

**BRITISH TELECOMMUNICATIONS PLC**

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**Scotland - Northern Ireland (Scot-NI) 3 and 4  
Replacement Cables**

**Technical Appendix G3 - Marine Archaeology and Cultural Heritage Technical Report -  
Scot NI 3 & Scot NI 4**

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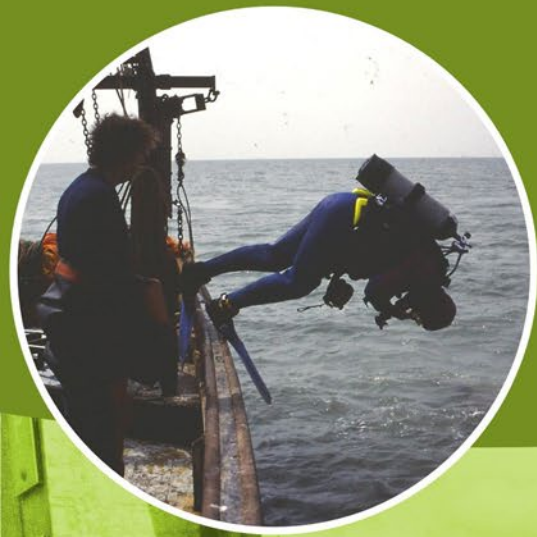
# BT Scotland- Northern Ireland: SCOT-NI 4

*Marine archaeology and  
cultural heritage  
Technical report*

for  
Intertek

CA ref: 190203

November 2020



## BT Scotland-Northern Ireland: SCOT-NI 4 cable

Marine archaeology and cultural heritage technical report

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## **SUMMARY**

### **Project name: BT Scotland-Northern Ireland: SCOT-NI 4**

Coracle Archaeology was commissioned by Intertek Energy & Water Consultancy Services on behalf of British Telecommunications (BT) to provide marine archaeological services in support of the BT Scotland-Northern Ireland telecommunications cables project. These services included an archaeological desk-based assessment, an assessment of geophysical and geotechnical data, and walkover and geophysical surveys at the landfall locations, the findings of which are collated here.

The BT-Scotland-Northern Ireland telecommunications cables project is a proposed submarine telecommunications cable system between Scotland and Northern Ireland, comprising two individual, discrete cables:

- **SCOT-NI 3** - landfall at Portpatrick, Scotland and Donaghadee, Northern Ireland; and
- **SCOT-NI 4** - landfall at Girvan, Scotland, and Larne, Northern Ireland.

This technical report presents a summary of the archaeological assessments along the proposed cable route of SCOT-NI 4 (Girvan to Larne). A separate report has been prepared for SCOT-NI 3.

The desk-based assessment provided a base line assessment of known sites and features of cultural heritage significance within a 1km study area, centred on the proposed cable route. This report summarises the results solely from within the 500m wide cable survey corridor, which corresponds with the marine geophysical and geotechnical survey areas. Assessment of marine geophysical and bathymetric survey data included the analysis of multibeam echosounder, sidescan sonar, magnetometer and sub-bottom profiler data. The geotechnical assessment reviewed data from cone penetration tests, gravity cores and grab samples to assess the archaeological and palaeo-environmental potential of the sub-surface sediments. The non-intrusive surveys at the proposed landfall locations comprised walkover, hand-held metal-detector and geophysical surveys.

The desk-based assessment recorded seven cultural heritage assets within the SCOT-NI 4 cable survey corridor, including five wrecks, one aircraft and one monument. The non-intrusive landfall surveys assessed both known historic assets and the cultural heritage potential of the study area. No features of clear archaeological potential were identified.

Analysis of the marine geophysical survey data identified 15 geophysical anomalies with archaeological potential; it is possible that one relates to a known historic asset previously recorded beyond the cable survey corridor. Archaeological exclusion zones have been proposed for seven of these anomalies, including four considered to be of high, and three of medium archaeological potential. The geo-archaeological assessment of the sub-bottom profile data and the collected samples did not reveal any features with palaeo-environmental or archaeological potential.

