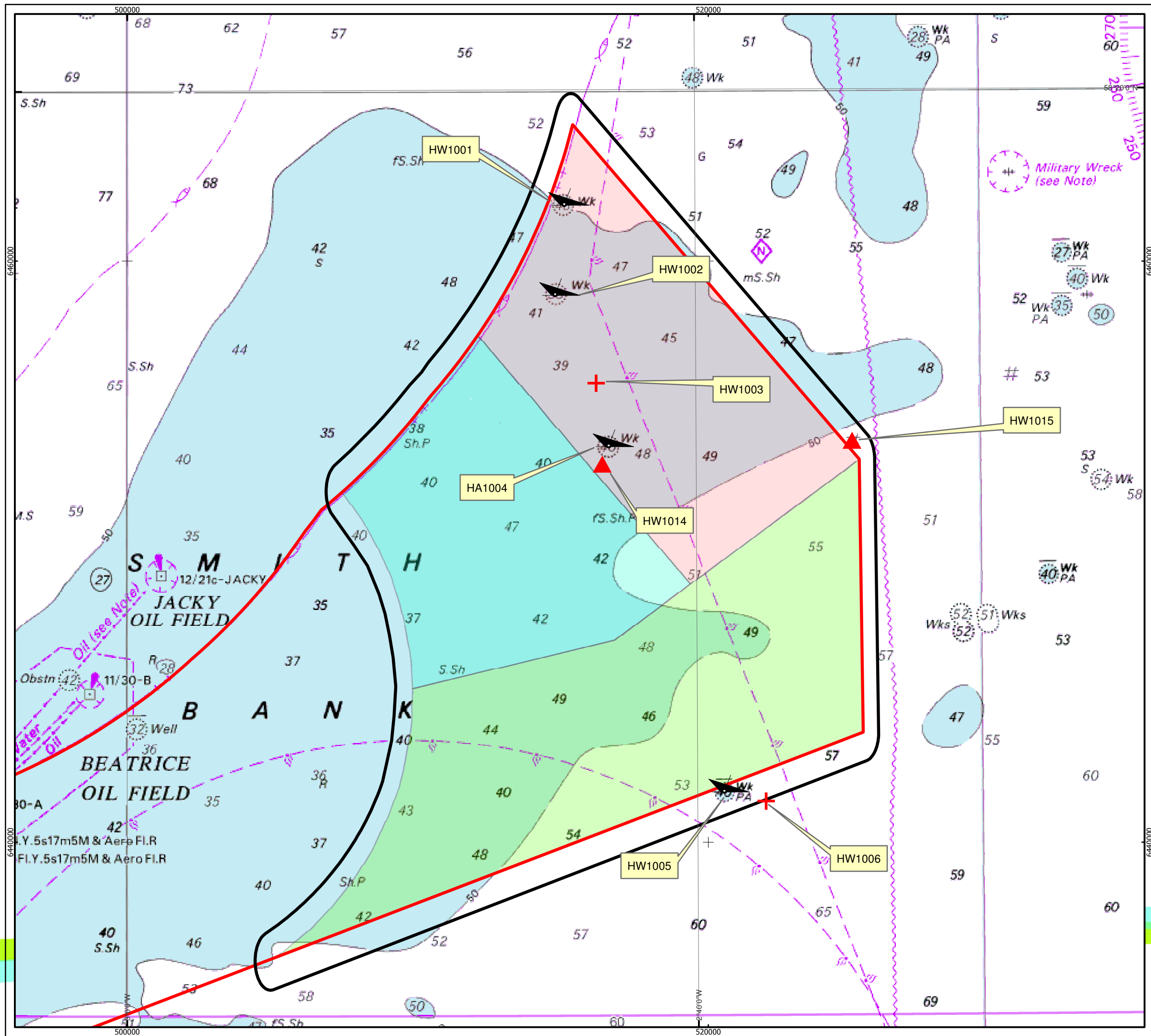
SMR reference num	Name	Description	Site form	NGR
NK06SW0058	Hill Of Concraigs	Remains of a ruined farmstead which is depicted on the 1867 1st edition OS map. The farm comprises of four buildings with a large rectangular enclosure, supplemented by a second irregular enclosure to the SE that abutts the first.	Standing Structure	401252, 860840
NK06SW0059	Hill Of Concraigs	Remains of a now disused quarry. The initial workings began sometime after 1880.	Earthwork	401087, 860742
NK06SW0060	Howe Of Concraigs	Remains of a ruined building, possibly a croft, which is depicted on the 1867 1st edition OS map. It comprises of a rectangular building with a surrounding walled enclosure.	Standing Structure	401334, 860365
NK06SW0061	Howe Of Concraigs	Site of a now destroyed building, possibly a croft, which is depicted on the 1867 1st edition OS map. It comprises a single rectangular building with an associated rectangular enclosure. It had been removed by the time of the 1888 OS 2nd edition.	Standing Structure	401399, 860314
NK06SW0094	Paviehillock	Site of a croft depicted on the 1867 OS 1st edition map, comprising two rectangular buildings, the easternmost with a small rectangular enclosure at its southwest end. None of these features appear on the 1888 2nd edition OS map.	Documentary Record Only	400006, 861062
NK06SW0095	Janet Gordon's Well	Site of a well depicted on the 1867 1st edition and 1888 2nd edition OS maps. On the latter it is named Jeannie Gordon's Well. Although it also appears on later OS maps it is not shown on current editions.	Documentary Record Only	400223, 860912
NK06SW0096	Fordalehouse	Site of a stone depicted on the 1867 1st edition and 1888 2nd edition - and later - OS maps. On the 1st edition it stands in the middle of a field, suggesting a possible rubbing stone, although changes in field layouts by the time of the 2nd edition OS map.	Documentary Record Only	400147, 861102
NK06SW0097	Rathen West Church Cemetery	In 2007, MAS carried out a programme of trial trenching on the proposed site of an extension to the cemetery of the West Church. Although the graveyard is adjacent to the site of a possible medieval motte and the old parish church of St Ethernan.	Documentary Record Only	400010, 860953
NK14SW0002	Boddam Castle	Remains of Boddam Castle, comprising the remains of a curtain wall, with entrance in the West, and the West gable of a building with a round-arched doorway with square window above. Three gun loops are also visible.	Standing Structure	413231, 841805
NK14SW0004	Howe Of Boddam	Two sandstone anvils were found in Howe of Boddam.	Findspot	413000, 842000
NK14SW0005	Boddam	A perforated whinstone hammerhead was found in this vicinity in 1883; a large part of one side was broken away. 82mm long.	Findspot	413000, 841977

SMR reference num	Name	Description	Site form	NGR
NK14SW0006	Boddam	A number of flint implements have been found in the vicinity of Boddam. No further information.	Findspot	413000, 842023
NK14SW0010	Buchan Ness Lighthouse	Lighthouse, built in 1827, designed by Robert Stevenson. Tall tower painted in red and white stripes, with walkway supported on corbels with arched openings.	Standing Structure	413631, 842268
NK14SW0011	Boddam Harbour	Harbour, built 1845 and since repaired. It is a large basin enclosed by a long and a short concrete pier; now almost disused.	Standing Structure	413432, 842704
NK14SW0013	Boddam Beach	A socketed bronze spearhead, with its tip broken off, was found in this area. It measured 91mm long, and 25mm wide at base of blade.	Findspot	413199, 842801
NK14SW0017	Invernettie	Remains of a chalk flint deposit, the major source of flint in Scotland, occurs in this area mainly above the 90m contour on the ridge of high ground which runs westwards for c10 miles from the coast between Invernettie (NK12 44) and Stirling Hill...	Natural	411801, 843800
NK14SW0018	Fairy Hillock	Fairy Hillock, a large mound of earth, 60 x c.30m, now artificially made up with a wall round the foot of it. In 2003, MAS Ltd undertook an evaluation on the site, which established that the mound was a natural formation. However since this did n...	Natural	411025, 844729
NK14SW0043	Earl's Lodge	Large house designed by John Smith in 1840 as "Buchanness Lodge" for Lord Aberdeen to house his mistress. It later became a hotel (the "Earl's Lodge" Hotel) but after lying empty for a number of years it was damaged by fire.	Standing Structure	413303, 841915
NK14SW0052	South Newfield	Remains of roofless buildings and the site of an associated well and track, depicted on both the 1st and 2nd edition OS maps.	Standing Structure	410898, 842705
NK14SW0054	Denend	An L-shaped small farmstead and enclosure and two other buildings to the north are depicted on the 1st edition OS map of 1867. By the 1888 edition these had been removed and have been replaced by a new L-shaped building and rectangular building.	Standing Structure	411695, 842487
NK14SW0055	Buckie Farm	Site of a now destroyed well, several buildings and an associated trackway.	Documentary Record Only	411407, 842667
NK14SW0056	Wellbank	A rectangular building with a porch entranceway and surrounded by a circular drystone enclosure covers a cistern, depicted on the 1st and 2nd edition OS maps and on modern maps.	Standing Structure	411092, 843943
NK14SW0061	Den Of Boddam	Remains of the embankments which mark the course of the old railway line built between the quarries at Stirling Hill and the breakwater. An elaborate little railway was built to convey convicts from Peterhead prison to the quarries.	Standing Structure	412263, 842896

SMR reference num	Name	Description	Site form	NGR
NK14SW0063	Boddam War Memorial	Boddam war memorial stands on the corner of Manse Terrace and Buchanness Drive , facing towards the SW. The memorial to World War I is a tall rectangular structure of granite block set on a rectangular plinth and topped with a cross.	Standing Structure	413141, 842450
NK14SW0073	Sandford Lodge	Miniature Mansion House and grounds still in use. Built circa 1800 and shown on the OS maps since the 1st edition. The house is of 2 storeys and basement. The west front has 3 windows with centre bay advance raised and pedimented with urns.	Standing Structure	412348, 843388
NK14SW0074	Newmill Of Sandford	Farmstead still in use. On the 1st edition OS map it is shown as a compact CU-shaped steading open to the south-east, a sub-rectangular enclosure attached on the east and a disused building immediately to the south.	Standing Structure	412067, 843673
NK14SW0075	Newmill Of Sandford	Site of a now removed stone, probably a boundary stone, which is shown only on the 1st edition OS map.	Documentary Record Only	412019, 843612
NK14SW0076	Newmill Of Sandford	Site of a milestone which is shown on both the 1st and 2nd edition OS maps. It recorded the distance "Aberdeen 31". The 2006 map shows that a milestone is located approximately 150m to the south at NK 1200 4342.	Documentary Record Only	412014, 843575
NK14SW0077	Sandford	Former smithy, now in use as cottages. On both the 1st and 2nd edition OS maps it is shown as a rectangular building with an attached rectangular enclosure on the eastern gable. The 2006 map shows that the building has been heavily modified.	Standing Structure	411982, 843414
NK14SW0078	Burnside	Site of farmstead. On the 1st edition OS map it is shown as four buildings, two of which are long, rectangular and parallel. In-between is a sub-rectangular enclosure and on the north of the northern building is an attached horse-mill.	Documentary Record Only	412340, 842733
NK14SW0079	Boddam	Site of eleven buildings. On the 1st edition OS map three buildings are shown to the north-west of the harbour at Boddam and probably represent a now destroyed farmstead.	Documentary Record Only	413267, 842832
NK14SW0080	North Mains	Site of a now destroyed farmstead which is shown only on the 1st edition OS map. It is depicted as a group of three buildings within a sub-divided partially wooded enclosure. None of these features appear on the OS 2nd edition 1888 map.	Documentary Record Only	412653, 842480
NK14SW0081	North Mains	Site of a now destroyed farmstead which is shown on both the 1st and 2nd edition OS maps.	Documentary Record Only	412782, 842403
NK14SW0082	Peterhead Polishing Works	Remains of a granite polishing works which is shown on the OS maps from the 1st edition OS map onwards.	Standing Structure	412454, 842422

SMR reference num	Name	Description	Site form	NGR
NK14SW0083	Millbank	Farmstead still in use. On the 1st edition OS map it is shown as three buildings, one L-shaped, with three possible enclosure flanking them, one on the west and two on the east.	Standing Structure	412394, 842501
NK14SW0084	Den Of Boddam	Site of at least five stones which are shown on the 1st and 2nd edition OS maps. On the 1st edition map there are three individual stones marked and a feature labelled "Stones". By the 2nd edition OS map one of the individual stones is not marked.	Documentary Record Only	412383, 842351
NK14SW0085	Boddam	Former Free Church manse, now in use as a dwelling, which is shown on the OS maps from the 2nd edition map onwards. It is depicted within its garden, which is smaller on the 2006 map.	Standing Structure	412609, 842527
NK14SW0086	Howe Of Boddam	Farmstead still in use. On the 1st edition OS map it is shown as three buildings with an attached sub-divided enclosure to the east and a pond with sluice to the south-west. By the 2nd edition OS map the pond is not shown.	Standing Structure	412622, 842278
NK14SW0087	Boddam Station	Site of the former Great North of Scotland Railway's Boddam station terminus. It was opened on 02/08/1896 and closed to passengers on 31/10/1932, was used for military purposes and goods traffic until closure on 31/12/1948.	Documentary Record Only	412942, 842086
NK14SW0088	Raf Buchan	RAF base, now disused. Was opened in 1952 as an Air Defence Radar Unit. The site has substantial accommodation areas and at least two underground command bunkers.	Standing Structure	412962, 842126
NK14SW0090	Stirling	Site of a now removed milestone which is shown on both the 1st and 2nd edition OS map. It marked the distance -Aberdeen 30-.	Documentary Record Only	412763, 842235
NK14SW0091	Gateside	Former farmstead now used as a residence. On the 1st edition OS map it is shown as a U-shaped steading, with the opening to the south, an extension from the eastern wing and horse-mill attached to the north face.	Standing Structure	412012, 842383
NK14SW0092	Gateside	Site of a now destroyed croft which is shown on the 1st and 2nd edition OS map. On the 1st edition map it is shown as a rectangular building within a shield shaped enclosure. Also within the enclosure is a smaller building.	Documentary Record Only	411853, 842327
NK14SW0093	Newtown	Farmstead still in use. On the 1st edition OS map it is shown as a U-shaped steading with the court open to the south and a horse-mill attached on the north-west corner, there are four smaller buildings to the immediate south and a pond to the so...	Standing Structure	412015, 843042

© COPYRIGHT STATEMENT
Moray Offshore Renewables Ltd © 2011. This document is the property of contractors and sub-contractors and shall not be reproduced nor transmitted without prior written approval.



Moray Offshore Renewables Ltd

Key

- Telford
- Stevenson
- MacColl
- Moray Offshore Development Area
- 1KM Buffer
- Live Wreck
- Dead Wreck
- Obstruction

Horizontal Scale: 1:125,000 A3 Chart
0 2,900 5,800 Meters

Geodetic Parameters: WGS84 UTM Zone 30N

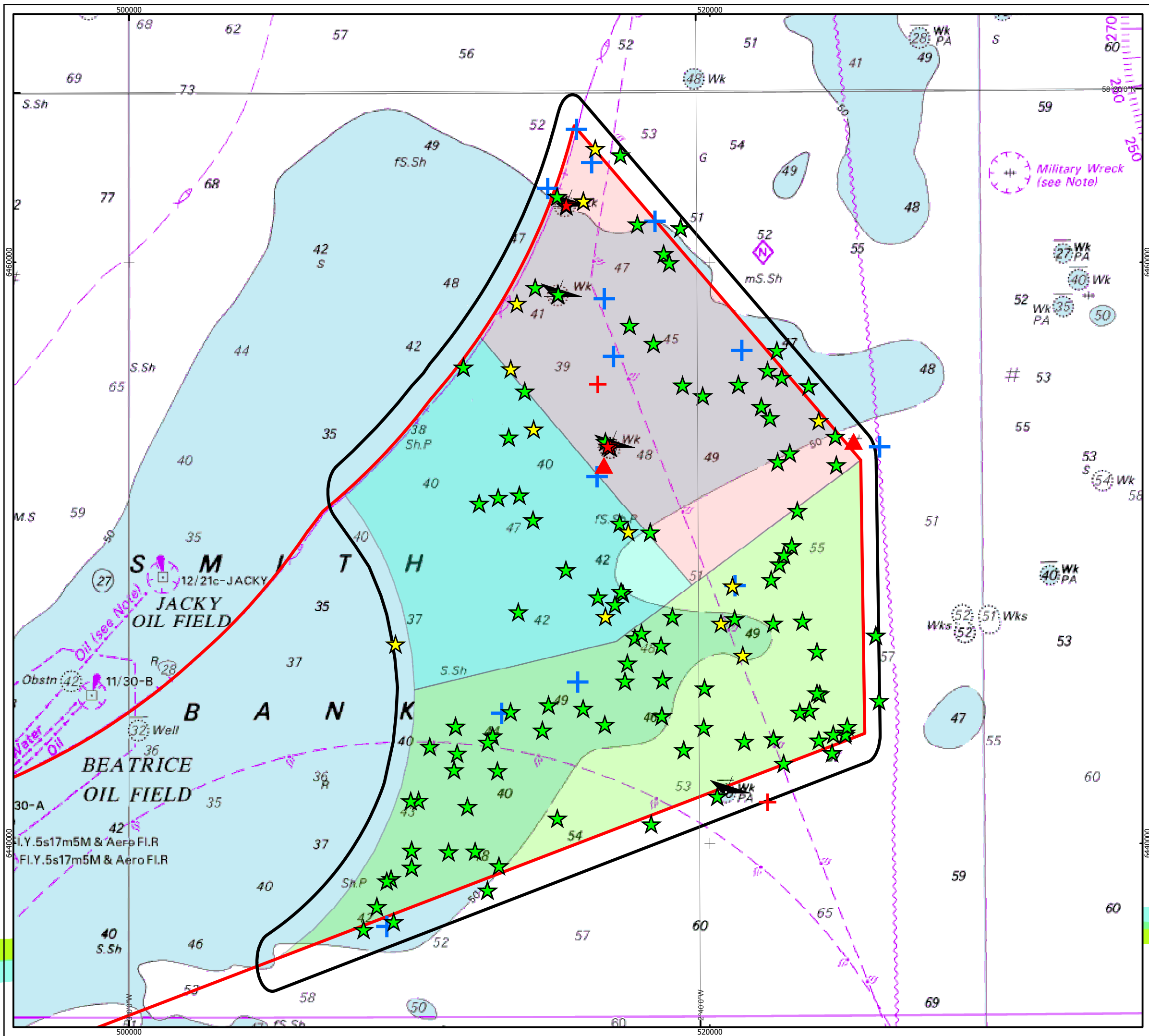
Produced: AM
Reviewed: TJ
Approved: PH

Date: 17/04/2012 Revision: B
REF: 8460001-PPW0200-HEA-MAP-003

Figure 1
Site Location Showing Wrecks
and Obstructions

Moray Offshore
Renewables Ltd

© COPYRIGHT STATEMENT
Moray Offshore Renewables Ltd © 2011. This document is the property of contractors and sub-contractors and shall not be reproduced nor transmitted without prior written approval.



