# Wessex Archaeology



## SANDY GAP AND DUNES REAR, ESKMEALS RANGE, MILLOM, CUMBRIA

Heritage Statement and Archaeological Investigation



Ref: 85080.01 June 2012



## SANDY GAP AND DUNES REAR, ESKMEALS RANGE, MILLOM, CUMBRIA

## Heritage Statement and Archaeological Investigation

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June 2012



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#### QUALITY ASSURANCE

SITE CODE	85080	ACCESSION CODE	TBA	CLIENT CODE	NA
PLANNING APPLICATION	7/2011/4015	NGR	SE	08155 9238	4

VERSION	STATUS*	PREPARED BY	APPROVED BY	APPROVER'S SIGNATURE	DATE	FILE
01	E	cs	APN	Little	13/06/12	S:\PROJECTS\85080 (ESKMEALS RANGE)\REPORTS

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## SANDY GAP AND DUNES REAR, ESKMEALS RANGE, MILLOM, CUMBRIA

## Heritage Statement and Archaeological Investigation

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## SANDY GAP AND DUNES REAR, ESKMEALS RANGE MILLOM, CUMBRIA

## Heritage Statement and Archaeological Investigation

#### Summary

Wessex Archaeology was commissioned by Fox Contracts on behalf of Qinetiq to carry out a heritage statement and an archaeological investigation at Sandy Gap and Dunes Rear, Eskmeals Range, Millom, Cumbria ('The Site', NGR SD 08155 92384). The Site comprised two undeveloped sand dunes (Sandy Gap and Dunes Rear) within an MOD range. The archaeological work was carried out in advance of the construction of two mobile storage/conditioning chambers within the dunes, in compliance with manufacture and storage of explosives regulations (Planning ref. 7/2011/4015).

The heritage statement determined that the Site was utilised from the Bronze Age onwards, its location within an estuarine environment, the availability of flint and the later proximity of a Roman fort undoubtedly played a role in the repeated human occupation of the area.

The Site, together with the wider landscape, which had been occupied form Mesolithic times, represents an extremely important prehistoric landscape which has yielded a range of significant artefacts and remains. The continually changing coastal environment has influenced the location of human occupation in the area since prehistoric times, through the Roman occupation and into the historic period.

Due to the potential archaeological significance of the Site, and following discussions with John Hodgson of the Lake District National Park Authority (LDNPA), it was decided that a 5% sample of the dunes should be sieved as part of the construction ground works. A total of 32 1m x 1m test pits were excavated within the dunes, to a maximum depth of c. 5.5m.

The test pitting exercise failed to uncover any deposits of archaeological interest within the dunes or at the impact level of the development. A fragment of 19<sup>th</sup>-century brick was recovered from Dunes Rear (approximately 3m below the top of the dune) and indicated that the dunes are likely to have formed within the last century. However, the northern edge of the dune had been truncated by a road and railway and despite the sterile nature of the dunes the brick may have been intrusive.

The project archive is held at the offices of Wessex Archaeology in Sheffield and will be deposited in due course with an appropriate local institution, under an accession number to be confirmed.



## SANDY GAP AND DUNES REAR, ESKMEALS RANGE MILLOM, CUMBRIA

## Heritage Statement and Archaeological Investigation

#### **Acknowledgements**

Wessex Archaeology would like to thank Fox Contracts and Qinetiq for their help and assistance throughout the project. Thanks are also extended to John Hodgson who monitored the work for the Lake District National Park Authority.

The fieldwork was directed by Neil Dransfield who was assisted by Mike Keech, Phil Roberts and Dane Wright. The project was managed by Andrew Norton. The report was compiled by Chris Swales, with the Heritage Statement compiled by Grace Corbett and the illustrations produced by Chris Breeden. The finds were analysed by Lorraine Mepham.



## SANDY GAP AND DUNES REAR, ESKMEALS RANGE MILLOM, CUMBRIA

## Heritage Statement and Archaeological Investigation

#### 1 INTRODUCTION

### 1.1 Project Background

- 1.1.1 Wessex Archaeology was commissioned by Fox Contracts on behalf of Qinetiq to carry out an archaeological investigation at Sandy Gap and Dunes Rear, Eskmeals Range, Millom, Cumbria ('The Site', NGR SD 08155 92384; Figure 1). The Site comprised two undeveloped sand dunes (Sandy Gap and Dunes Rear) and the archaeological work took place in advance of the construction of two mobile storage/conditioning chambers within the dunes, in compliance with manufacture and storage of explosives regulations (Planning ref. 7/2011/4015).
- 1.1.2 The Site lies in close proximity to several prehistoric flint working sites and later archaeological sites, and as such John Hodgson of the Lake District National Park Authority (LDNPA) issued a brief for a programme of archaeological works (Hodgson 2011).
- 1.1.3 Following discussion with John Hodgson (LDNPA) a programme of test pitting was proposed, amounting to 5% of the area of sand dunes impacted by the proposed development (Figures 2 and 3). The excavated material was to be sieved. If evidence for prehistoric landscapes (or later) was found, a strip map and sample exercise was to be implemented.
- 1.1.4 Wessex Archaeology produced a Written Scheme of Investigation (WSI) detailing how the archaeological requirements of the work would be met (Wessex Archaeology 2012). The scheme was approved by the Lake District National Park Authority and Fox Contracts.
- 1.1.5 The WSI detailed the excavation of 33 machine dug Test Pits, (18 test pits at Dunes Rear and a further 15 test pits at Sandy Gap) measuring 1m by 1m and excavated to the impact level of the development.