Two of the archaeological exclusion zones are intersected by the current Proposed Development and will require further mitigation.

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**LIST OF ACRONYMS USED IN THE TEXT**

<b>ADS</b>	Archaeology Data Service
<b>BMH</b>	Beach manhole
<b>CA</b>	Coracle Archaeology
<b>CD</b>	Chart Datum
<b>CifA</b>	Chartered Institute for Archaeologists
<b>COARS</b>	Coastal and Offshore Archaeological Research Services
<b>CPT</b>	Cone penetration test
<b>CSC</b>	Cable survey corridor
<b>EMODnet</b>	European Marine Observation and Data Network
<b>EPSG</b>	European Petroleum Survey Group
<b>FGMG</b>	Fugro Germany Marine GmbH
<b>GC</b>	Gravity core
<b>GIS</b>	Geographic Information System
<b>GPS</b>	Global Positioning System
<b>GS</b>	Grab sample
<b>grt</b>	Gross registered tonnage
<b>HER</b>	Historic Environment Record
<b>HERoNI</b>	Historic Environment Record of Northern Ireland
<b>HES</b>	Historic Environment Scotland
<b>ka</b>	Kilo annum
<b>LAT</b>	Lowest astronomical tide
<b>MBES</b>	Multibeam echosounder
<b>MHWS</b>	Mean high water springs
<b>nm</b>	Nautical miles
<b>nT</b>	nanoTesla
<b>OSGB</b>	Ordnance Survey Great Britain
<b>RoW</b>	Receiver of Wreck
<b>RSL</b>	Relative sea level
<b>SBP</b>	Sub-bottom profiler
<b>SEA</b>	Strategic Environmental Assessment
<b>SSS</b>	Sidescan sonar
<b>UKHO</b>	United Kingdom Hydrographic Office
<b>UTM</b>	Universal Transverse Mercator
<b>VORF</b>	Vertical Offshore Reference Frames
<b>WGS</b>	World Geodetic System
<b>WOSAS</b>	West of Scotland Archaeology Service
<b>WSA</b>	Wider study area

## **1. INTRODUCTION**

### ***Outline***

- 1.1. Coracle Archaeology (CA) was commissioned by Intertek Energy and Water Consultancy (Intertek) on behalf of British Telecommunications (BT) in July 2020 to undertake marine archaeology environmental assessments for the BT Scotland-Northern Ireland telecommunications cables project, including an archaeological desk-based assessment (DBA), non-intrusive geophysical and walkover surveys at the landfall locations, and an assessment of geophysical and geotechnical survey data. The results of these assessments are collated in this technical report.

### ***Proposed development***

- 1.2. The BT Scotland-Northern Ireland telecommunications cables project is a proposed submarine telecommunications cable system between Scotland and Northern Ireland, comprising two individual, discrete cables:
- **SCOT-NI 3** - landfall at Portpatrick, Scotland and Donaghadee, Northern Ireland; and
  - **SCOT-NI 4** - landfall at Girvan, Scotland, and Larne, Northern Ireland.
- 1.3. The existing cables (SCOT-NI 1 & 2) are nearing the end of their functional life, and require replacement to maintain crucial telecommunication services. The project intends to add additional capacity to the existing cables, aiming ultimately to replace them.
- 1.4. This report focuses solely on the proposed route of SCOT-NI 4 (henceforth 'the Proposed Development'). A separate technical has been prepared for SCOT-NI 3 (Coracle Archaeology 2020a).
- 1.5. The proposed route for SCOT-NI 4 will run for 84.4km between Girvan, Scotland, and Larne, Northern Ireland, including 57.5km in Scottish waters and 26.9km in Northern Irish waters. At Girvan, the existing beach manhole (BMH) infrastructure will be utilised. If necessary, a new BMH may be constructed at Larne.