Moray Offshore Renewables Ltd

Key

Geophysical Targets

- ★ High
- ★ Medium
- ★ Low
- Live Wreck
- ✚ Dead Wreck
- ▲ Obstruction
- ✚ Magnetic Anomaly
- ▭ 1KM Buffer
- ▭ Moray Offshore Development Area
- ▭ MacColl
- ▭ Stevenson
- ▭ Telford

Horizontal Scale: 1:125,000 A3 Chart
 0 3,000 6,000 Meters

Geodetic Parameters: WGS84 UTM Zone 30N

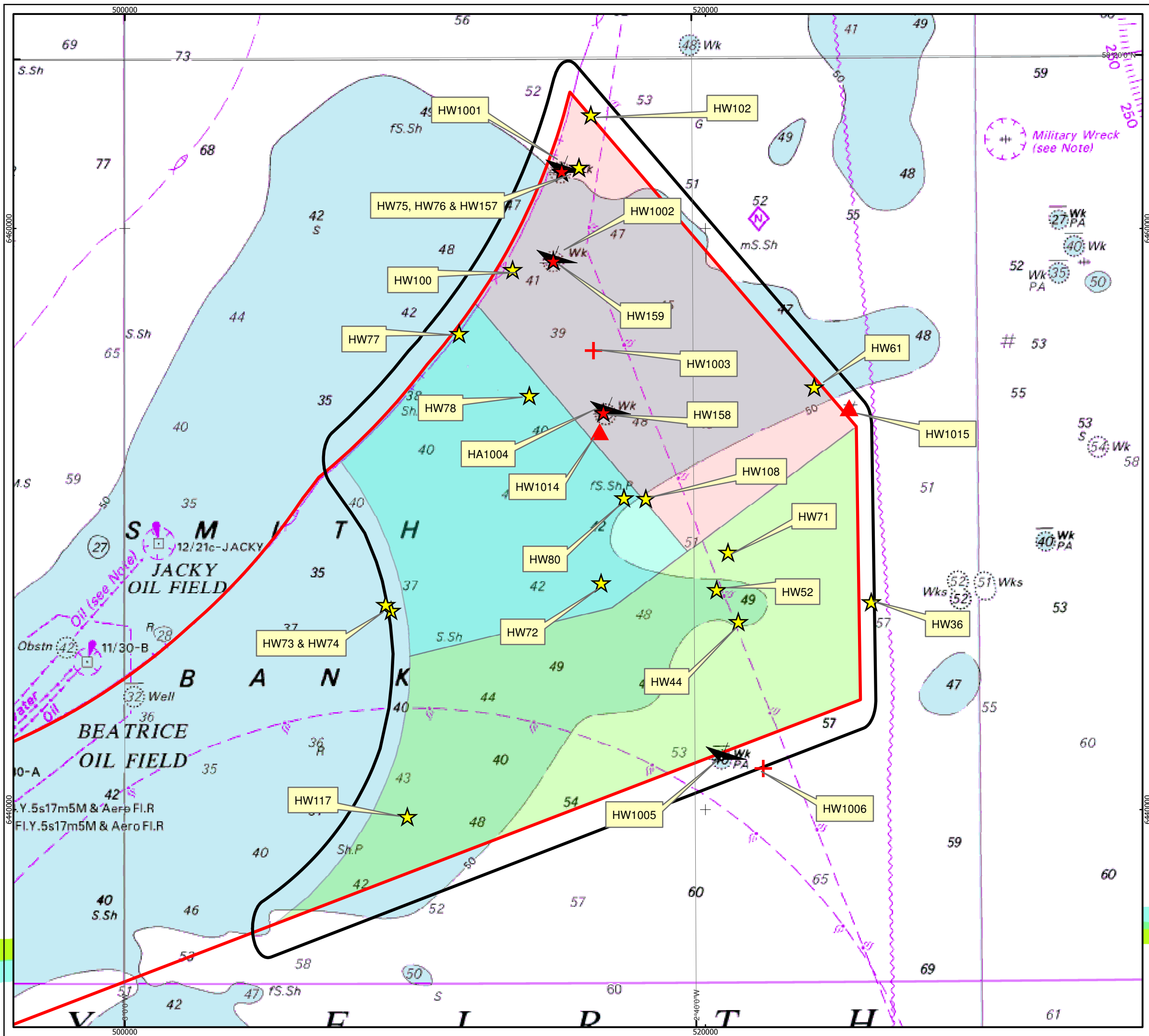
Produced: AM
 Reviewed: TJ
 Approved: PH

Date: 17/04/2012 Revision: B
 REF: 8460001-PPW0200-HEA-MAP-003

Figure 2
Location Map and Geophysical Targets

Moray Offshore Renewables Ltd

© COPYRIGHT STATEMENT
Moray Offshore Renewables Ltd © 2011. This document is the property of contractors and sub-contractors and shall not be reproduced nor transmitted without prior written approval.



Moray Offshore Renewables Ltd

Key

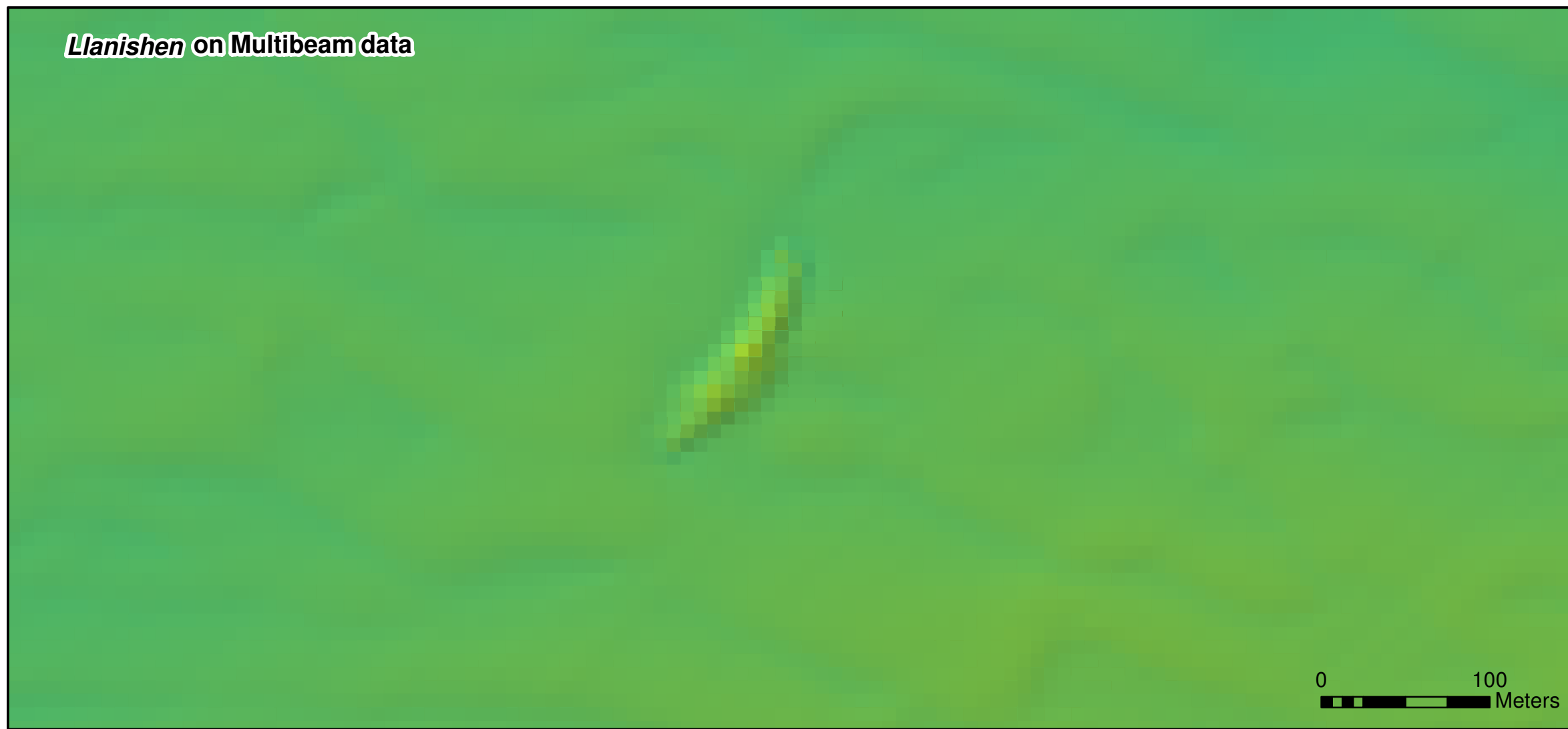
- Geophysical Targets
- ★ High Potential
 - ☆ Medium Potential
 - ✶ Live Wreck
 - + Dead Wreck
 - ▲ Obstruction
 - 1KM Buffer
 - ▭ Moray Offshore Development Area
 - ▭ MacColl
 - ▭ Stevenson
 - ▭ Telford
 - HW Cultural Heritage Assets

Horizontal Scale: 1:125,000 A3 Chart
 0 3,000 6,000 Meters

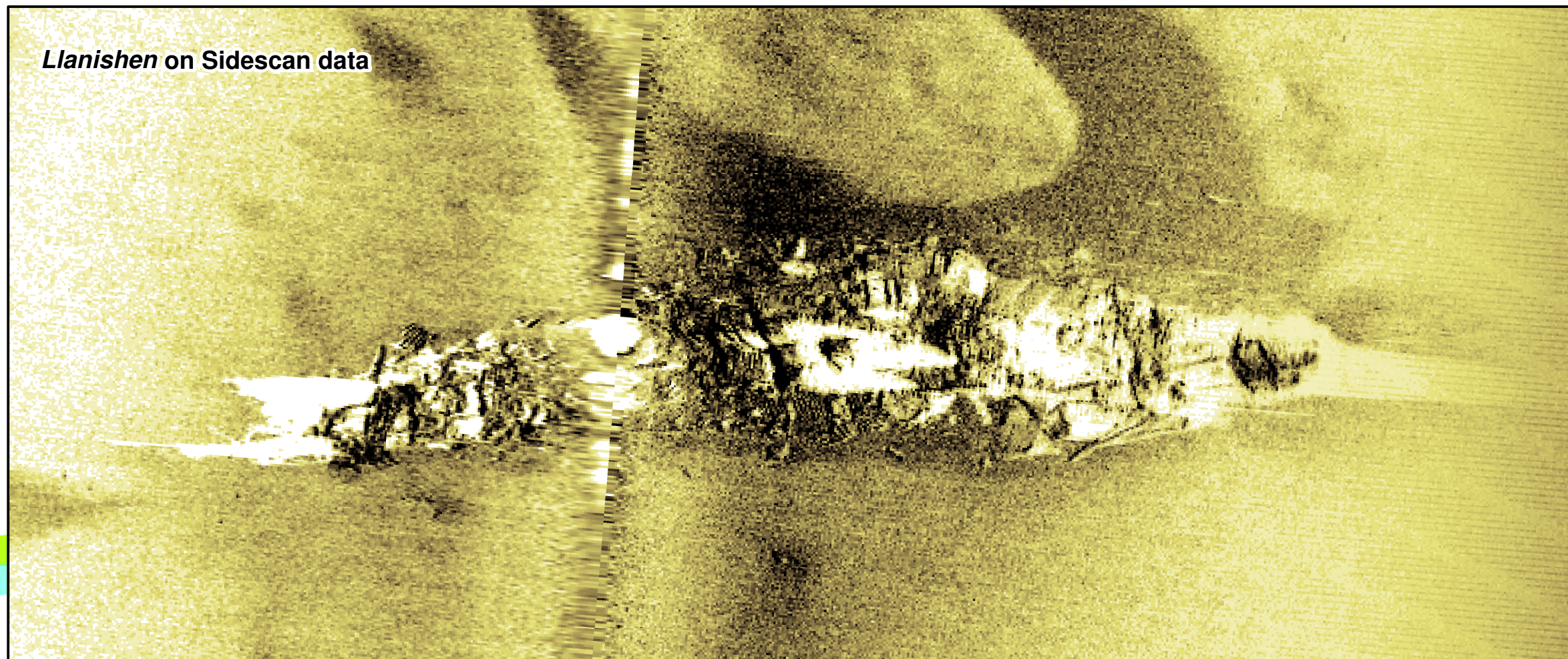
Geodetic Parameters: WGS84 UTM Zone 30N
 Produced: AM
 Reviewed: TJ
 Approved: PH
 Date: 17/04/2012 Revision: B
 REF: 8460001-PPW0200-HEA-MAP-003

Figure 3
 Sidescan Sonar Sites of High and Medium Archaeological Potential
 Moray Offshore Renewables Ltd

Llanishen on Multibeam data



Llanishen on Sidescan data



Moray Offshore Renewables Ltd

KEY

The top Image identifies the *Llanishen* in the multibeam bathymetry dataset, The bottom image illustrates the vessel in the sidescan sonar data. This ship is approximately 140m in length and 49m wide from the sidescan survey data with a maximum height of 7m.