#### 1.2 Location, Topography and Geology.

- 1.2.1 The Site lies on the west coast of the Lake District National Park in the parish of Bootle, and is currently a working range. The base of the sand dunes lie at c. 8m OD, and the dunes rise to c. 17m at their highest point. The proposed development Site covers an area of c. 0.12ha.
- 1.2.2 The solid geology of the Site comprises Calder sandstone formation overlain by beach deposits and wind-blown sand (<a href="http://maps.bgs.ac.uk/geologyviewer\_google/googleviewer.html">http://maps.bgs.ac.uk/geologyviewer\_google/googleviewer.html</a>).



#### 2 HERITAGE STATEMENT

#### 2.1 Methodology

#### Aims and Scope

2.1.1 The brief (Hodgson 2011) specified that a Heritage Statement be produced as part of the investigation. The aim of this statement is to identify and assess the significance of known and potential heritage assets within the Site and its environs, and build on earlier work by Abramson (2011). This statement therefore considers archaeological remains (both above and below ground) and elements of the historic landscape.

#### Study Area

2.1.2 Recorded heritage assets within MOD owned lands surrounding the Sites were considered in order to provide a context for the discussion and interpretation of the known and potential resource at the Site (Figure 3).

#### Sources

2.1.3 A number of publicly accessible sources of primary and synthesised information were consulted. A brief summary of the sources consulted is given below.

#### Historic Environment Record

2.1.4 The Lake District Historic Environment Record (LDHER) is a database of all recorded archaeological sites, findspots, and archaeological events within the administrative area, and was consulted for this study in April 2012. Information from the HER, along with that from the additional sources, has been reviewed and synthesised for the purposes of this report. The HER data is provided in gazetteer format in **Appendix 1** and illustrated on **Figure** 

#### Documentary Sources

2.1.1 A search of relevant primary and secondary sources was carried out at the Sheffield University Library and in Wessex Archaeology's own library. Both published and unpublished archaeological reports relating to excavations and observations in the area around the Scheme were studied. The sources consulted are listed in the References section below.

#### Cartographic Sources

2.1.2 A search of historic manuscripts and Ordnance Survey maps was carried out. No relevant maps were used in the preparation of this document are listed.

#### Chronology

- 2.1.3 Where mentioned in the text, the main archaeological periods are broadly defined by the following date ranges:
  - Modern 1900-present
  - 19<sup>th</sup> century 1800-1900
  - Post-medieval 1500-1799
  - Medieval AD1066-1499



- Saxon AD410-1066
- Post-Roman AD410-650
- Romano-British AD 43-410
- Iron Age 700 BC- AD 43
- Bronze Age 2400-700 BC
- Neolithic 4000-2400 BC
- Mesolithic 8500-4000BC
- Palaeolithic 500000-10000BP

#### Best Practice

2.1.4 This assessment has been carried out in accordance with the Institute for Archaeologists' Standard and Guidance for desk based assessment (IfA 2008a).

#### Assumptions and Limitations

- 2.1.5 Data used to compile this report consists of secondary information derived from a variety of sources, only some of which have been directly examined for the purposes of this Study. The assumption is made that this data, as well as that derived from other secondary sources, is reasonably accurate.
- 2.1.6 The records held by LDHER are not a record of all surviving elements of the cultural heritage resource, but a record of the discovery of a wide range of archaeological and historical components of the cultural heritage. The information held within it is not complete and does not preclude the subsequent discovery of further elements of the historic environment that are, at present, unknown.

#### 2.2 Baseline Resource

#### Introduction

- 2.2.1 A consideration of the context of the Study Area is an important element of establishing the potential of cultural heritage resources across the Site. The following section provides a brief synthesis of the archaeological and historical development of the Study Area and surrounding landscape, compiled from the sources detailed above. The aim of the synopsis is to establish the known resource at the Site and to provide a context for the identification and understanding of any potential cultural heritage resource which may survive.
- 2.2.2 A gazetteer of the heritage assets referred to in the text is provided in Appendix 1. Sites are numbered from 1-7 with a WA prefix for ease of reference. An overall illustration showing sites in the gazetteer is provided in Figure 4.

#### Statutory and Local Heritage Designations

2.2.3 There are no Scheduled Monuments, Listed Buildings, Registered Parks and Gardens or Historic Battlefields within the Study Area.



### Archaeological and Historical Context

#### Mesolithic

- 2.2.4 A rapidly rising sea level in the early post-glacial period c. 7000 BC was followed by a relatively stable, or possibly even declining, period from about 5000-4000 BC onwards. No Early Mesolithic sites are known from the Cumbrian coast, a situation which can be explained by the increase in sea levels since that time, resulting in the submergence of the Early Mesolithic coastline. While there are no known Mesolithic sites or finds from within the Study Area, evidence for activity during the Late Mesolithic is common at other areas along the southwest coast of Cumbria. Sites discovered at Monk Moors and Williamson's Moss, both located 400m to the east of the Study Area, have revealed significant evidence of Mesolithic occupation and later re-use.
- 2.2.5 North of the Site, isolated Late Mesolithic sites at Ravenglass, Drigg and St. Bees have been found in the face of eroding, low, boulder clay cliffs (Cherry and Cherry 2002, 3). Sites discovered at Monk Moors and Williamson's Moss, both located 400m to the east of the Study Area, have revealed significant evidence of Mesolithic occupation and later re-use. The frequency of sites of this period in the Eskmeals area and surrounding landscape has been explained by the year-round availability of food resources within this estuarine environment (Bonsall et al 1989). Nearly all the known sites of this date at Eskmeals are situated on seaward-facing slopes overlooking stretches of former coastline which experienced predominantly estuarine conditions (ibid. 201). The availability of driftwood on the foreshore, as well as the location of river channels, appears to have been a consideration in the location of Late Mesolithic sites (Bonsall 2007, 29).
- The Eskmeals Project (Bonsall et al 1989) involved excavations in the 1970s 2.2.6 and 1980s at Williamson's Moss and Monk Moors (Figure 3). Over 34,000 pieces of worked flint were recovered, including 600 finished tools (ibid. 183). One of the features of the flint assemblages recovered from the Eskmeals area is the almost exclusive use of small beach pebbles as raw material for tool making. This was the only locally available source of flint within Eskmeals and the wider area and would also be exploited by later populations in the area. The Eskmeals sites were also extremely important in that they produced structural evidence associated with Mesolithic activity. evidence which is extremely rare at other Mesolithic sites (ibid. 184). Timber 'platforms' were discovered at Monk Moors however, a number of problems with Bonsall's interpretation have been subsequently highlighted (Clare et al. 2001). No artefacts were found in association with these platforms and some timbers were dated to 500 years earlier than the bark considered to have been the flooring of the platform. The writers postulate that rather than being human in origin the platforms were in fact the remains of carr woodland (Clare et al 2001, 88).
- 2.2.7 Radiocarbon dates from remains at Williamson's Moss and Monk Moors indicate that Monk Moors was occupied around 6800 BP, with post-Mesolithic occupation at the site dated to 4050 BP, 3650 BP and 2850 BP. The earliest evidence for occupation at Williamson's Moss is around 5550 BP, with subsequent occupation during the Neolithic and Bronze Age (4900)