***Archaeological assessments***

- 1.6. The marine archaeological DBA gathered and collated data for all known sites and features of cultural heritage significance within and in proximity to the 500m cable survey corridor (CSC). The DBA also assessed a wider study area (WSA) 1km either side of the Proposed Development, facilitating a broader understanding of the archaeological potential of the region (Coracle Archaeology 2020b). This technical report collates records solely from within the CSC.
- 1.7. The non-intrusive landfall surveys at Girvan and Larne utilised walkover, geophysical (electro-magnetic conductivity) and metal-detector surveys to identify sites and features of archaeological potential. These were compared with the results of the DBA to provide a fuller understanding of the archaeological potential of the proposed landfalls, and to assess the potential impact of the proposed development (Coracle Archaeology 2020c). The landfall geophysical survey data were collected by Coracle Archaeology and assessed by our colleagues at Headland Archaeology.
- 1.8. The marine geophysical and geotechnical survey, conducted by Fugro Germany Marine GmBh (FGMG), collected multibeam echosounder (MBES), sidescan sonar (SSS), magnetometer and sub-bottom profiler (SBP) data. These geophysical datasets were then assessed to identify, locate and characterise anomalies of archaeological potential along the CSC, with selection based on the presence of multiple lines of evidence (confirming datasets).
- 1.9. Any known and located historic assets, and geophysical anomalies identified as being of high or medium archaeological potential were then assigned an archaeological exclusion zone (AEZ) to protect them from impacts by the Proposed Development.
- 1.10. The datasets were used also to assess the archaeological and palaeo-environmental potential of sub-surface sediments (Coracle Archaeology 2020c). These were then compared with the results of the DBA. Marine geophysical and geotechnical survey data were assessed for Coracle Archaeology by our colleagues at Coastal and Offshore Archaeological Research Services (COARS), University of Southampton.

## **2. AIMS AND OBJECTIVES**

- 2.1. The aim of this technical report is to present our current understanding of the marine archaeology and cultural heritage that exists within and in proximity to the proposed development.
- 2.2. The objectives of the report are:
- to synthesise all the project-specific archaeological assessments that have been completed to date; and
  - to include information relevant only to the current proposed development.
- 2.3. All superfluous information, such as the legislative framework and professional guidance, data sources, survey and assessment specifications and methods etc, has been removed but can be found with reference back to the original report.

### ***Geographical scope***

- 2.4. The DBA assessed a 500m wide CSC and 2km wide WSA centred on the Proposed Development, along the entire route from mean high water springs (MHWS) at the proposed landfall locations. The WSA enabled an assessment of the archaeological potential along the route, and highlighted notable sites in the vicinity of the proposed development. The purpose of the DBA was to identify known and potential sites within the CSC that could be affected by the Proposed Development.
- 2.5. Though strictly beyond the remit of the report, the DBA also assessed the archaeological potential of the area in the immediate vicinity of the landfall location, contributing to a broader understanding of the results of the landfall surveys (see Coracle Archaeology 2020c). This technical report collates records solely from within the 500m wide CSC.

### ***Consultation with statutory bodies***

- 2.6. The primary statutory bodies consulted for the DBA were Historic Environment Scotland and Historic Environment Division, Department for Communities, Northern Ireland. Consultations were also held with the offices of the South Ayrshire HER, as curated by the West of Scotland Archaeology Service (WoSAS). Owing to ongoing COVID-19

constraints at the time of reporting, it was not possible to consult with local curators at Larne.