0 100 Meters

Horizontal Scale: 1:3,000 A3 Chart
 0 75 150 Meters

Geodetic Parameters: WGS84 UTM Zone 30N

Produced: AM
 Reviewed: DA
 Approved: PH

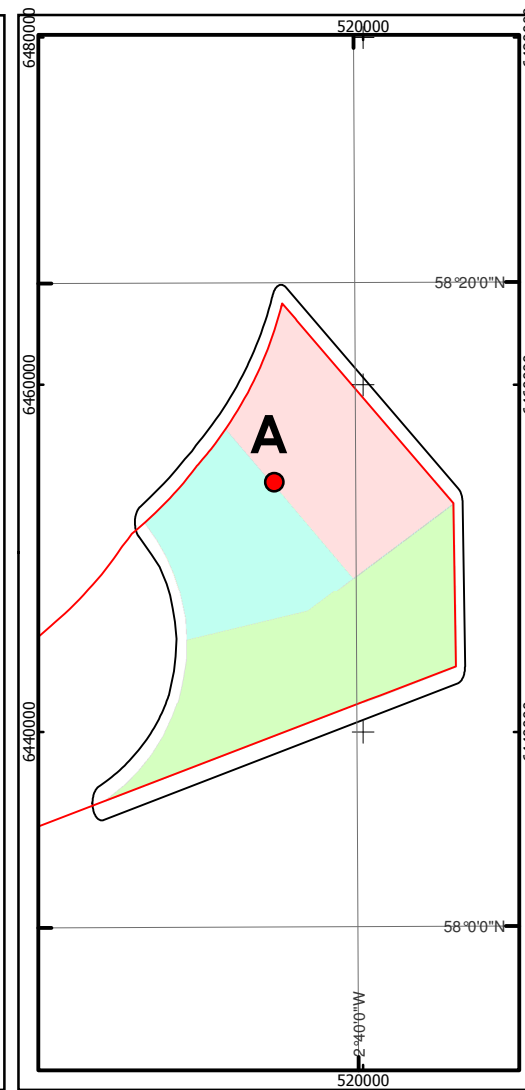
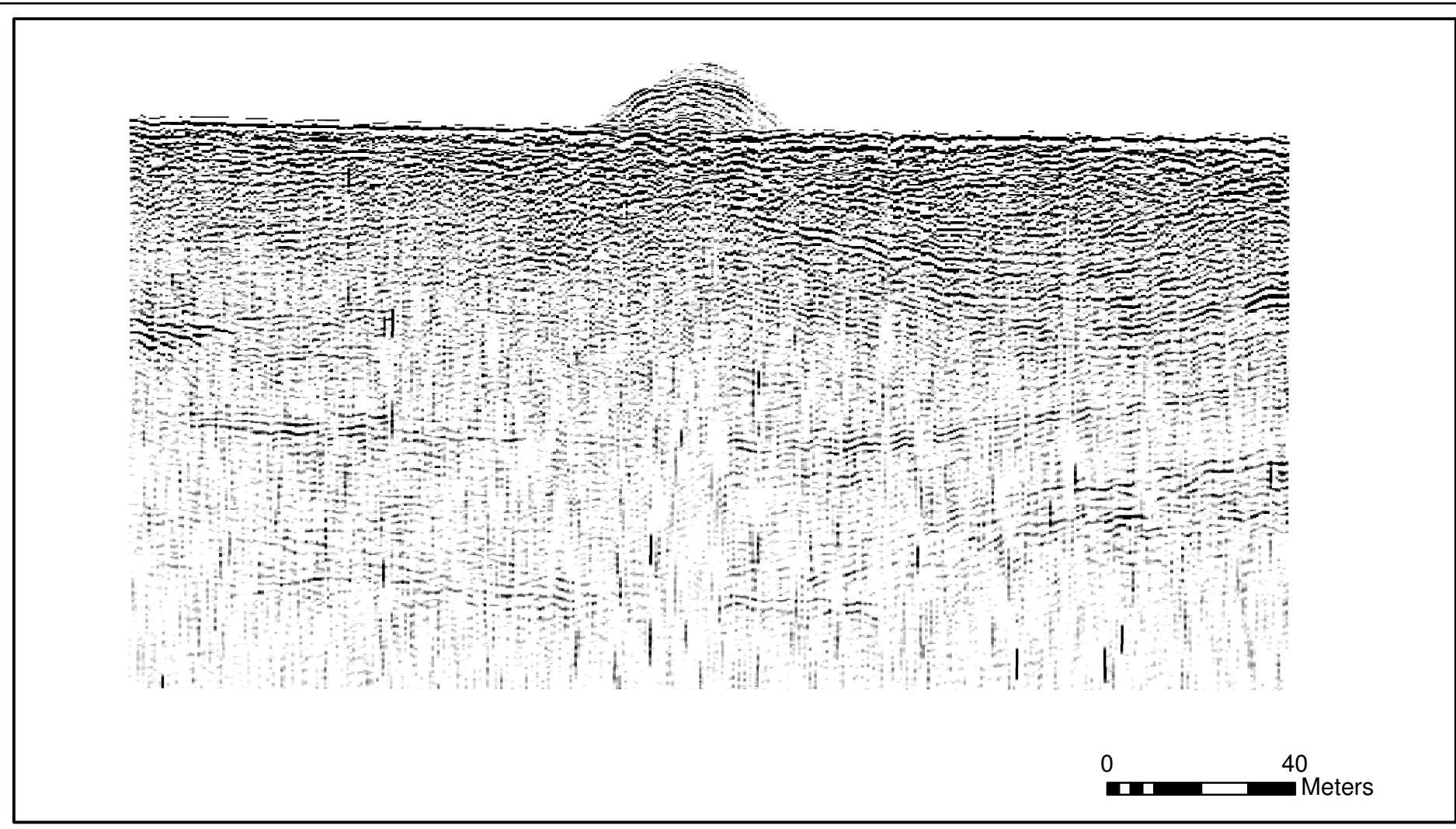
Date: 16/05/2012 Revision: B

REF: 0000000-AAA0000-AAA-AAA-000


Figure 4 High Potential Target HA159

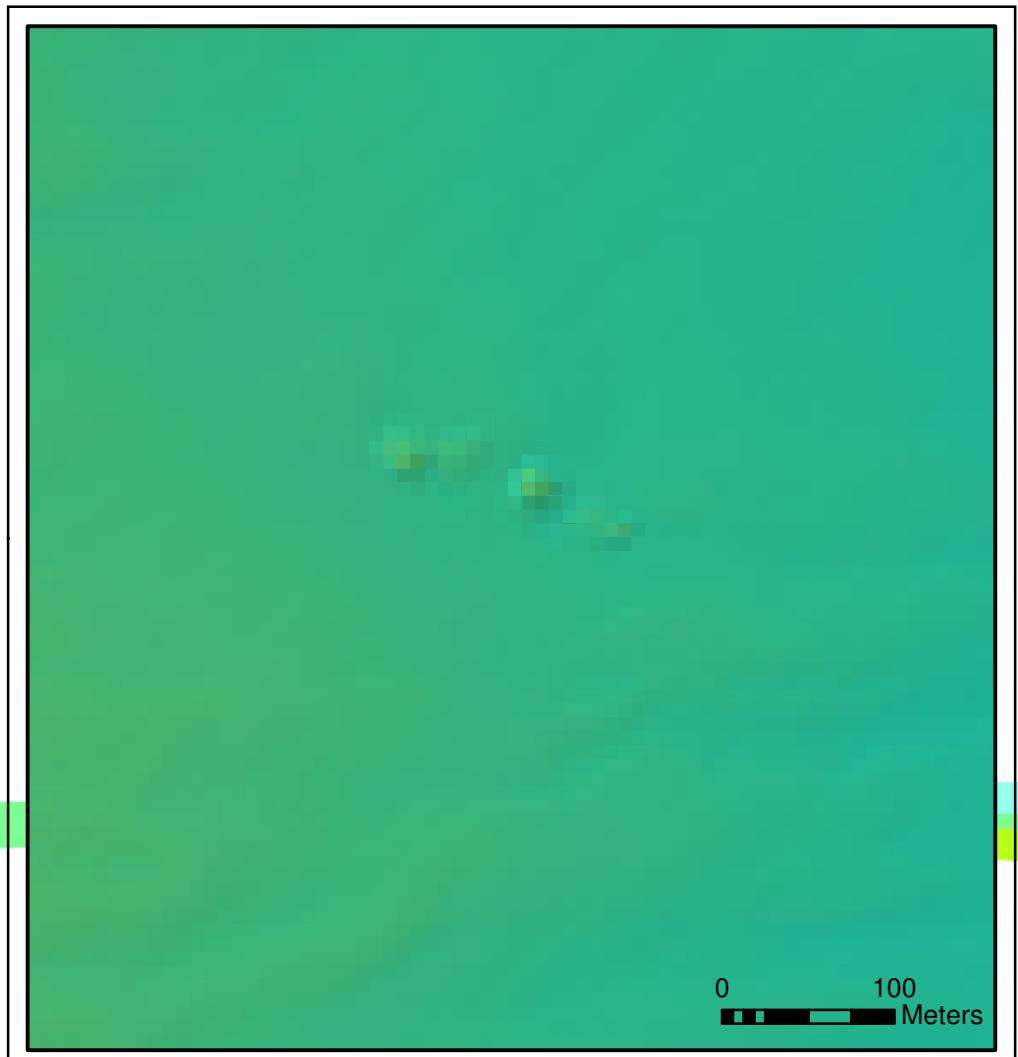
Moray Offshore Renewables Ltd



Moray Offshore Renewables Ltd © 2011. This document is the property of contractors and sub-contractors and shall not be reproduced nor transmitted without prior written approval.



Key

-  Moray Offshore Development Area
-  1KM Buffer
-  Telford
-  Stevenson
-  MacColl



Horizontal Scale: 1:1,250 A3 Chart 


Geodetic Parameters: WGS84 UTM Zone 30N

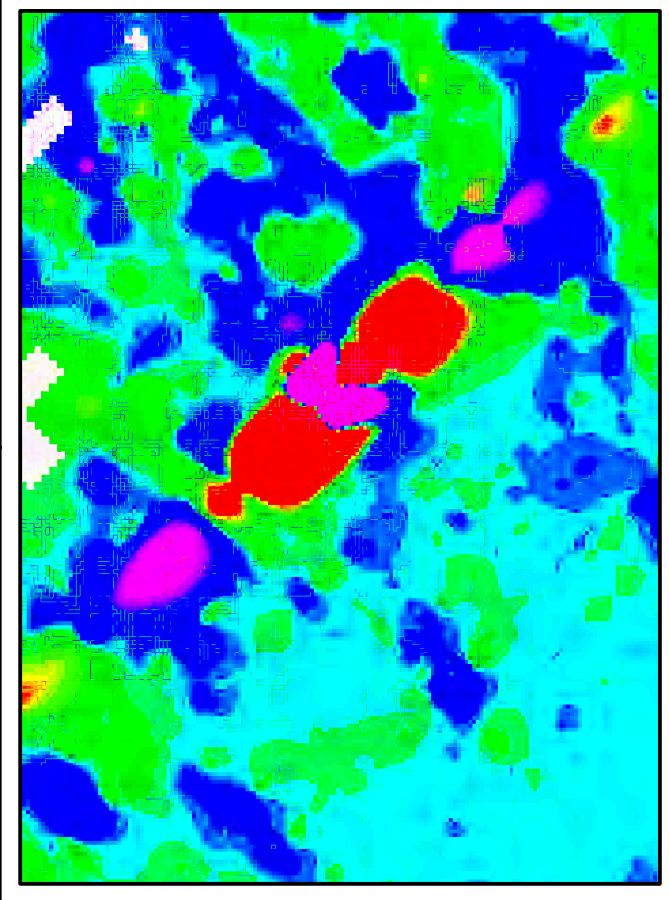
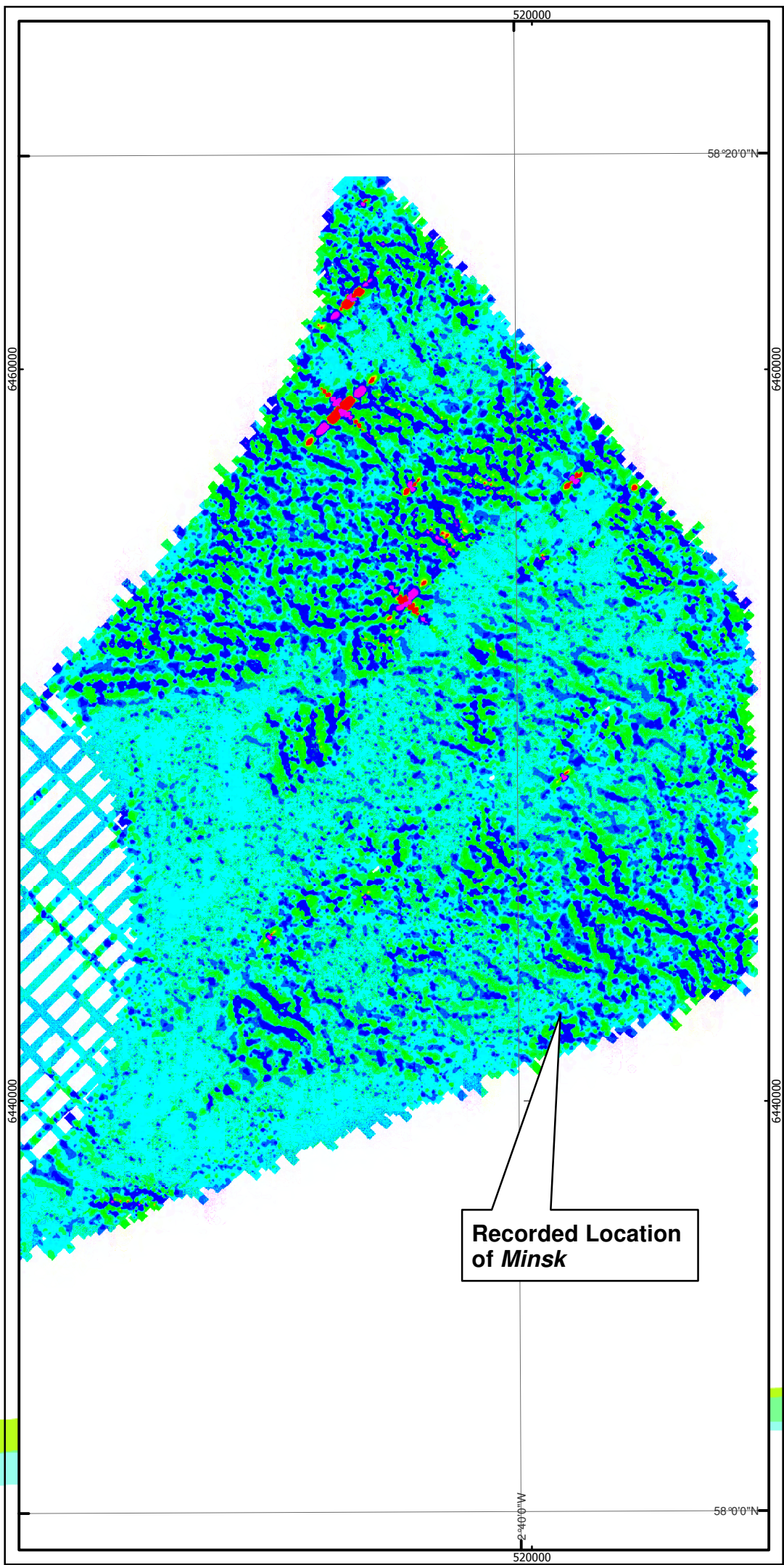
Produced: AM
 Reviewed: DA
 Approved: PH

Date: 16/05/2012 Revision: B

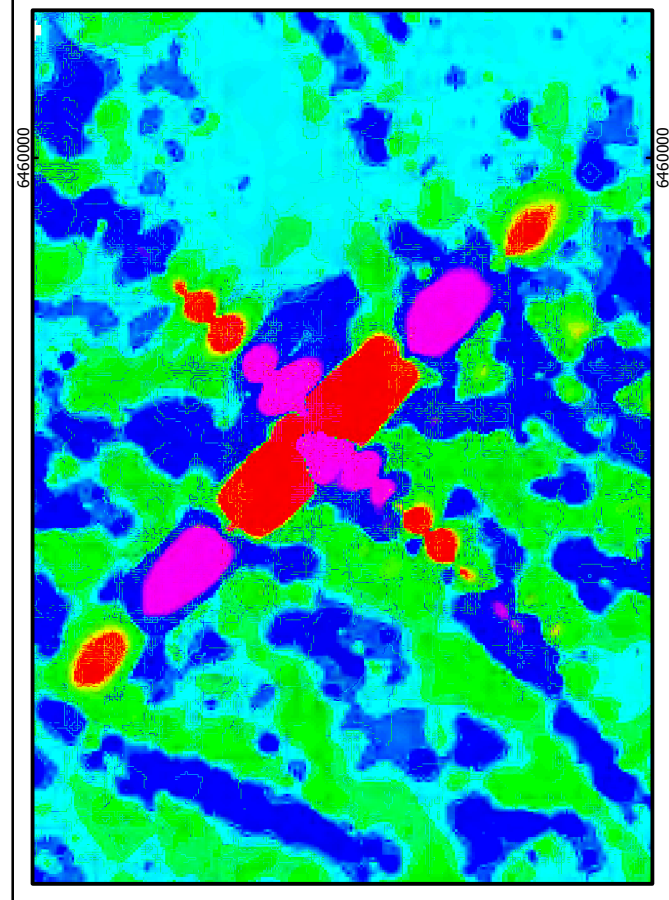
REF: 0000000-AAA0000-AAA-AAA-000

Figure 5 High Potential Target HA158
 Moray Offshore Renewables Ltd

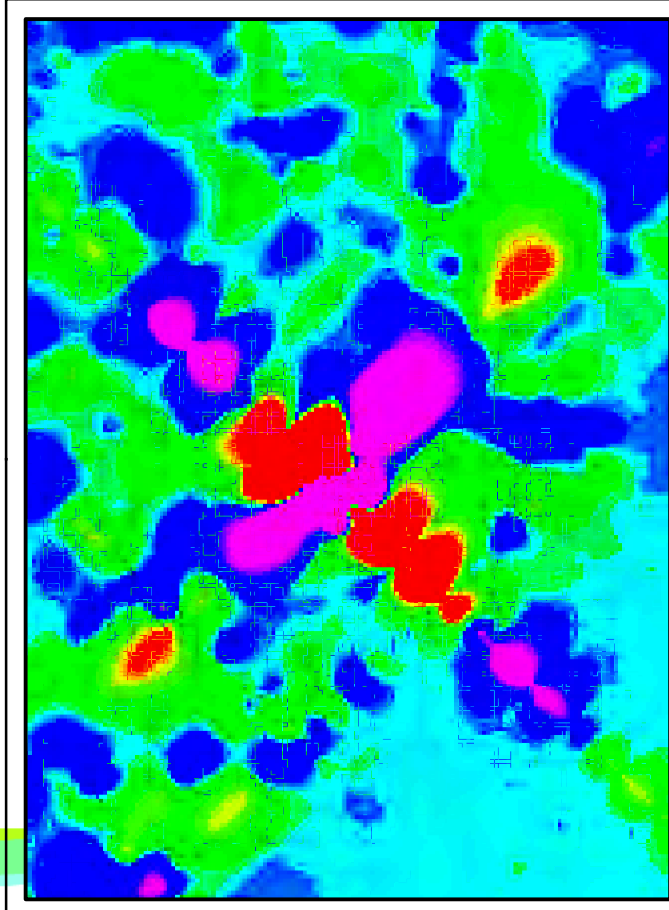
Moray Offshore Renewables Ltd © 2011. This document is the property of contractors and sub-contractors and shall not be reproduced nor transmitted without prior written approval.