BP and 3700 BP respectively; Bonsall *et al* 1989, 202). Bonsall *et al* propose that the occupation of the Eskmeals area was influenced strongly by coastal evolution. Occupation first occurred at Monk Moors and at Newbiggan to the north, where estuarine conditions first began to develop. Until 6100 BP, Williamson's Moss faced on to the open coast, after which point shingle ridges formed in the area, allowing the development of a lakeside environment. Palynological evidence from Eskmeals reveals two elm declines in the area, which is considered to stem from selective removal of elm fodder to feed animals (*ibid.* 203). An early date for the first elm decline at Williamson's Moss may be seen as evidence for late Mesolithic stock control.

#### Neolithic

- 2.2.8 The identification of Early Neolithic material within the surrounding landscape has proved problematic, owing to the similarity of assemblages of Late Mesolithic and Early Neolithic date. The Mesolithic/Neolithic transition has traditionally been a difficult period to identify archaeologically and few Neolithic sites have been identified in the surrounding landscape, with none found within our Study Area.
- 2.2.9 Neolithic flint scatters have been found surrounding Williamson's Moss, to the south-east of the Study Area (Cherry 1969). Over 590 cores were found in the area, all having well defined striking platforms, which is in complete contrast to the completely worked-out cores from the Bronze Age sites on the sand dunes within the Study Area (*ibid*. 49).

#### Bronze Age

- 2.2.10 Environmental change during the Bronze Age resulted in the landscape being sufficiently cleared to allow the exploitation of larger areas of land (Cherry and Cherry 2002, 12). Bronze Age activity at Eskmeals was concentrated on the extensive gravel beds of the coastal foreland, the formation of which is thought to have occurred between 4400 and 3600 BP, i.e. during the Early Bronze Age (ibid.). Prior to this, when Williamsons Moss and Monk Moors were occupied by Mesolithic and Neolithic populations, the Site was submerged.
- 2.2.11 Several flint scatters were observed along Eskmeals sand dunes during the 1930s, on former land surfaces which had subsequently been sealed by windblown sand dunes (WA1-3). The material recovered from these sites included barbed and tanged arrow heads, scraper blades, knives, a borer, fabricator and cores. The material is typical of the pebble industries of the coastal sites, similar to those to the north of the Study Area, at Drigg (Cherry 1963, 48). A lithic working site (WA2) was identified at the centre of the Study Area; evidence of in situ working of stone for the manufacture of tools, weapons and other objects was identified.
- 2.2.12 Although a large number of flints have been recovered from the dunes, no pottery or occupation evidence has been found in association with these finds. A number of possible explanations for the Bronze Age activity in the sand dunes have been put forward by Cherry and Cherry (2002, 13). These include:



- Harvesting of the naturally occurring food resource (breeding seabirds and resources from the estuarine environment).
- Salt production this is, however, unlikely due to the lack of hearths and pottery of Bronze Age date from the area.
- The utilisation of the gravel beds as a source of flint pebbles for tool making.
- 2.2.13 The extensive flint scatters on the dunes are considered to derive from frequent visits by an otherwise dispersed Bronze Age population, in order to exploit the local raw materials and naturally occurring food resources (Cherry and Cherry 2002, 13).

#### Iron Age

2.2.14 Evidence of Iron Age activity within the Study Area is limited to an Iron Age bead and flints recovered from a multi-period site (WA4). There is also very little evidence for the occupation of the wider landscape at this time.

#### Other prehistoric

2.2.15 A prehistoric settlement (WA5) site indicated by cairns, flint tools, iron working evidence and hearths was found in 1936 and later investigated by Cherry in 1962. A wide range of artefacts were recovered from the site, however, they were never securely dated. In 1983 no trace of the site was found suggesting it may have been covered by the developing sand dunes.

#### Romano-British to medieval

- 2.2.16 Romano-British bloomeries have been identified within the north of the Study Area, and fragments of Romano-British cooking pottery have been found from WA3. Seven small bowl hearths were also identified within this area. The other bloomery sites revealed burnt clay, slag, haematite and broken stones. It is thought that the nature of the processing at Eskmeals was quite primitive, evidenced by the presence of tap slag. Analysis of the bloomery sites indicates the use of a similar manufacturing technique from the same types of raw materials (Cherry 1966, 54).
- 2.2.17 These bloomeries may be associated with the Roman fort at Ravenglass, north of the River Esk (Johnson 2009, 168). This fort played an important role in the defence of the northern frontier, being closely involved with coastal defence and policing of the surrounding area. Excavations at the fort have produced evidence of occupation from the 2<sup>nd</sup> to the 5<sup>th</sup> century.
- 2.2.18 Medieval activity within the Study Area is seen from an occupation site (WA4) to the west of a ruined house on the dunes, where pottery fragments and other finds of medieval date were recovered. Further medieval evidence was recovered from the Roman bloomery sites (WA3).