### **3. RESULTS**

#### ***Palaeo-environment baseline assessment***

- 3.1. The following section outlines the nature of the existing environment in the vicinity of the Proposed Development, through a review of available data and published sources. It assists in the analysis of seabed and sub-seabed deposits, and enables the identification of those likely to be of palaeo-environmental and archaeological interest.
- 3.2. The bathymetry of the study area clearly shows the presence of the deep North Channel that separates Scotland from Northern Ireland. The channel passes through the centre of the route corridor, reaching a maximum depth of c. 200m below chart datum (CD). Either side of this channel, the bathymetry shallows gradually towards the coastline, reaching c. 60m below CD c. 30km from Girvan and 5-10km from Larne.
- 3.3. The geology along the CSC consists largely of undifferentiated bedrock situated below shallow superficial deposits, ranging in age from the Ordovician on the Scottish shore through to Upper Cretaceous deposits and Tertiary-age Lower Basalts around Larne.
- 3.4. The superficial deposits across the seabed in the western part of the study area are composed of thin sands and gravels (less than 1m and often <0.3m in thickness). These occasionally overlie localised thick deposits of glacial till (sometimes exceeding 50m in thickness) preserved within incised channels running parallel with the North Channel.
- 3.5. By contrast, thick deposits of acoustically-layered, silty-clay, up to 30m in thickness, dominate the proposed route in Scottish waters in the lower Firth of Clyde. These overlie 5-10m of till sitting on the bedrock surface and extend up to 30km offshore from Girvan.
- 3.6. Where these layered silty-clays have been investigated, the reflectors have been shown to be unrelated to lithological changes and the sediment-type appears relatively homogeneous. These deposits are likely to have been deposited in a marine

environment in the late-glacial period, though fluctuations in sea-level could have led to some deposits in shallow water becoming littoral. This is evident along the Ayrshire coastline, where a wedge of sand interfingers seawards into the deeper water clay facies.

- 3.7. Investigations of the base of the layered silty-clays, south-east of Campbeltown, Kintyre have shown that the base of the sequence was likely to have been deposited during the Windermere interstadial, c. 14.7-12.7 kilo annum (ka). The Loch Lomond stadial cooling (c. 12.7-11.7 ka) was observed by a significant reduction in cysts, with a further increase in populations indicating the onset of the Holocene period c. 11.7 ka (Deegan *et al.* 1973). To the west, the thickness of superficial deposits significantly reduces towards the North Channel area where the strong tidal currents result in very thin and discontinuous deposits.
- 3.8. The later Pleistocene history of the area is dominated by Late Devensian events associated with the British Irish Ice Sheet, pre-dating the deposition of acoustically-layered silty-clay. Investigations of the glacial history of this area suggest that ice expansion towards the shelf edge commenced c. 35-32 kilo annum (ka), initially spreading into Ireland, the Irish Sea Basin and northern England, before the establishment of an ice divide across the North Channel c. 28-27 ka (Clark *et al.* 2012; Hughes *et al.* 2014; Ballantyne & Small 2019). During this expansion, the North Channel would have constituted an important ice flow path for the ice sheets, forming a substantial ice stream network together with ice from Ireland and northern Scotland (Hughes *et al.* 2014). This persisted until the separation of the British and Irish Ice Sheets c. 17-16 ka (Clark *et al.* 2012).
- 3.9. The high glacial load in this region indicates that post-glacial relative sea level (RSL) change has been non-monotonic, falling from well above present to a minimum in the early Holocene, then rising again to a mid-Holocene high-stand, before falling to present levels (Shennan *et al.* 2018; Carter 1982). Coastlines emergent after glacial retreat are today recognised as relict features up to 20m above modern sea level. Early Holocene

sea levels at c.11 ka are likely to have been only 5-15m below the present level, rising to about 5-10m by c. 6 ka.

- 3.10. This interplay between eustatic and isostatic factors throughout the late Pleistocene and Holocene means that the potential zone for locating submerged palaeo-landscapes on both the Scottish and Northern Irish coastlines is confined to near-shore and on-shore areas, located between c. -15 and +30m. This is replicated in other studies within the Irish record: Westley and Woodman (2020), for example, demonstrate that chronologically constrained (i.e. concentrated within the Holocene, with perhaps brief windows into the late Glacial) and extensive submerged landscapes are likely to be rare, given the limited shelf exposure, glacial history and high-energy conditions. Evidence for submerged palaeo-landscapes and prehistoric activity are therefore likely to be found only within 1-2km of each respective landfall, with the rest of the route sub-tidal throughout the post-glacial period (see Deegan *et al.* 1973).