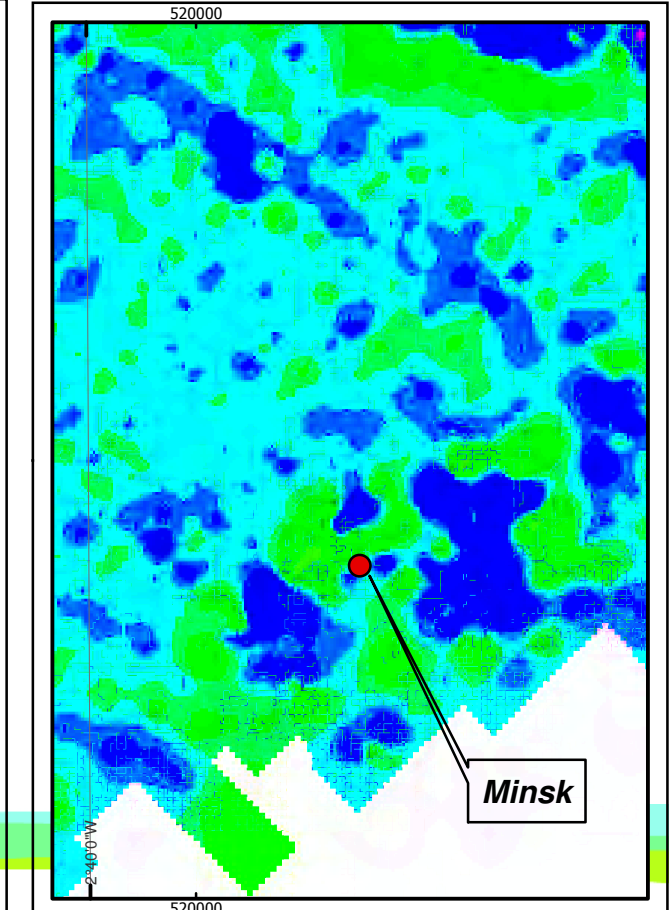
A. HA9 The northernmost wreck thought to be *Carisbrook* presents a strong magnetic signature.



B. HA11 This wreck is thought to be *Llanishen* and presents a very strong magnetic signature.



C. HA10 This unidentified wreck in two parts presents a strong magnetic signature.



D. There is no significant magnetic anomaly at the previously recorded location of *Minsk*, suggesting that the wreck may lie further to the south.



Moray Offshore Renewables Ltd

- Key**
- Moray Offshore Development Area
 - 1KM Buffer
 - ★ Magnetometer

Horizontal Scale: 1:150,000 A3 Chart

Geodetic Parameters: WGS84 UTM Zone 30N

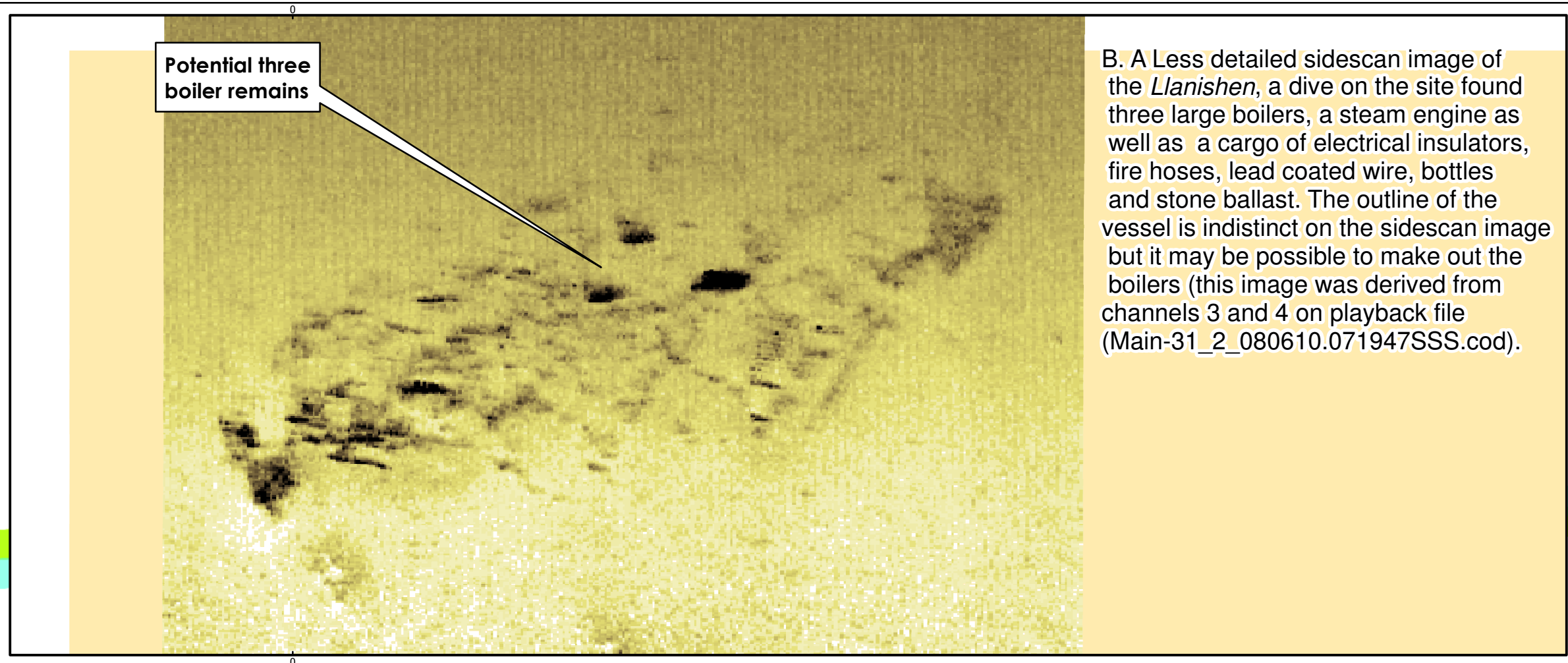
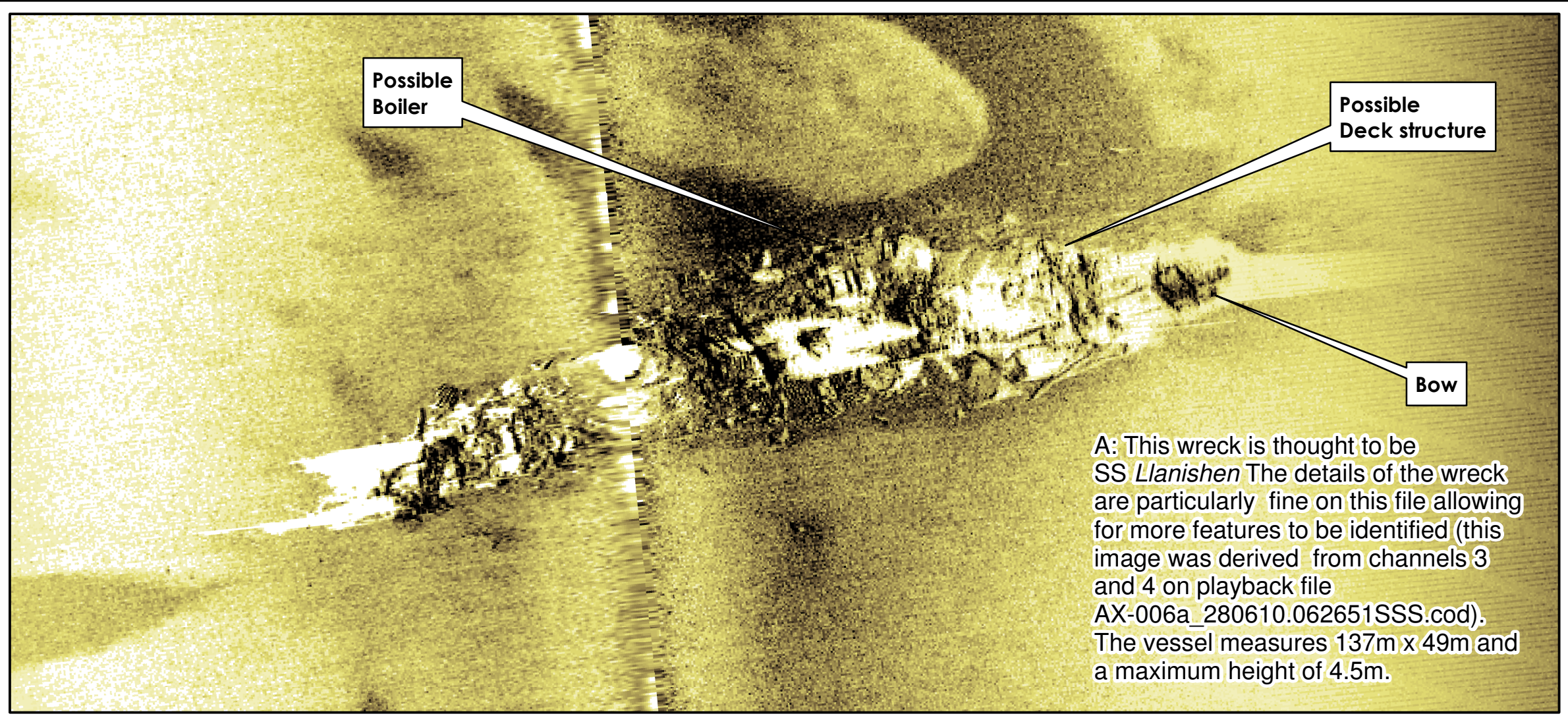
Produced: AM
Reviewed: DA
Approved: PH