#### 2.3 Conclusions

2.3.1 From the evidence presented it can be seen that the Site was utilised from the Bronze Age onwards, its location within an estuarine environment, the availability of flint and the later proximity of a Roman fort undoubtedly played a role in the repeated human occupation of the area.



2.3.2 The Site, together with the wider landscape, which had been occupied form Mesolithic times, represents an extremely important prehistoric landscape which has yielded a range of significant artefacts and remains. The continually changing coastal environment has influenced the location of human occupation in the area since prehistoric times, through the Roman occupation and into the historic period.

#### 3 FIELDWORK AIMS AND OBJECTIVES

#### 3.1 General

- 3.1.1 The general aims of the fieldwork were:
  - To identify and record any archaeological features exposed during test pitting.
  - To recover any artefact evidence during test pitting.
  - To make available the results of the investigation.

#### 3.2 Specific

- 3.2.1 The specific objectives of the fieldwork were to:
  - Identify evidence of Prehistoric land surfaces or flint working.
  - Following the identification of any archaeological features, to alert Mike Hodgson (LDNPA) and implement a suitable strategy for excavation and recording.

#### 4 FIELDWORK METHODOLOGY

#### 4.1 General

4.1.1 The methodology employed to excavate and record test pits, to process finds and environmental samples, as well as archive Site records and material followed standard Wessex Archaeology guidelines and procedures as outlined in the Site Written Scheme of Investigation (Wessex Archaeology 2012). All Wessex Archaeology procedures conform to industry best practice as outlined in guidelines issued by the Institute for Archaeologists (IFA 2008b and 2008c), English Heritage (2005 and 2011), the Museum and Galleries Commission (1992) and the United Kingdom Institute of Conservation (2001).



### 4.2 Watching Brief

- 4.2.1 A watching brief was carried out during the mechanical removal of scrub from the top of the dunes, and during the removal of the working face of the dunes to allow access (2m-4m). A ridge on the eastern sides of the dunes appeared to have derived from the construction of the adjacent access road (up to 3m high). This ridge was also removed under a watching brief, although no distinction between the ridge and the sand below could be determined.
- 4.2.2 The work was carried out by a 360° excavator fitted with a toothless ditching bucket and under close archaeological supervision.

#### 4.3 Test Pitting

- 4.3.1 Test pitting commenced following the removal of imported material.
- 4.3.2 Each test pit measured 1m x 1m and were arranged in a grid to cover 5% of the location of each proposed chamber (c. 230m²), and a surrounding batter (assumed to be equivalent in width as the height of the dune on each side of the chamber; Figures 2 and 3).
- 4.3.3 Prior to the removal of material during the watching brief, Dunes Rear was up to c. 8m high with an area of proposed sand extraction encompassing c. 2850m³. A total of 18 test pits were excavated within the Dune.
- 4.3.4 Prior to the removal of material during the watching brief, Sandy Gap was up to c. 3.5m high and the area of proposed sand extraction encompasses c. 700m³. A total of 15 test pits were excavated within the Dune.
- 4.3.5 The location of each test pit was tied into the OS grid. Test pits were initially expected to be mechanically excavated in 100mm spits. However, conditions on the ground made it more pragmatic to hand dig the test pits. Test pits varied in depth between 0.2m to 5.5m deep, being stepped as appropriate to their depth.
- 4.3.6 All excavated material was passed through a 10mm sieve to check for flint artefacts and the revealed deposits recorded in section. For full details of recording see Section 4.6.
- 4.3.7 Where no significant archaeological deposits or artefacts were found, the sand dunes were mechanically reduced to the base of each test pit (under close archaeological supervision) and test pitting recommenced to the next level or archaeological horizon. Each mechanically removed spit was allocated a number (see Appendix 2).
- 4.3.8 If any deposits or finds of particular significance were encountered, test pitting was to cease, John Hodgson (LDNPA) would be consulted and an appropriate strategy devised.

#### 4.4 Standard Methodologies

4.4.1 All excavation and recording was undertaken by qualified archaeologists employed by Wessex Archaeology. Any archaeological remains



encountered were recorded, and where necessary excavated in accordance with current industry best practice (IfA 2008b). Features of whatever origin requiring clarification were to be cleaned by hand and recorded in plan at an appropriate scale.

### 4.5 Environmental Samples

4.5.1 No deposits of environmental significance were encountered.

#### 5 ARCHAEOLOGICAL RESULTS

#### 5.1 Introduction

5.1.1 Excavation was carried out in two locations. A total of 18 test pits were dug at Dunes Rear with a further 15 test pits dug at Sandy Gap. Test pitting on the north-eastern side of Dunes Rear was limited by the construction layers for the modern road and disused railway at the north-east end of the Site. Test pitting was similarly affected at Sandy Gap. No archaeological remains of any significance were found at either Site. Full details of all test pits can be found in **Appendix 2**.

#### 5.2 General

5.2.1 Natural geology was not reached in either dune. The dunes at both Sandy Gap and Dunes Rear were made up of greyish yellow wind-blown sand. This material was consistent from the top of the dunes to 0.5m below the impact level of the development.