### ***Archaeological assessments***

#### *Summary*

- 3.11. The DBA highlighted seven records within the CSC along the entirety of the proposed route, including five wrecks, one aircraft and one monument (Table 1). In addition, following the analysis of the marine geophysical survey data (Coracle Archaeology 2020c), one wreck (**CA4\_18**) that was initially recorded beyond the CSC is now included within this assessment. There are no designated or protected historic assets within the SCOT-NI 4 CSC.
- 3.12. The landfall walkover surveys located and recorded known assets highlighted in the DBA, including one monument within the CSC at Girvan (see Coracle Archaeology 2020c). No known assets were identified at Larne in the DBA, and no new features of archaeological potential were observed within the CSC at either location.

**Table 1 Cultural heritage assets within the CSC**

Type	CSC
Wreck	6
Aircraft	1
Obstruction	0
Findspot	0
Monument	1
Site	0
<b>Total</b>	<b>8</b>

- 3.13. Electrical conductivity surveys conducted at both landfall locations did not identify any anomalies of archaeological potential (see Coracle Archaeology 2020c).
- 3.14. The presence of scrap metal on the beaches at Girvan and Larne may account for the significant numbers of metal-detections at both locations. At Girvan, it is possible to discern some line-patterning in the data; at Larne the combination of scrap-metal and casual beach losses may explain the seemingly random distribution of detections, many of which appear to have been moved by the tides, close to the high water mark (Coracle Archaeology 2020c).
- 3.15. Fifteen geophysical anomalies with archaeological potential were identified during the analysis of marine survey data (Table 2; see also Coracle Archaeology 2020c). Of these, four are classified as being of high, and three of medium, archaeological potential. It is possible that one corresponds to a known historic asset.
- 3.16. Archaeological exclusion zones have been defined for all anomalies classified as being of high or medium archaeological potential, ranging in radius from 18-50m. Two AEZs are currently intersected by the Proposed Development (**CA\_4002; CA\_4013**).
- 3.17. Other geophysical anomalies identified in the survey data consisted of boulders, often with associated scour. These anomalies had no associated magnetic signature so are likely to be natural in origin and have no archaeological potential.

3.18. A number of in-operation cables were also identified crossing the CSC. Anomalies associated with these cables are not considered further in this archaeological assessment (see Global Marine 2020 for more information).

**Table 2 Geophysical anomalies within the CSC**

CA no.	Easting UTM 30N	Northing UTM 30N	Description	Archaeological Potential	Proposed AEZ Radius
CA_4001	376047	6120983	Magnetic anomalies SN4-G-UMC018 (119nT) and SN4-G-UMC019 (137nT). No SSS or bathymetry anomalies	Low	N/A
CA_4002	371356	6120172	Magnetic anomalies SN4-D-UMC0350-55 (55-172nT) associated with area of increased seabed roughness in SSS	Medium	30m
CA_4003	370391	6119987	Magnetic anomaly SN4-D-MC157 (102nT)	Low	N/A
CA_4004	369743	6120053	Magnetic anomalies SN4-D-UMC0423-28 (1-53nT)	Low	N/A
CA_4005	366358	6119530	SSS anomaly, 15 x 2m	Low	N/A
CA_4006	365705	6119524	Magnetic anomaly SN4-D-MC191 (347nT)	Low	N/A
CA_4007	361228	6118890	SSS anomaly SN4-D-SC4955, 20 x 4 x 1m, showing a linear feature within a bathymetric depression measuring 55 x 24 x 2m. Possible wreck site	High	40m
CA_4008	353851	6117914	Magnetic anomaly SN4-D-MC073 (127nT)	Low	N/A
CA_4009	348136	6118686	SSS anomaly SN4-D-SC4154 (24 x 5 x 0.7m) linear anomaly visible in both SSS and bathymetry, attributed to a wreck site. Possible debris c. 20m to the south associated with SSS anomalies SN4-D-SC4155 and SN4-D-SC4162	High	50m
CA_4010	348112	6118618	SSS anomalies SN4-D-SC4158 and SN4-D-SC4159, possibly debris associated with CA_4009	High	20m
CA_4011	348091	6118577	SSS anomalies SN4-D-SC4152, SN4-D-SC4156, SN4-D-SC4157, SN4-D-SC4160 and SN4-D-SC4161, possibly debris associated with CA_4009	High	30m
CA_4012	339722	6109344	SSS anomaly SN4-D-SC4376 (3/3 x 0.53 x 0.46m), possibly debris	Low	N/A
CA_4013	339430	6107395	Magnetic anomalies SN4-D-MC093 (17nT), SN4-D-UMC1207 (35nT), SN4-D-UMC1208 (36nT) and SN4-D-UMC1209 (53nT) associated with an angular dark SSS reflector, 7 x 3 m	Medium	20m
CA_4014	331417	6094511	SSS anomaly SN4-D-SC0489 (3.7 x 6.3m) associated with bathymetric anomaly	Medium	18m
CA_4015	325779	6087932	Magnetic anomalies SN4-D-UMC1110 (63nT) and Magnetometer Contact (102nT)	Low	N/A