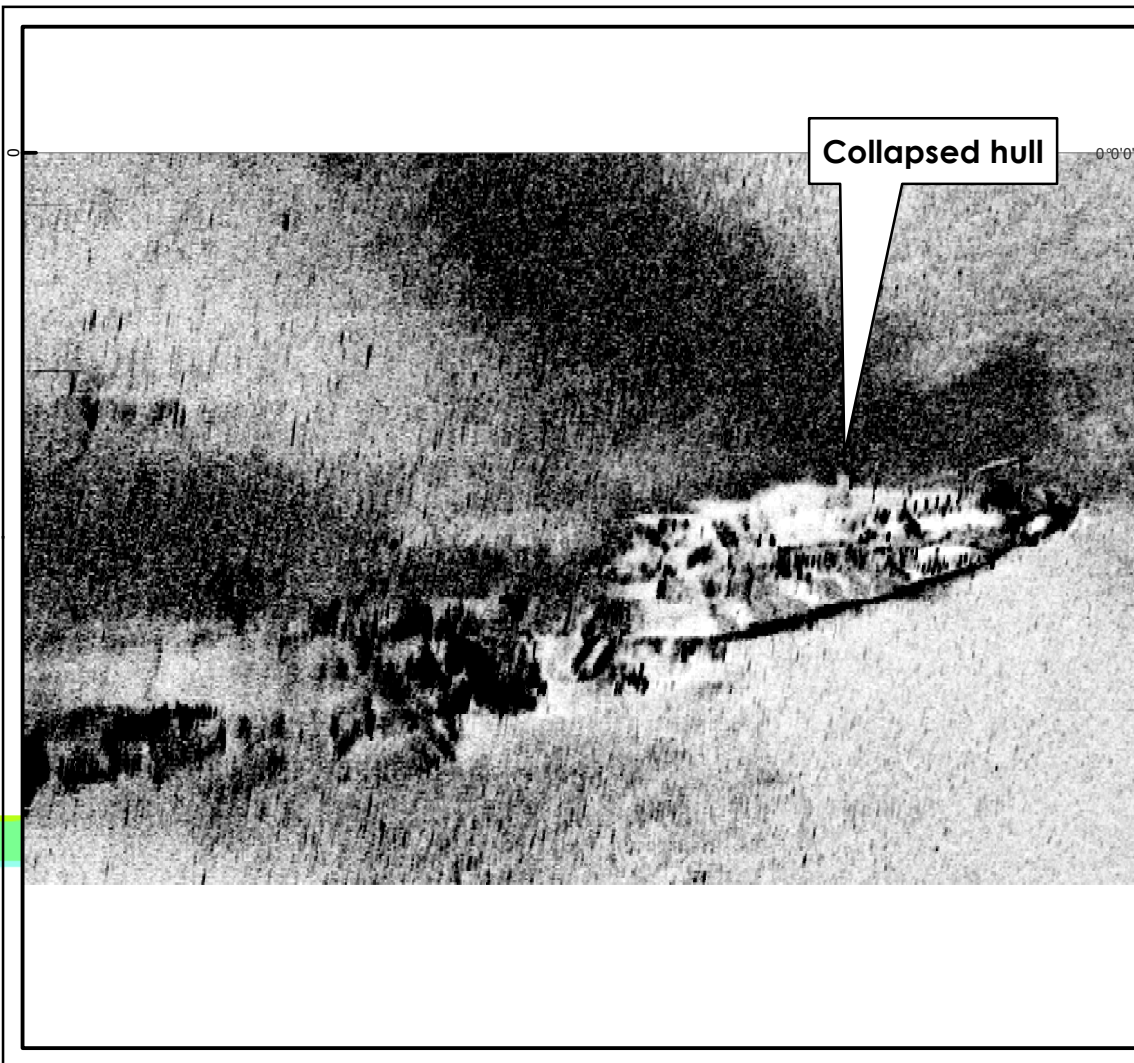
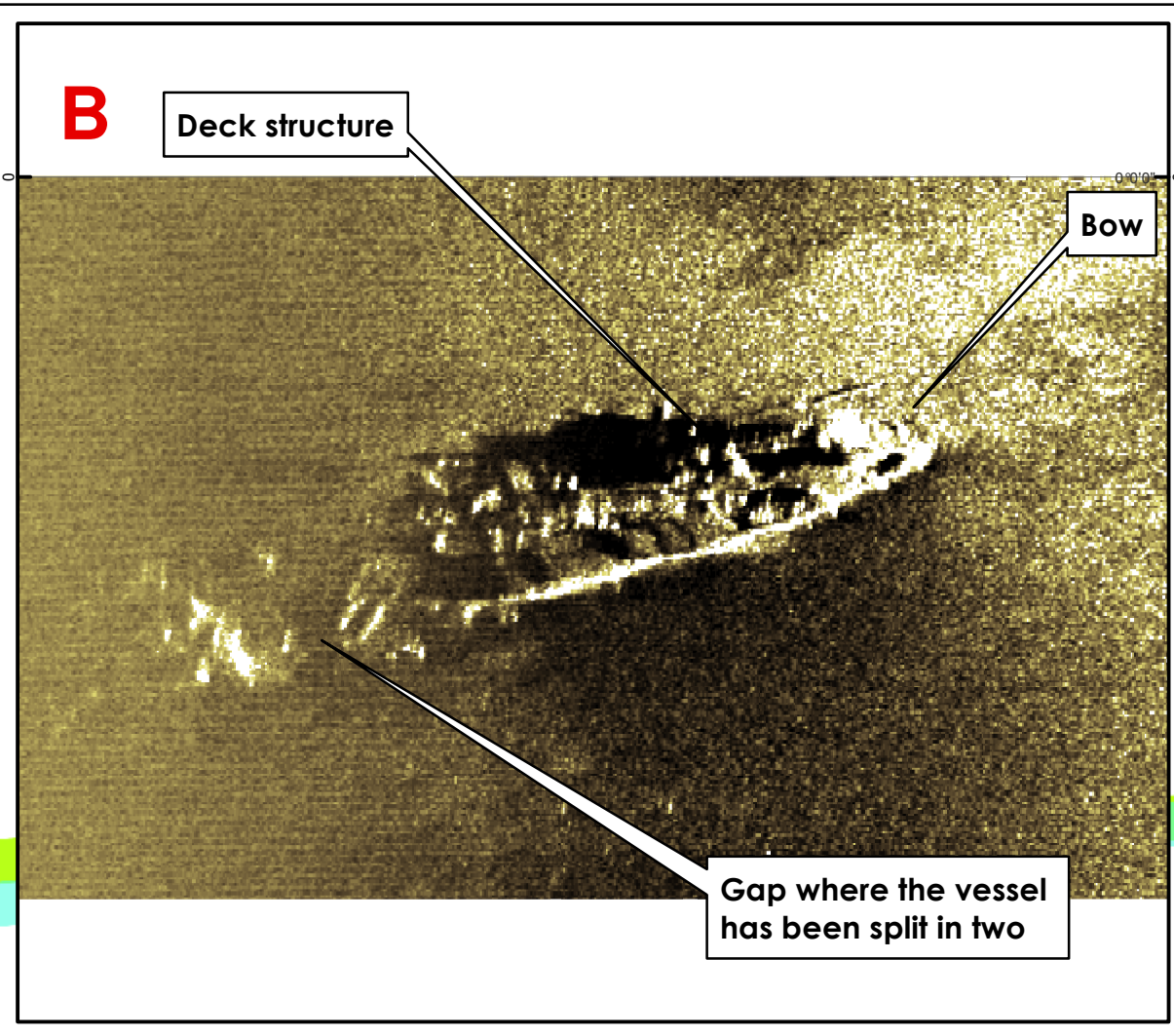
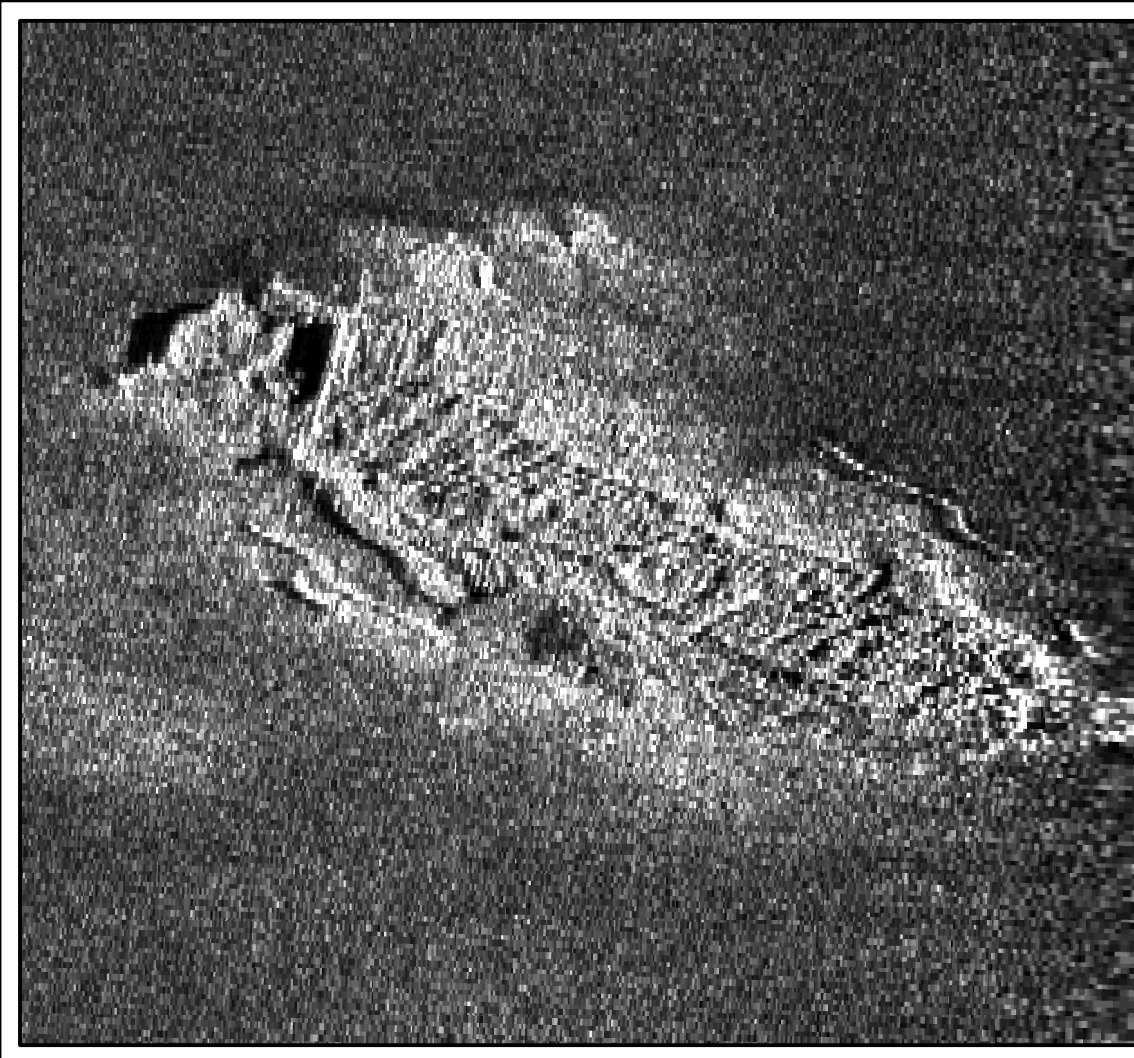
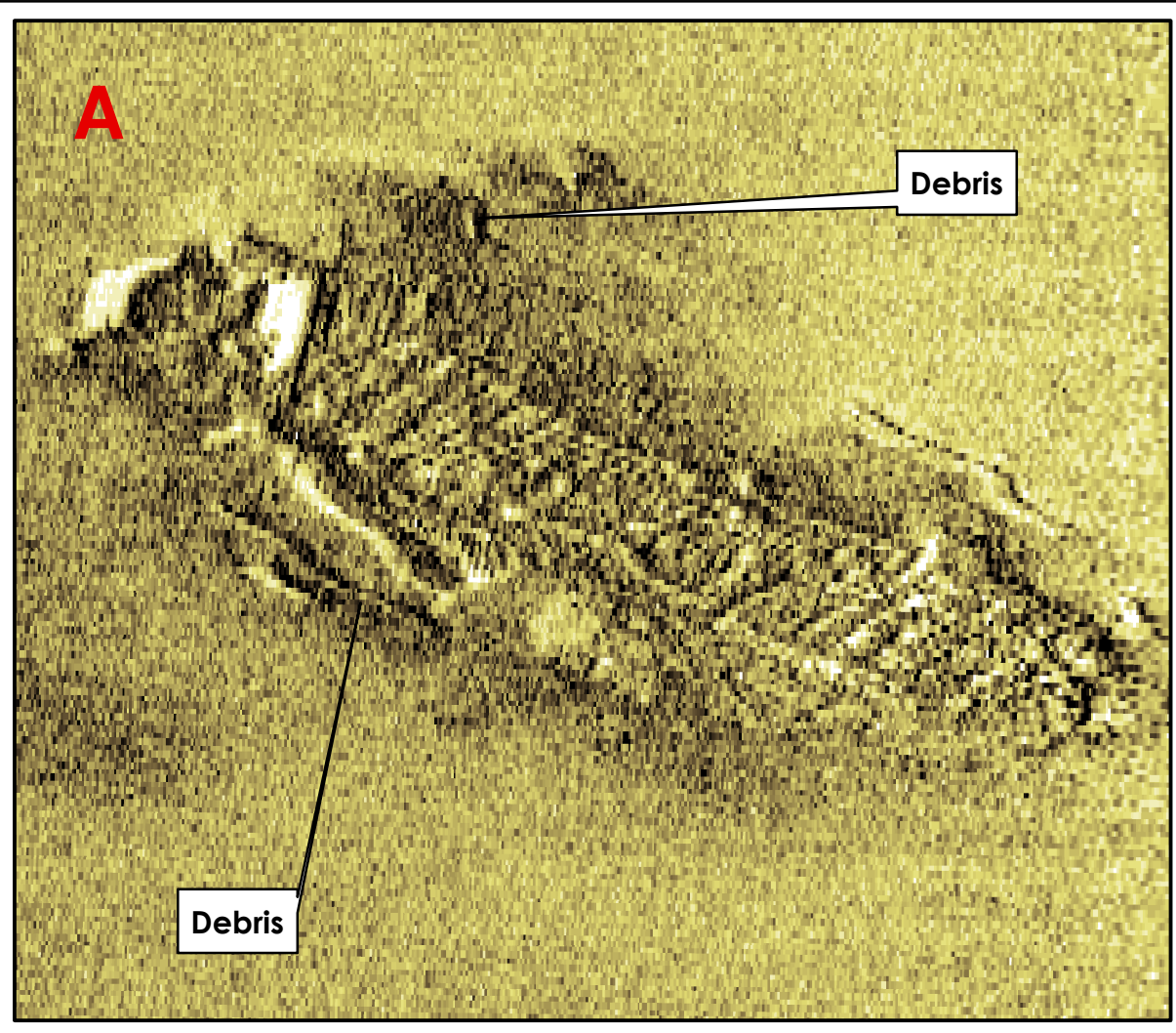
Date: 15/05/2012 Revision: B

REF: 0000000-AAA0000-AAA-AAA-000

Figure 6 Magnetometer Results

Moray Offshore Renewables Ltd





KEY

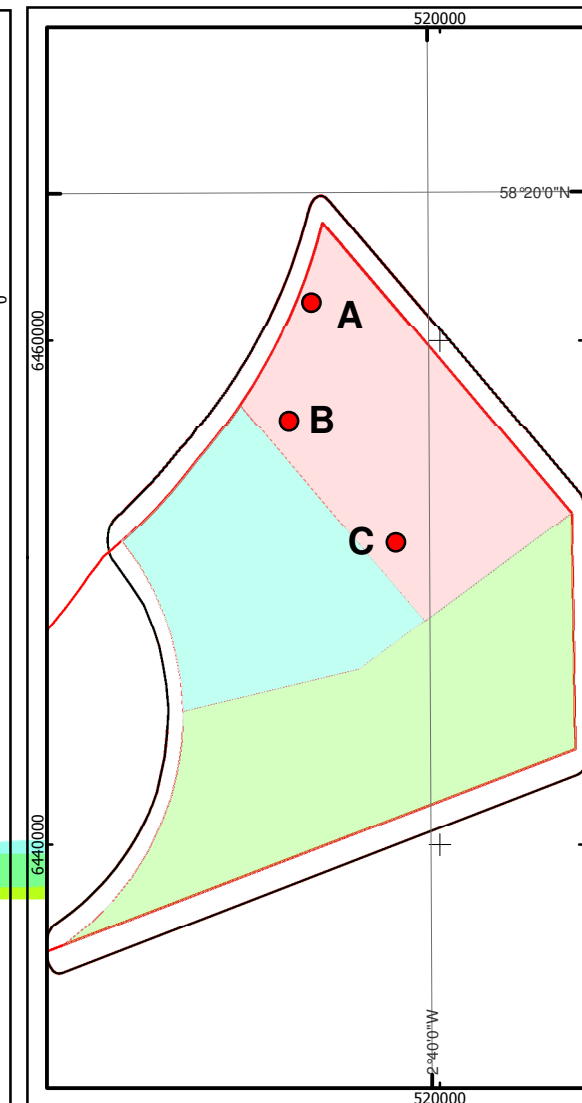
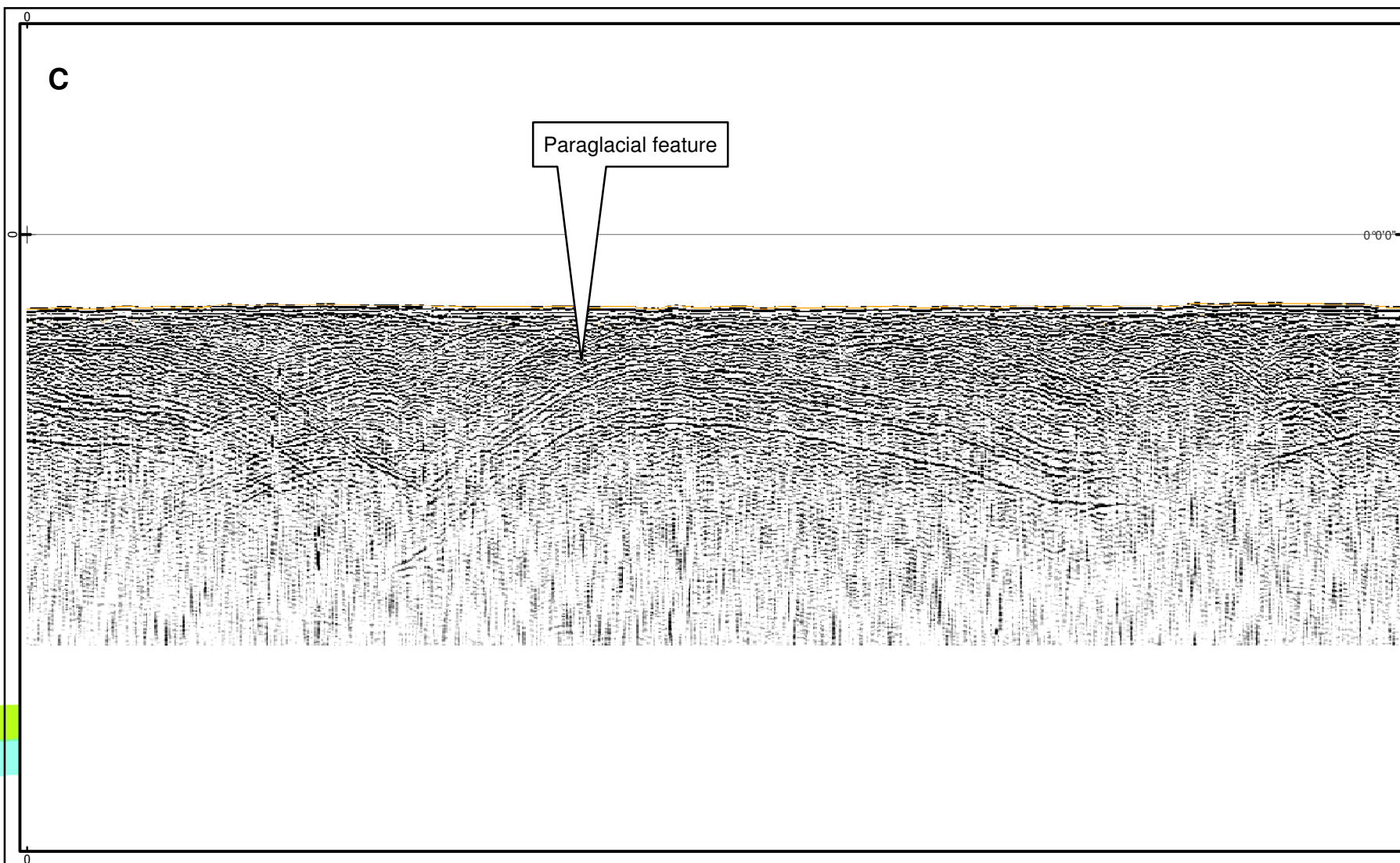
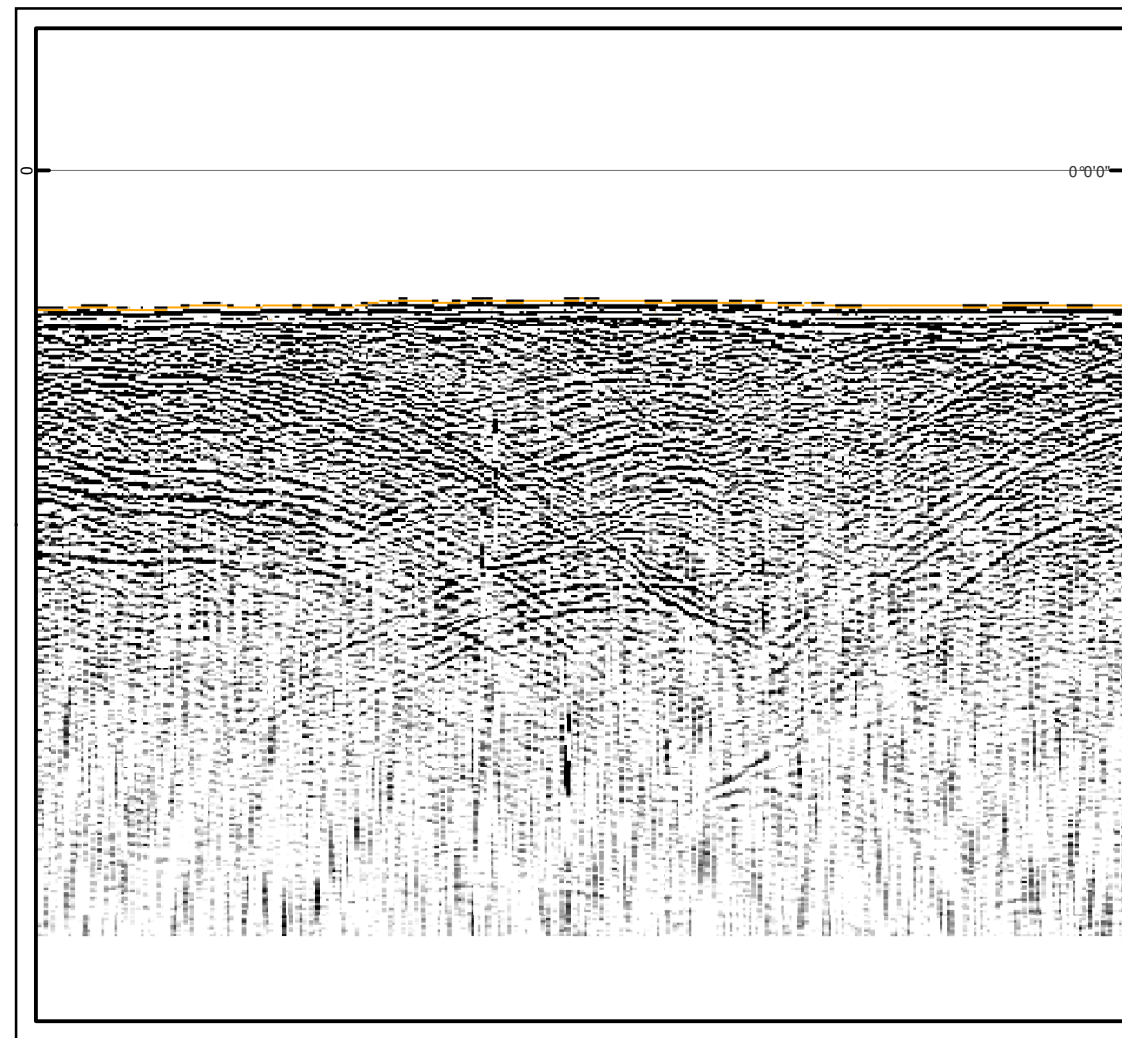
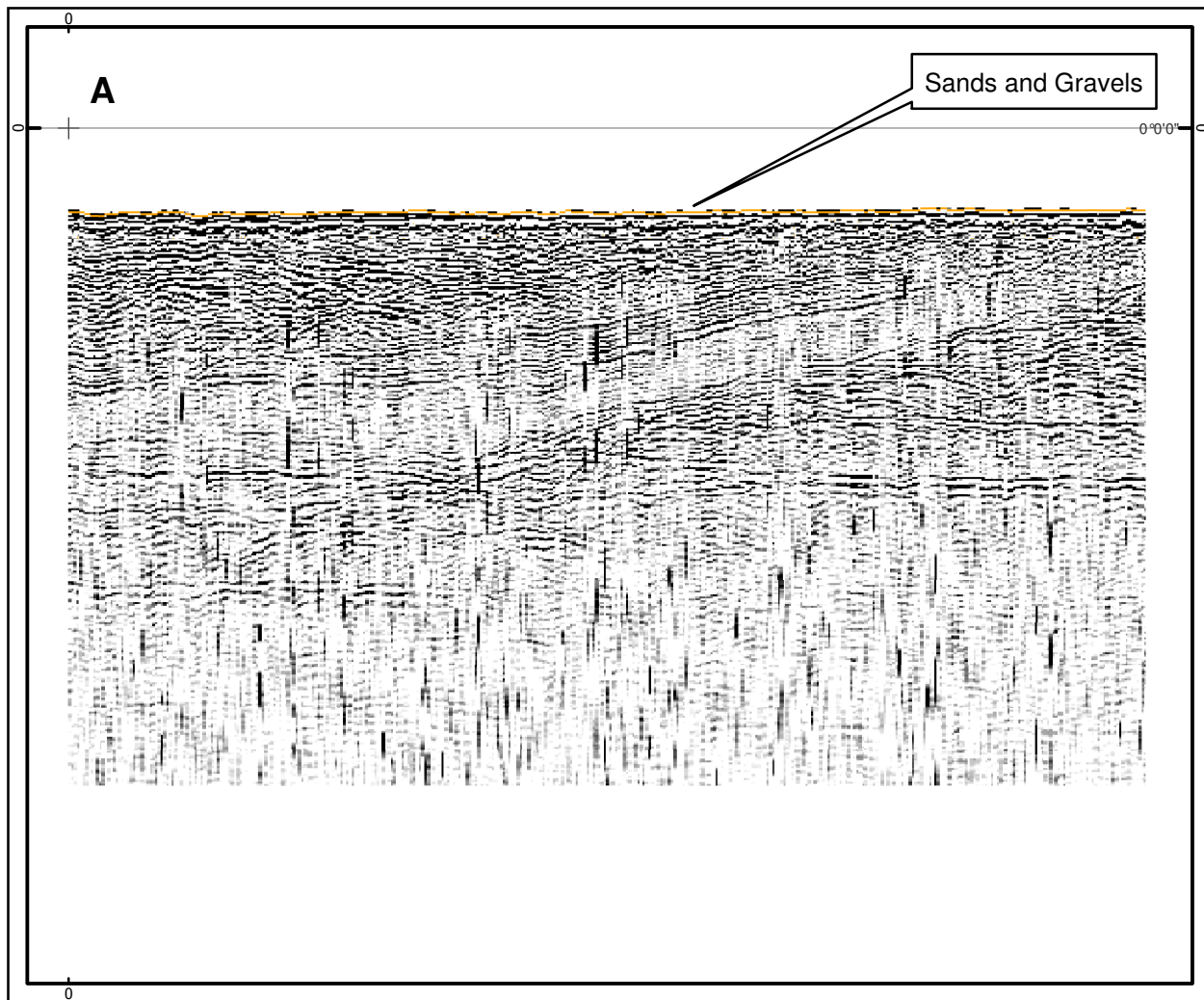
A: This wreck is thought to be the SS *Carisbrook*, a British Merchant Steamer sunk in 1915 by a German Submarine U-38. The geophysical dimensions are a length of approximately 68m, a width of 17m and a maximum height of 1.5m. The ship is in a particularly degraded and damaged condition identified from the sidescan survey data.