#### 5.3 Dunes Rear

- 5.3.1 Test Pits 2, 3, 4 and 7 were located over the line of the modern road and disused railway at the impact level of the development (Figure 2).
- 5.3.2 Test Pits 1, 5, 6 and 8-18 were hand dug to 0.5m beyond the impact level of the development. The revetment for the railway was revealed 0.5m below the ground level within Test Pits 5, 6 and 7. The remaining test pits all contained unstratified wind-blown sand. Within Test Pit 16, a late-19<sup>th</sup> to 20<sup>th</sup> century red brick was found approximately 3m below the surface of the dune; no finds were recovered from any of the other test pits (**Plates 1-7**).
- 5.3.3 An additional spit was excavated within Test Pit 17 to determine the nature of material below impact level. Unstratified wind blown sand was revealed to at least 0.5m below impact level.

#### 5.4 Sandy Gap

- 5.4.1 Test Pits 1-4 revealed disturbance associated with the modern road at the impact level of the development (Figure 3).
- 5.4.2 Test Pits 5-15 were hand dug to the impact level of the development. Test Pits 5-7 were disturbed by the revetment for the railway. The remaining test



pits all contained unstratified wind-blown sand (Plates 8-11). No finds were recovered.

#### 5.5 Finds

- 5.5.1 The only find recovered from the work was a single red brick from Test Pit 16 at Dunes Rear. The brick was recovered at a depth of 3m from the dune's surface.
- 5.5.2 The brick dates between 1889 and 1974 and is stamped '[LBC PH]ORPR[ES]', which identifies it as a product of the London Brick Company, founded in 1889. The 'Phorpres' trademark refers to the process of pressing the brick 4 times, formulated in the late-19<sup>th</sup> century and used until 1974.
- 5.5.3 No further analysis or reporting of the brick is necessary. Given that the brick was the only find recovered, and of recent date. Retention for long-term curation is not recommended, and the brick will be discarded prior to archive deposition.

#### 6 DISCUSSION

#### 6.1 Interpretation

- 6.1.1 The paucity of finds recovered from the test pitting at Dunes Rear and Sandy Gap makes the dating of the sand dunes problematic. The only find recovered from a non-disturbed context can be broadly dated to the 20<sup>th</sup> century. The stamped brick recovered from Test Pit 16 was at a considerable depth within the dunes and seems unlikely to have been intruisive. This relatively modern date for the formation of the dunes is tentatively supported by the oral accounts of a local resident who suggested that the dunes had grown significantly in size within their lifetimes.
- 6.1.2 It is not inconceivable that Sandy Gap and Dunes Rear developed in the 20<sup>th</sup> century, given that the Prehistoric site at **WA5** (**Figure 4**) was lost within 20 years due to the encroachment of sand dunes (see Heritage Statement above).
- 6.1.3 However, the possibility that the brick was intrusive cannot be discounted. Mechanical excavation may have taken place on top of the dunes (excavator tracks from previous work were visible), and backfilled with sand leaving no archaeological record of the work. It is worth noting that no archaeological evidence of the formation of the eastern ridges of both dunes was revealed, and the ridges were almost certainly a result of the upcast from the construction of the road.
- 6.1.4 Recent investigations at Brigg revealed a Bronze Age burnt mound below c.

  3m of dune deposits, which were assumed to have rapidly built up once
  Bronze Age activity had ceased (Jamie Quartermain pers. comm.). It is
  feasible that Sandy Gap and Dunes Rear were similarly dated.



#### 6.2 Conclusions

6.2.1 No deposits of archaeological significance were uncovered during the stripping and test pitting at Dunes Rear and Sandy Gap. The dunes themselves are likely to have been formed within the last century, with areas having been disturbed during work on the nearby railway line and road. Although no material of archaeological interest was found above the impact level of the development, the possibility of archaeological material surviving at a greater depth cannot be discounted.

#### 7 ARCHIVE AND COPYRIGHT

#### 7.1 Archive

7.1.1 The project archive has been compiled into a stable, fully cross-referenced and indexed archive in accordance with Appendix 6 of Management of Archaeological Projects (2nd Edition, English Heritage 1991), and Archaeological archives – a guide to best practice in creation, compilation, transfer and curation (Brown 2007). The archive is currently held at the offices of Wessex Archaeology in Sheffield, under the project code 85080. The archive will be deposited with an appropriate local institution, under an accession number to be confirmed in due course. An OASIS form will be submitted at the time of deposition.

### 7.2 Copyright

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### 9 APPENDIX 1: GAZETTEER OF HER DATA

WA No	HER No	Name	Description	Period	Easting	Northing
1	1381	Sand Hows Flint Finds, Bootle	Flint tool finds of Bronze Age date indicating a lithic working site (a site which has produced evidence of in situ working of stone for the manufacture of tools, weapons or other objects. Such sites will usually, but not always, be of prehistoric date).	Bronze Age	307900	493500
2	1400	Drigg Flint Working Site, Bootle	Flint tool finds of Bronze Age date indicating a lithic working site (a site which has produced evidence of in situ working of stone for the manufacture of tools, weapons or other objects. Such sites will usually, but not always, be of prehistoric date).	Bronze Age	308100	493000
3	30021	Bloomeries at Sand Hills, Eskmeals, Bootle	Site of bloomeries of Roman to Medieval date. Possibly associated with HER 1399. There were also flint arrowhead finds of Bronze Age date.	Bronze Age to medieval	308000	494000
4	1395	Bootle Slag Find	Flint and glass bead finds of Iron Age date. Also found, iron slag (pieces of refuse material separated from a metal during the smelting process) and pottery fragment finds of Medieval date.	Iron Age to medieval	307900	493400
5	1399	Eskmeals Settlement, Cairn & Flint Finds, Bootle	Settlement of Prehistoric date indicated by cairns (monuments featuring a bank or mound constructed primarily of stone), flint tool finds, iron working evidence and hearths (slab or place on which a fire is made).	Prehistoric	308000	494200