*Sites of cultural heritage interest in proximity to the CSC*

3.19. Seven assets were recorded within the Scot-NI 4 CSC, including five wrecks, one aircraft and one monument (Table 3). One further wreck (**CA4\_18**), initially recorded beyond the CSC, is also considered here. There are no designated or protected wrecks, nor any

scheduled monuments below MHWS. Full details of all gazetteer entries can be found in the DBA (Coracle Archaeology 2020b).

**Table 3 Sites of cultural heritage interest in proximity to the CSC**

CA no.	Name	Type	Date	Status	UTM 30N Easting	UTM 30N Northing
CA4_1	Unknown	Wreck	Unknown	Unknown	353953	6117970
CA4_2	Unknown	Wreck	Unknown	Unknown	320503	6087160
CA4_3	Unknown	Wreck	1749	Unknown	380499	6121350
CA4_4	<i>Nabby</i>	Wreck	1795	Unknown	380499	6121350
CA4_5	<i>Favourite</i>	Wreck	1870	Unknown	380499	6121350
CA4_6	<i>Bristol Beaufort</i>	Aircraft	1942	Unknown	380499	6121350
CA4_7	<i>Shalloch Castle, Smithy</i>	Monument	Unknown	n/a	381464	6121470
CA4_18	Unknown	Wreck	Unknown	Unknown	347250	6118270

- 3.20. Two unidentified wrecks of unknown status (**CA4\_1** and **CA4\_2**) are reported within the CSC but no further information is available. No anomalies were visible in the geophysical datasets at or in proximity to their reported locations, so they will not be considered further here.
- 3.21. Three wrecks (**CA4\_3-5**) and one aircraft (**CA4\_6**) are recorded at the same location in the bay at Girvan. Their locations are considered tentative by Historic Environment Scotland; it is likely therefore that they are representative of reports of losses in the area, rather than the physical location of known wreck sites and incidents. No anomalies were visible at or in proximity to their recorded locations during the archaeological review of the marine survey data, nor were any remains visible at low water during the landfall surveys. They will not be considered further in this report.



- 3.22. One monument, Shalloch Castle (**CA4\_7**; also known as the 'Smiddy' or 'Smithy') is recorded on the foreshore within the CSC at Girvan (see Coracle Archaeology 2020b). Demolished in c.1895, it is likely to have been an ordinary cottage rather than a castle, and little remains of it today. The monument is located on the periphery of the CSC, c. 246m from the Proposed Development (though see Coracle Archaeology 2020c for an alternative location, outside of the CSC). The Proposed Development will have no impact on the monument, and it will not be considered further here.
- 3.23. An SSS anomaly consisting of a linear feature measuring 20m x 4m x 1m (**CA\_4007**; see Coracle Archaeology 2020c) may be indicative of a previously unmapped wreck site. The anomaly sits in a depression visible in the bathymetric data, measuring 55m x 24m x 2m. No known wreck site was identified in the DBA at this location (Coracle Archaeology 2020b). The archaeological potential of this anomaly is considered to be high.
- 3.24. A clearly defined hull is visible in the both the SSS and MBES datasets (**CA\_4009**; Coracle Archaeology 2020c), measuring c.20m in length with a visible beam of c. 5m. A series of SSS anomalies (**CA\_4010** and **CA\_4011**) are located to the south of the wreck site for a distance of c.120m, which may be indicative of scattered debris. No known wreck site was identified in the DBA at this location (see Coracle Archaeology 2020b). An unknown wreck (**CA4\_18**) was, however, recorded lying c. 900m southwest of the wreck site (outside of the CSC, but within the wider study area; Coracle Archaeology 2020b). Given the historical difficulties inherent in reporting losses at sea, it is possible that these represent the same vessel. The archaeological potential of these anomalies is considered high.
- 3.25. Three geophysical anomalies are classified as having medium archaeological potential:
- a cluster of magnetic anomalies ranging from 55-172 nanoTelsa (nT; **CA\_4002**), associated with an area of increased seabed roughness apparent in the SSS data;