B. This is a shipwreck of unknown origin recorded as being 150m x 34m and a maximum height of 4m. It is recorded in the Seazone database as a live entry (UKHO 1182) and was first discovered in 1949.

Horizontal Scale: 1:3,000	A3 Chart
Geodetic Parameters: WGS84 UTM Zone 30N	
Produced: AM	
Reviewed: DA	
Approved: PH	
Date: 16/05/2012	Revision: B
REF: 0000000-AAA0000-AAA-AAA-000	

Figure 8 Sidescan Image HA157 & HA158

Moray Offshore Renewables Ltd © 2011. This document is the property of contractors and sub-contractors and shall not be reproduced nor transmitted without prior written approval.



Moray Offshore Renewables Ltd

Key

- Telford
- Stevenson
- MacColl
- Moray Offshore Development Area
- 1KM Buffer

Horizontal Scale: 1:300,000 A3 Chart
 0 6,000 12,000 Meters

Geodetic Parameters: WGS84 UTM Zone 30N

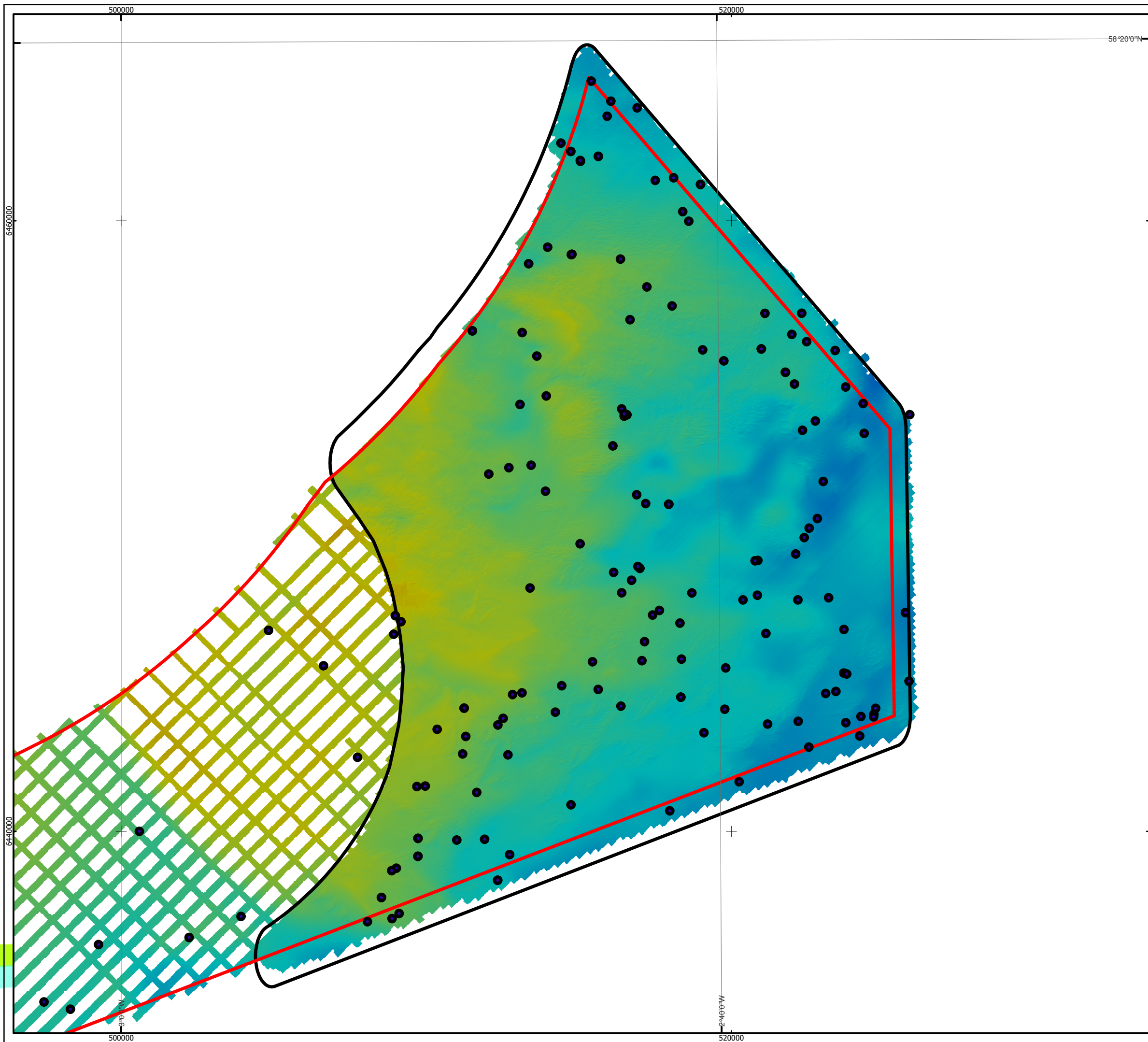
Produced: AM
 Reviewed: DA
 Approved: PH

Date: 16/05/2012 Revision: B
 REF: 0000000-AAA0000-AAA-AAA-000

Figure 9 Sub-bottom Profiler

Moray Offshore Renewables Ltd

Moray Offshore Renewables Ltd © 2011. This document is the property of contractors and sub-contractors and shall not be reproduced nor transmitted without prior written approval.



Moray Offshore Renewables Ltd

Key

- HW Targets
- Moray Offshore Development Area
- 1KM Buffer

Horizontal Scale: 1:119,668 A3 Chart
0 3,000 6,000 Meters

Geodetic Parameters: WGS84 UTM Zone 30N

Produced: AM
Reviewed: DA
Approved: PH

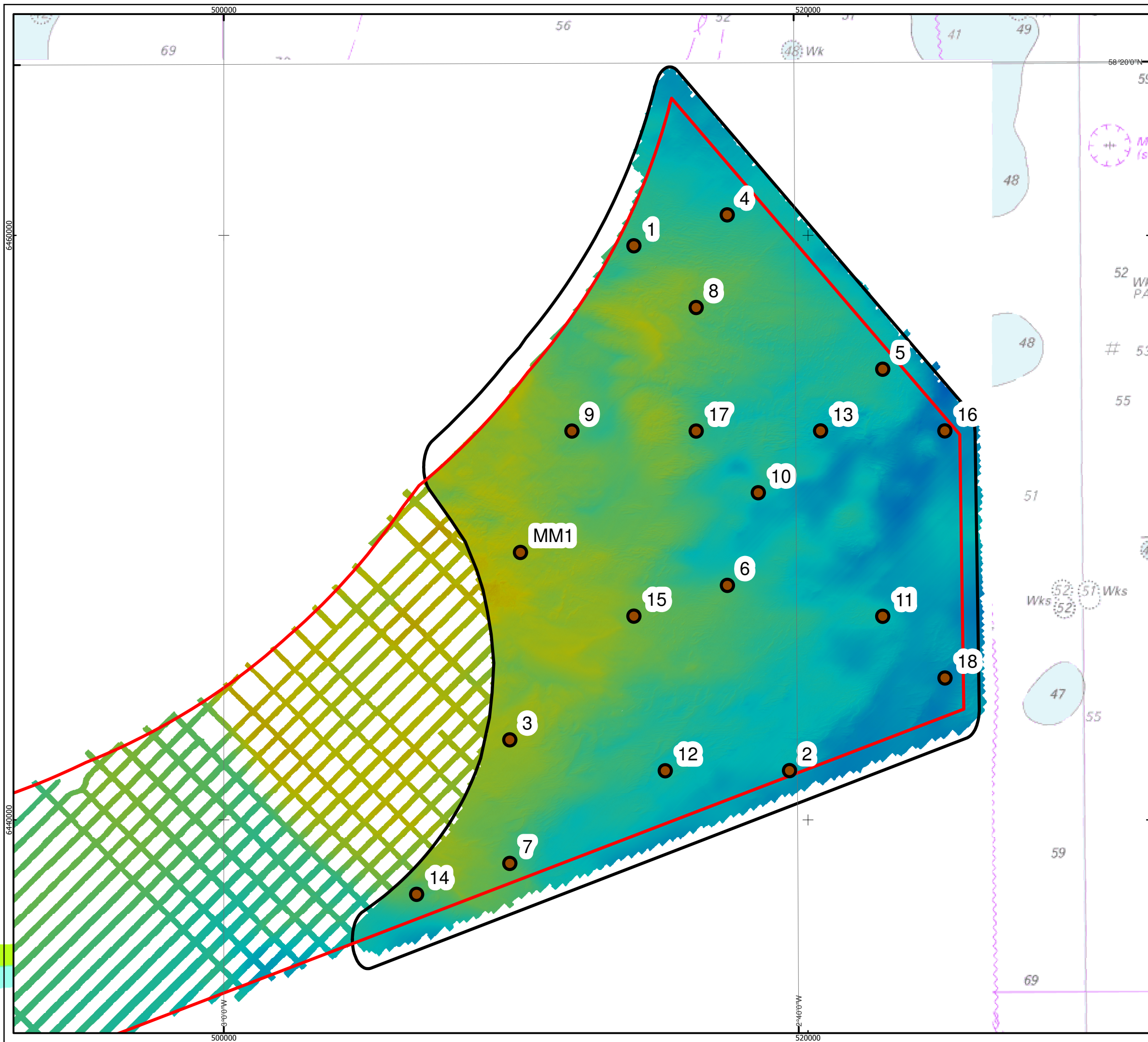
Date: 16/05/2012 Revision: B

REF: 0000000-AAA0000-AAA-AAA-000

Figure 10 Bathymetry Data

Moray Offshore Renewables Ltd

Moray Offshore Renewables Ltd © 2011. This document is the property of contractors and sub-contractors and shall not be reproduced nor transmitted without prior written approval.