WA No	HER No	Name	Description	Period	Easting	Northing
		Bootle, Eskmeals				
		Sand Dunes	A Charles and a base has a Charle Constitution of the Charles and the Charles			
_	42007	Hearth and Flint	A flint scatter and glass bead find of Prehistoric date. This was also the site of a	B	207000	400000
6	13927	Scatter	hearth of Prehistoric date.	Prehistoric	307900	493800
		Flint Flakes and				
		a Scraper,	Flint flakes and a scraper (a stone tool made from a flake or blade with retouch			
		Eskmeals Dunes,	along one or more edges, generally used for chiselling, cutting, gouging or planning)			
7	19088	Bootle	find of Prehistoric date.	Prehistoric	307800	492900

15 WA Ref. 85080.01



## 10 APPENDIX 2: TEST PIT DATA

Test	Ground	Context	Spit	Depth of spit	Comments
pit	level (m OD)	number		(m below ground level)	
Dunes				ground level)	
1	9.72	101	9	0 - 0.5	Dune sand
		102	10	0.5 - 1	Dune sand
		103	11	1 - 1.5	Dune sand
2	8.22		11	0 - 0.2	Test pit located over modern railway
3	8.22		11	0 - 0.2	Test pit located over modern railway
4	8.22		11	0 - 0.2	Test pit located over modern railway
5	10.22	501	8	0 -0.5	Sand backfill over railway revetment
		502	9	0.5 - 1	Sand backfill over railway revetment
		503	10	1 - 1.5	Dune sand
		504	11	1.5 - 2	Dune sand
6	9.72	601	9	0 - 0.5	Sand backfill over railway revetment
		602	10	0.5 - 1	Sand backfill over railway revetment
		603	11	1 - 1.5	Dune sand
7				0 - 0.2	Test pit located over modern railway
8	11.72	801	5	0 - 0.5	Dune sand
		802	6	0.5 - 1	Dune sand
		803	7	1 - 1.5	Dune sand
		804	8	1.5 - 2	Dune sand
		805	9	2 - 2.5	Dune sand
		806	10	2.5 - 3	Dune sand
		807	11	3 - 3.5	Dune sand
9	12.22	901	4	0 - 0.5	Dune sand
		902	5	0.5 - 1	Dune sand
		903	6	1 - 1.5	Dune sand
		904	7	1.5 - 2	Dune sand
		905	8	2 - 2.5	Dune sand
		906	9	2.5 - 3	Dune sand
		907	10	3 - 3.5	Dune sand
- 10	11.00	908	11	3.5 - 4	Dune sand
10	11.22	1001	6	0 - 0.5	Dune sand
		1002	7	0.5 - 1	Dune sand
		1003	8	1 - 1.5	Dune sand
		1004	9	1.5 - 2	Dune sand
		1005	10	2 - 2.5	Dune sand
- 44	10.70	1006	11	2.5 - 3	Dune sand
11	10.72	1100 1101	7 8	0 - 0.5 0.5 - 1	Sand backfill over railway revetment
					Dune sand
		1102	9	1 - 1.5	Dune sand
		1103	10	1.5 - 2	Dune sand
12	9.72	1104 1201	11 9	2 - 2.5 0 - 0.5	Dune sand
12	9.72				Dune sand
		1202	10	0.5 - 1	Dune sand
		1203	11	1 - 1.5	Dune sand



Test pit	Ground level (m OD)	Context number	Spit	Depth of spit (m below ground level)	Comments
13	13.97	1301	2	0 - 0.5	Dune sand
		1302	3	0.5 - 1	Dune sand
		1303	4	1 - 1.5	Dune sand
		1304	5	1.5 - 2	Dune sand
		1305	6	2 - 2.5	Dune sand
		1306	7	2.5 - 3	Dune sand
		1307	8	3 - 3.5	Dune sand
		1308	9	3.5 - 4	Dune sand
		1309	10	4 - 4.5	Dune sand
		1310	11	4.5 - 5	Dune sand
14	13.22	1401	3	0 - 0.5	Dune sand
		1402	4	0.5 - 1	Dune sand
		1403	5	1 - 1.5	Dune sand
		1404	6	1.5 - 2	Dune sand
		1405	7	2 - 2.5	Dune sand
		1406	8	2.5 - 3	Dune sand
		1407	9	3 - 3.5	Dune sand
		1408	10	3.5 - 4	Dune sand
		1409	11	4 - 4.5	Dune sand
15	13.72	1501	1	0 - 0.5	Dune sand
		1502	2	0.5 - 1	Dune sand
		1503	3	1 - 1.5	Dune sand
		1504	4	1.5 - 2	Dune sand
		1505	5	2 - 2.5	Dune sand
		1506	6	2.5 - 3	Dune sand
		1507	8	3.5 - 4	Dune sand
		1508	9	4 - 4.5	Dune sand
		1509	10	4.5 - 5	Dune sand
		1510	11	5 - 5.5	Dune sand
16	13.72	1601	1	0 - 0.5	Dune sand
		1602	2	0.5 - 1	Dune sand
		1603	3	1 - 1.5	Dune sand
		1604	4	1.5 - 2	Dune sand
		1605	5	2 - 2.5	Dune sand
		1606	6	2.5 - 3	Dune sand
		1607	7	3 - 3.5	Dune sand
		1608	8	3.5 - 4	Dune sand
		1609	9	4 - 4.5	Dune sand
		1610	10	4.5 - 5	Dune sand
		1610	11	5 - 5.5	Dune sand
17	14.02	1701	1	0 - 0.5	Dune sand
		1702	2	0.5 - 1	Dune sand
		1703	3	1 - 1.5	Dune sand
		1704	4	1.5 - 2	Dune sand
		1705	5	2 - 2.5	Dune sand
		1706	6	2.5 - 3	Dune sand