- four magnetic anomalies ranging from 17-53 nT (**CA\_4013**). An angular dark reflector is also visible in the SSS data, measuring 7m x 3m; and
- an SSS anomaly (**CA\_4014**) measuring 3.7m x 6.3m, associated with a bathymetric anomaly.

3.26. A further 12 anomalies are classified as having low archaeological potential. AEZs are not considered necessary, and they will not be considered further here.

3.27. Two of the proposed AEZs are encroached by the current Proposed Development (Table 4); both are considered to be of medium archaeological potential and neither correspond to known assets identified in the DBA. Further mitigation and avoidance strategies will need to be adopted to ensure that there are no adverse impacts from the Proposed Development on any potential cultural heritage assets.

**Table 4 AEZs encroached by the Proposed Development**

CA no.	Easting UTM 30N	Northing UTM 30N	Description	Archaeological Potential	Proposed AEZ Radius
CA_4002	371356	6120172	Magnetic anomalies SN4-D-UMC0350-55 (55-172nT) associated with area of increased seabed roughness in SSS	Medium	30m
CA_4013	339430	6107395	Magnetic anomalies SN4-D-MC093 (17nt), SN4-D-UMC1207 (35nT), SN4-D-UMC1208 (36nT) and SN4-D-UMC1209 (53nT) associated with an angular dark SSS reflector, 7 x 3 m	Medium	20m

***Submerged palaeo-landscapes***

3.28. The stratigraphic sequence outlined in the DBA was confirmed by the SBP and geotechnical data (see Coracle Archaeology 2020b & c). No features with archaeological potential, e.g. palaeo-channels containing fine-grained / organic deposits, were visible in the data provided, and the potential for the presence of submerged palaeo-landscapes within the CSC is considered to be low.

#### **4. CONCLUSIONS**

- 4.1. Detailed investigations have sought to assess the archaeology, the submerged palaeo-archaeology and the archaeological potential of the proposed route of SCOT-NI 4. This will ensure that any impact of the Proposed Development on the cultural heritage resource will be minimised.
- 4.2. Assessment of the sub-bottom and geo-technical survey data did not reveal the presence of any palaeo-environmental features that might be considered to be of archaeological potential.
- 4.3. The desk-based assessment identified seven cultural heritage assets within the CSC, including five wrecks, one aircraft and one monument. Following the review of the marine geophysical survey data, one wreck initially recorded beyond the CSC was also included in this report. None of these are protected wrecks or designated monuments; one was tentatively identified during the analysis of the marine geophysical data.
- 4.4. No anomalies or new features of archaeological potential were identified by the non-invasive surveys at the landfall locations.
- 4.5. A total of 15 geophysical anomalies with archaeological potential were identified along the CSC, including four classified as high, three of medium, and eight of low potential. AEZs have been proposed for each of the anomalies with high or medium archaeological potential.
- 4.6. Two of the AEZs are intersected by the current Proposed Development. Further mitigation and avoidance strategies will need to be developed around these AEZs to ensure it does not have an adverse impact upon potential cultural heritage assets.

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