Moray Offshore Renewables Ltd

Key

- Borehole Locations
- Moray Offshore Development Area
- 1KM Buffer

Horizontal Scale: 1:125,000 A3 Chart
0 2,500 5,000 Meters

Geodetic Parameters: WGS84 UTM Zone 30N

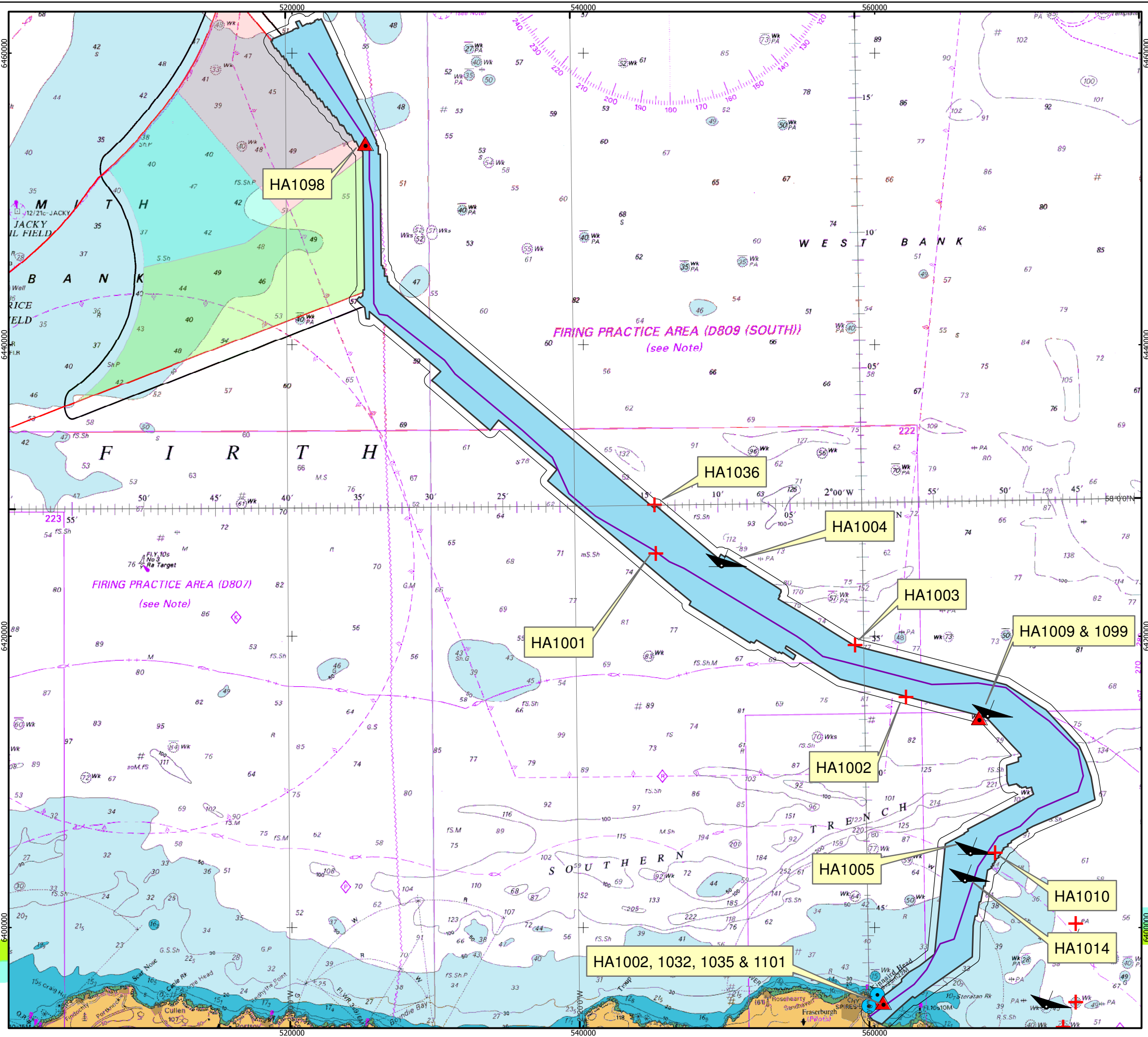
Produced: AM
Reviewed: DA
Approved: PH

Date: 16/05/2012 Revision: B
REF: 0000000-AAA0000-AAA-AAA-000

Figure 11 Borehole Locations

Moray Offshore Renewables Ltd

SeaZone Solutions Limited, 2005 012009.001
Moray Offshore Renewables Ltd © 2011. This document is the property of contractors and sub-contractors and shall not be reproduced nor transmitted without prior written approval.



Moray Offshore Renewables Ltd

Key

SeaZone Wrecks

Status

- LIVE
- DEAD
- LIFT
- Obstruction
- Fraserburgh Route
- OfTO Inner Study Area
- OfTO Outer Study Area
- MacColl
- Stevenson
- Telford
- Moray Offshore Development Area
- 1KM Buffer

Horizontal Scale: 1:250,000 A3 Chart N

Geodetic Parameters: WGS84 UTM Zone 30N

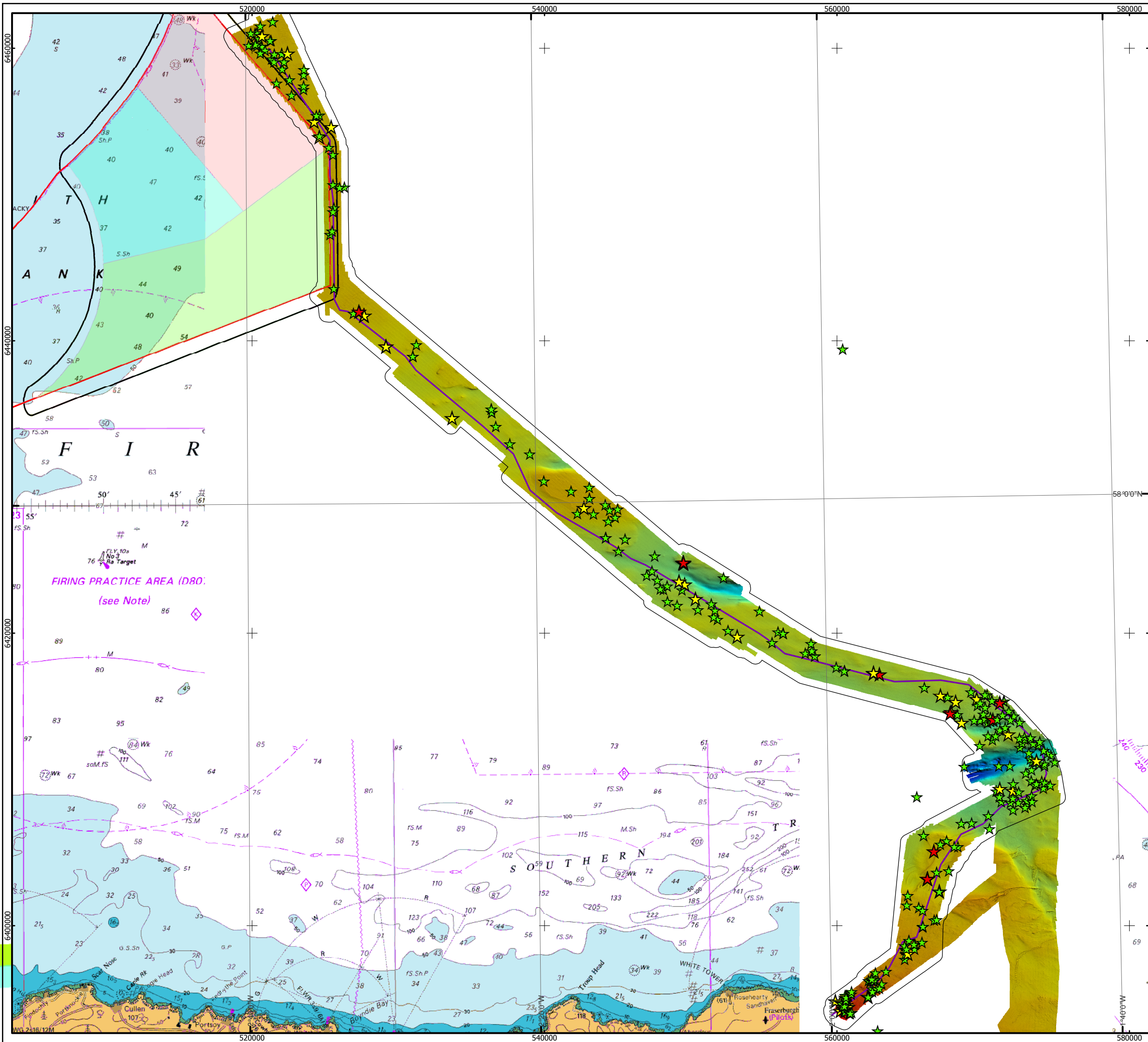
Produced: AM
 Reviewed: DA
 Approved: PH

Date: 14/05/2012 Revision: B
 REF: 8460001-PPW0200-HEA-MAP-003

Figure 12 OfTO Location Map & Targets

Moray Offshore Renewables Ltd

SeaZone Solutions Limited, 2005 012009.001
Moray Offshore Renewables Ltd © 2011. This document is the property of contractors and sub-contractors and shall not be reproduced nor transmitted without prior written approval.



Moray Offshore Renewables Ltd

Key

Geophysical Targets

- ★ High
- ★ Medium
- ★ Low

- Fraserburgh Route
- OfTO Outer Study Area
- Telford
- Stevenson
- MacColl
- Moray Offshore Development Area
- 1KM Buffer

Horizontal Scale: 1:250,000 A3 Chart
0 6,000 12,000 Meters

Geodetic Parameters: WGS84 UTM Zone 30N

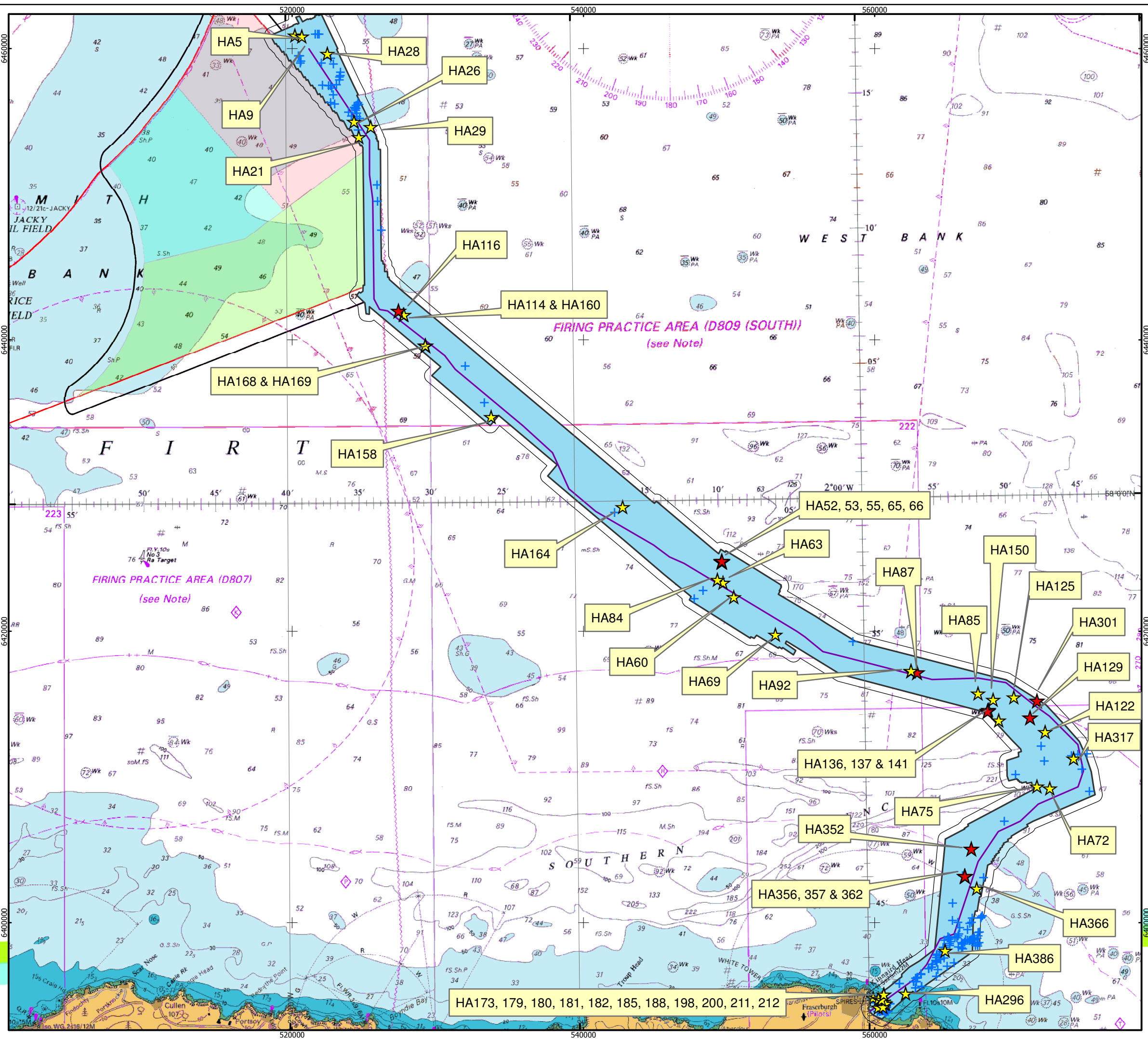
Produced: AM
Reviewed: DA
Approved: PH

Date: 14/05/2012 Revision: B
REF: 8460001-PPW0200-HEA-MAP-003

Figure 13 OfTO
Bathymetry

Moray Offshore
Renewables Ltd

SeaZone Solutions Limited, 2005 012009.001
Moray Offshore Renewables Ltd © 2011. This document is the property of contractors and sub-contractors and shall not be reproduced nor transmitted without prior written approval.



Moray Offshore Renewables Ltd

Key

Geophysical Targets

- ★ High
- ☆ Medium
- + Magnetic Anomalies

- Fraserburgh Route
- OfTO Inner Study Area
- OfTO Outer Study Area
- Telford
- Stevenson
- MacColl
- Moray Offshore Development Area
- 1KM Buffer