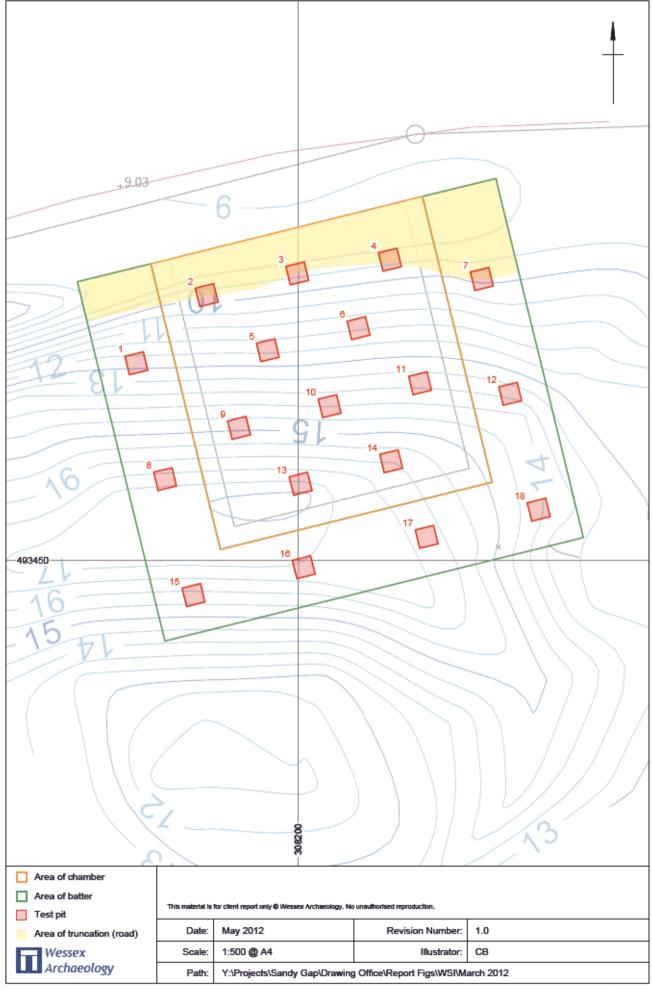
Test pit	Ground level (m OD)	Context number	Spit	Depth of spit (m below ground level)	Comments	
		1707	7	3 - 3.5	Dune sand	
		1708	8	3.5 - 4	Dune sand	
		1709	9	4 - 4.5	Dune sand	
		1710	10	4.5 - 5	Dune sand	
		1711	11	5 - 5.5	Dune sand	
18	13.69	1801	1	0 - 0.5	Dune sand	
		1802	2	0.5 - 1	Dune sand	
		1803	3	1 - 1.5	Dune sand	
		1804	4	1.5 - 2	Dune sand	
		1805	9	4 - 4.5	Dune sand	
		1806	10	4.5 - 5	Dune sand	
		1807	11	5 - 5.5	Dune sand	
Sandy (	Gap					
1	8.05		10	0 - 0	Test pit located over modern road hardcore	
2	8.15		10	0 - 0	Test pit located over modern road hardcore	
3	8.15		10	0 - 0	Test pit located over modern road hardcore	
4	8.65		9	0 - 0	Test pit located within dune revetment batter	
5	7.85	2501	10	0 - 0.2	Sand backfill over railway revetment	
6	8.15	2601	10	0 - 0.5	Sand backfill over railway revetment	
7	8.15	2701	10	0 - 0.5	Sand backfill over railway revetment	
8	10.15	2801	6	0 - 0.5	Dune sand	
		2802	7	0.5 - 1	Dune sand	
		2803	8	1 - 1.5	Dune sand	
		2804	9	1.5 - 2	Dune sand	
		2805	10	2 - 2.5	Dune sand	
9	10.15	2901	6	0 - 0.5	Dune sand	
		2902	7	0.5 - 1	Dune sand	
		2903	8	1 - 1.5	Dune sand	
		2904	9	1.5 - 2	Dune sand	
		2905	10	2 - 2.5	Dune sand	
10	9.65	2101	7	0 - 0.5	Dune sand	
		2102	8	0.5 - 1	Dune sand	
		2103	9	1 - 1.5	Dune sand	
		2104	10	1.5 - 2	Dune sand	
11	11.65	21101	4	0 - 0.5	Dune sand	
		21102	5	0.5 - 1	Dune sand	
		21103	6	1 - 1.5	Dune sand	
		21104	7	1.5 - 2	Dune sand	
		21105	8	2 - 2.5	Dune sand	
		21106	9	2.5 - 3	Dune sand	
		21107	10	3 - 3.5	Dune sand	
		21108	11	3.5 - 4	Dune sand	
12	10.65	21201	5	0 - 0.5	Dune sand	