Horizontal Scale: 1:250,000 A3 Chart
 0 6,000 12,000 Meters

Geodetic Parameters: WGS84 UTM Zone 30N

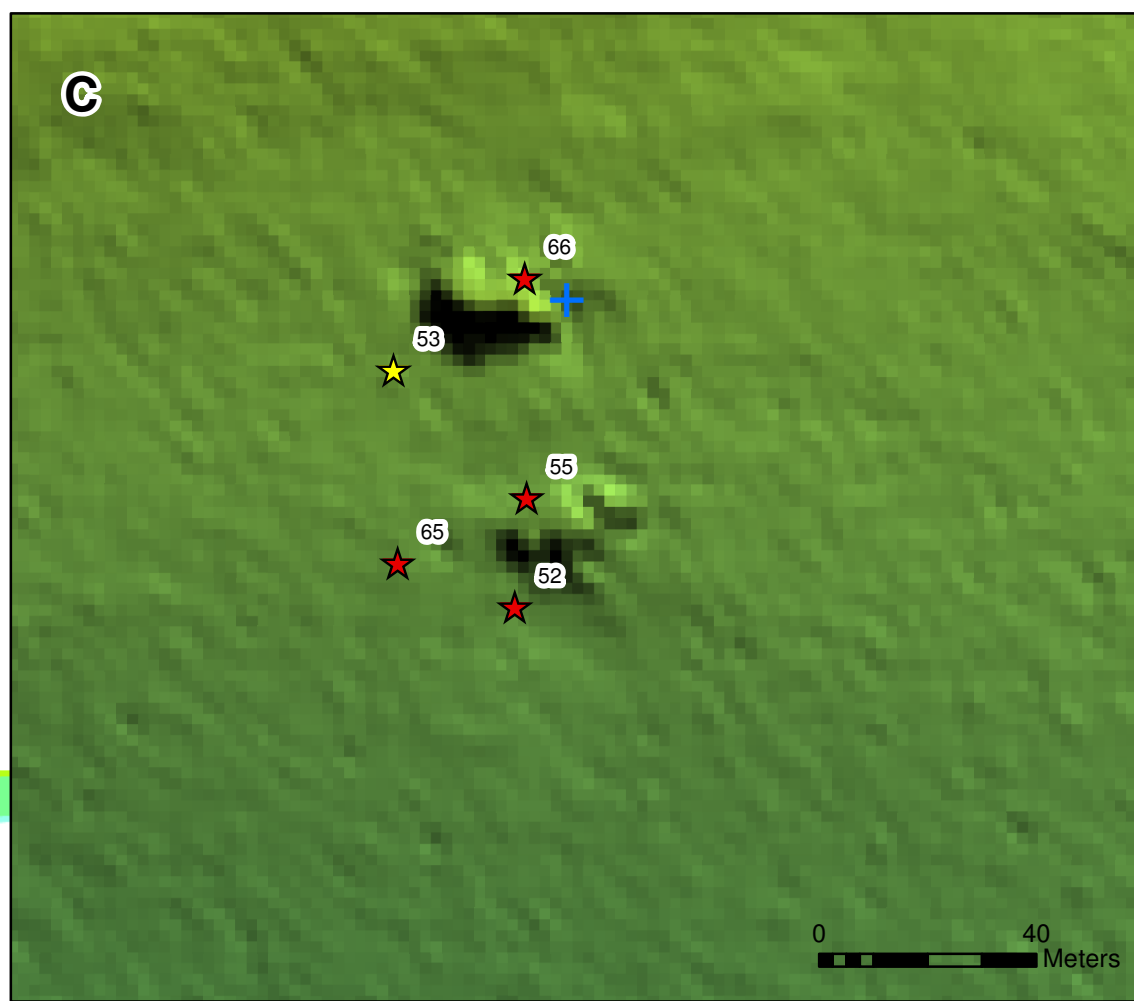
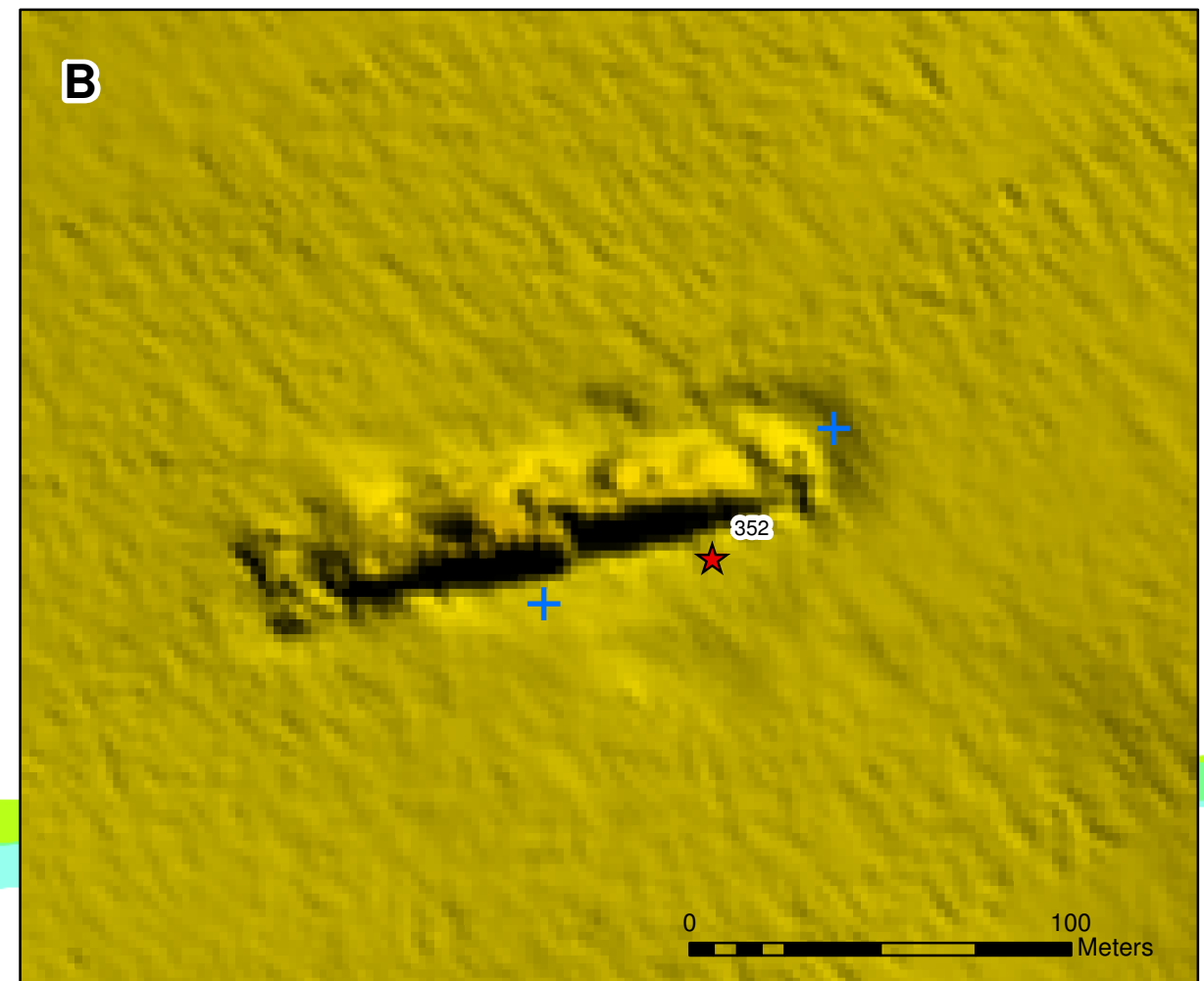
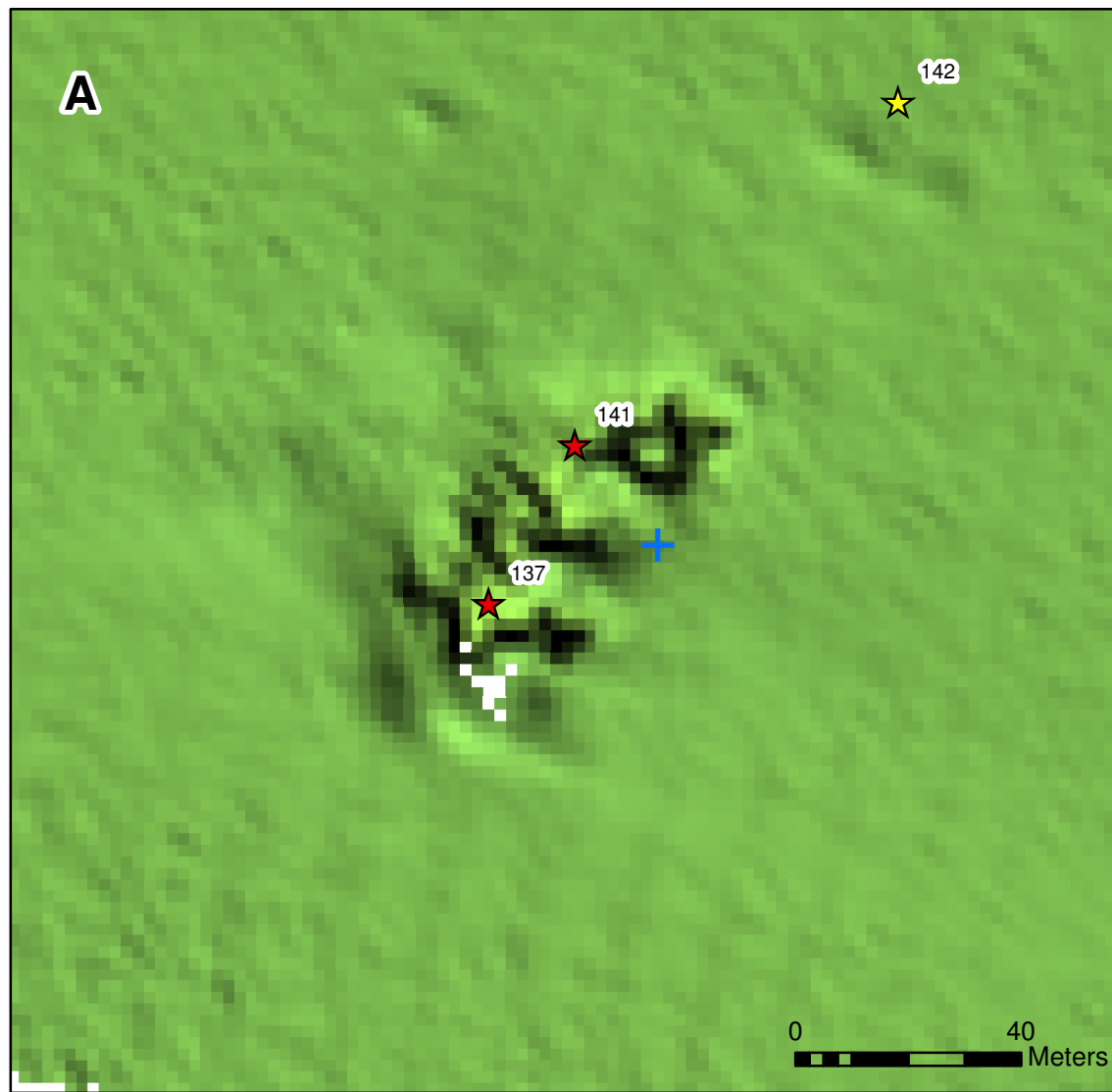
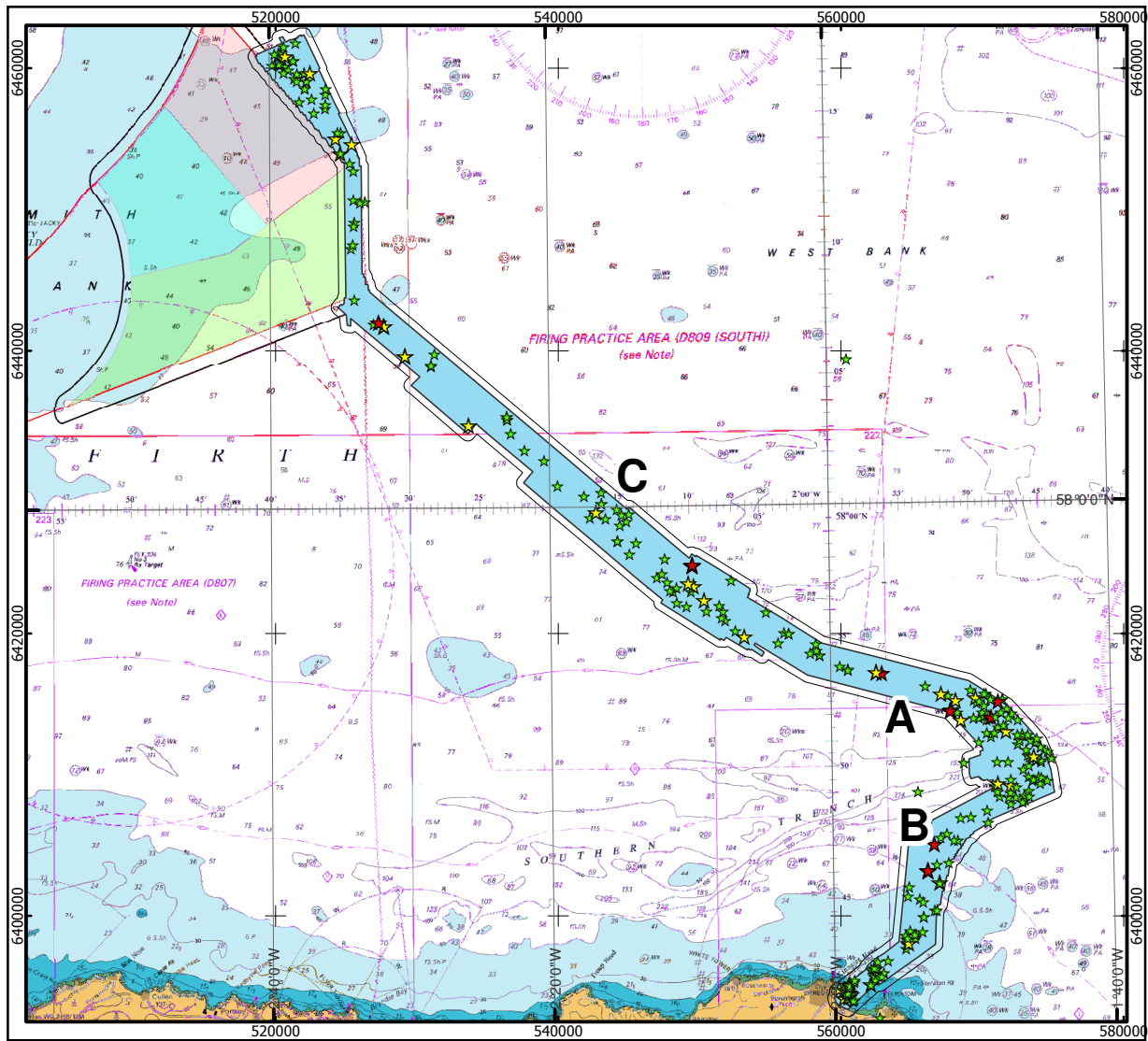
Produced: AM
 Reviewed: DA
 Approved: PH

Date: 14/05/2012 Revision: B
 REF: 8460001-PPW0200-HEA-MAP-003

Figure 14 OfTO Archaeological Potential

Moray Offshore Renewables Ltd

SeaZone Solutions Limited, 2005 012009.001
Moray Offshore Renewables Ltd © 2011. This document is the property of contractors and sub-contractors and shall not be reproduced nor transmitted without prior written approval.



Moray Offshore Renewables Ltd

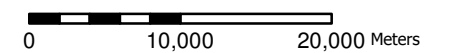
Key

Geophysical Targets

- ★ High
- ★ Medium
- ★ Low
- + Magnetic Anomalies
- OfTO Inner Study Area
- OfTO Outer Study Area
- Telford
- Stevenson
- MacColl
- Moray Offshore Development Area
- 1KM Buffer

Horizontal Scale: 1:500,000

A3 Chart



Geodetic Parameters: WGS84 UTM Zone 30N

Produced: AM
Reviewed: DA
Approved: PH

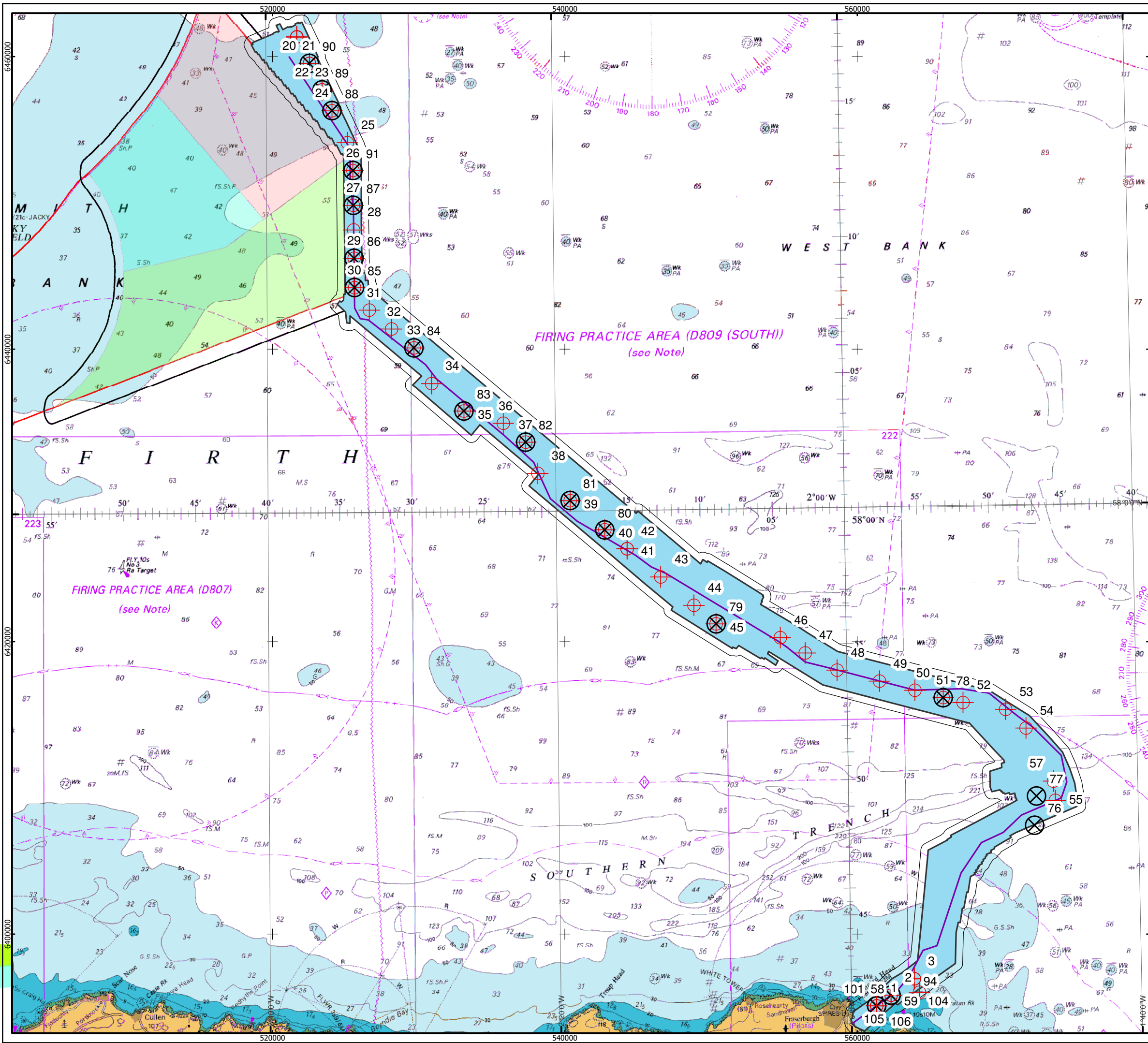
Date: 14/05/2012 Revision: B

REF: 8460001-PPW0200-HEA-MAP-003

Figure 15 Wrecks on Multibeam




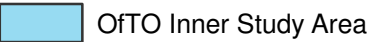




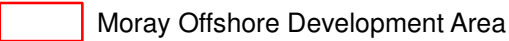

Moray Offshore Renewables Ltd

SeaZone Solutions Limited, 2005 012009.001
Moray Offshore Renewables Ltd © 2011. This document is the property of contractors and sub-contractors and shall not be reproduced nor transmitted without prior written approval.



Moray Offshore Renewables Ltd

Key

-  CPT
-  VCORE
-  Fraserburgh Route
-  OfTO Inner Study Area
-  OfTO Outer Study Area
-  Telford
-  Stevenson
-  MacColl
-  Moray Offshore Development Area
-  1KM Buffer

Horizontal Scale: 1:250,000 A3 Chart
0 6,000 12,000 Meters

Geodetic Parameters: WGS84 UTM Zone 30N

Produced: AM
Reviewed: DA
Approved: PH

Date: 14/05/2012 Revision: B
REF: 8460001-PPW0200-HEA-MAP-003

Figure 16 Borehole Location Map

Moray Offshore Renewables Ltd