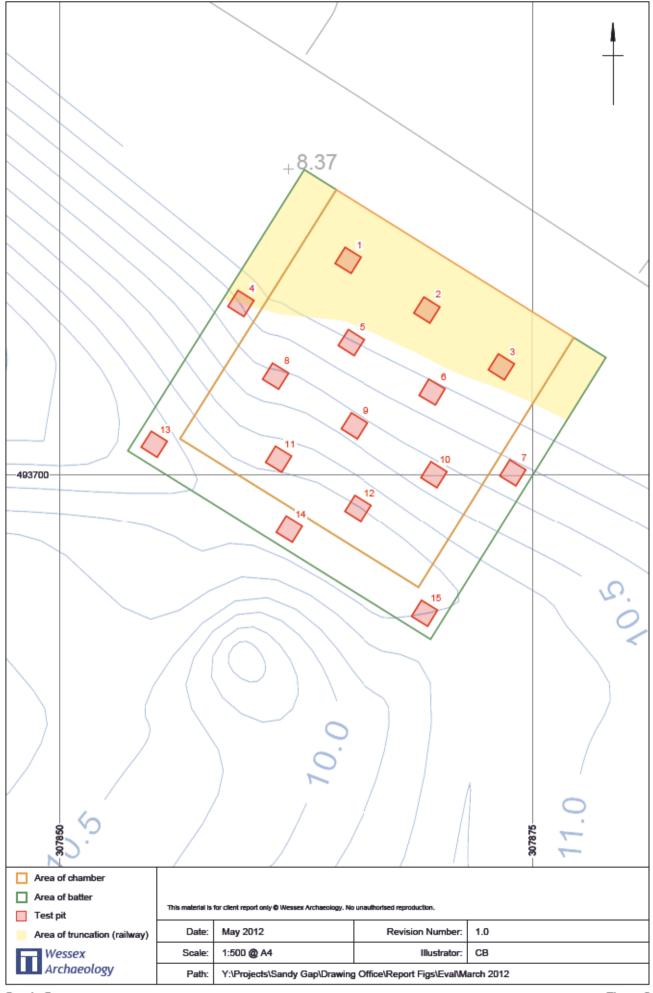
Test pit	Ground level (m OD)	Context number	Spit	Depth of spit (m below ground level)	Comments
		21202	6	0.5 - 1	Dune sand
		21203	7	1 - 1.5	Dune sand
		21204	8	1.5 - 2	Dune sand
		21205	9	2 - 2.5	Dune sand
		21206	10	2.5 - 3	Dune sand
13	12.15	21301	1	0 - 0.5	Dune sand
		21302	2	0.5 - 1	Dune sand
		21303	3	1 - 1.5	Dune sand
		21304	4	1.5 - 2	Dune sand
		21305	5	2 - 2.5	Dune sand
		21306	6	2.5 - 3	Dune sand
		21307	7	3 - 3.5	Dune sand
		21308	8	3.5 - 4	Dune sand
		21309	9	4 - 4.5	Dune sand
14	11.15	21401	4	0 - 0.5	Dune sand
		21402	5	0.5 - 1	Dune sand
		21403	6	1 - 1.5	Dune sand
		21404	7	1.5 - 2	Dune sand
		21405	8	2 - 2.5	Dune sand
		21406	9	2.5 - 3	Dune sand
		21407	10	3 - 3.5	Dune sand
15	11.15	21501	5	0 - 0.5	Dune sand
		21502	6	0.5 - 1	Dune sand
		21503	7	1 - 1.5	Dune sand
		21504	8	1.5 - 2	Dune sand
		21505	9	2 - 2.5	Dune sand
		21506	10	2.5 - 3	Dune sand
		21507	11	3 - 3.5	Dune sand



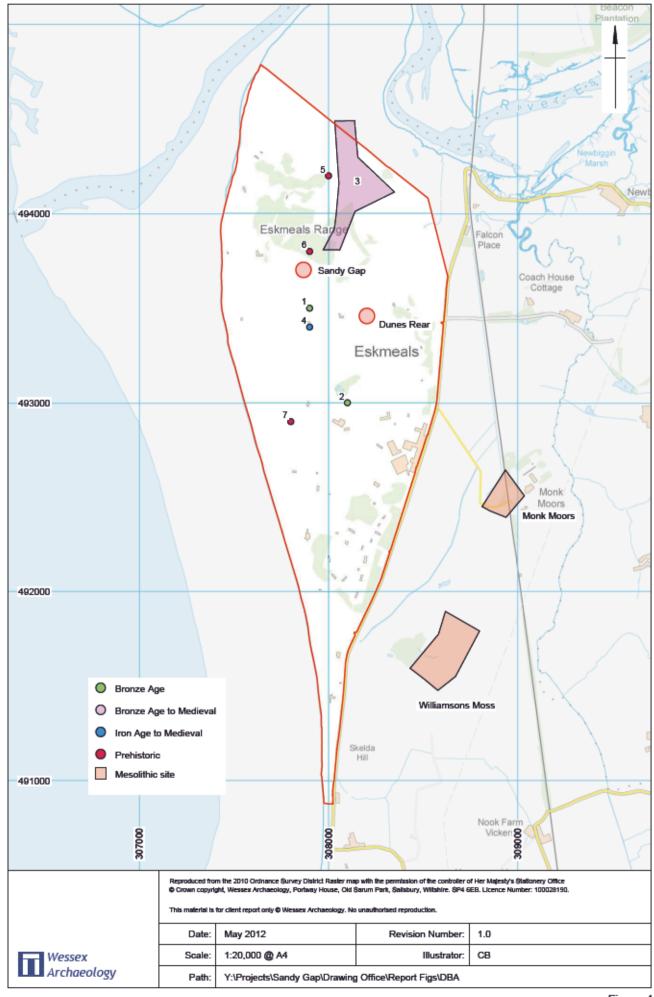
Site location Figure 1



Dunes Rear Figure 2



Sandy Gap Figure 3



Heritage assets Figure 4



Plate 1: Dunes Rear, sieving of deposits from test pits.



Plate 2: Dunes Rear, Test Pit 16.

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Plate 4: Dunes Rear, stripping and sieving of dunes.

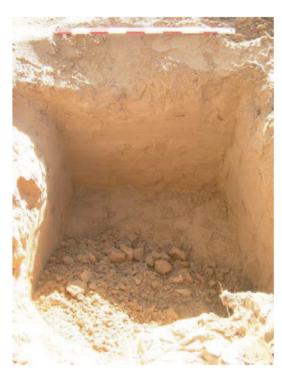


Plate 5: Dunes Rear, Test Pit 12, spit 11.

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Plate 6: Dunes Rear, Test Pit 12, spit 11.



Plate 7: Dunes Rear, disturbance caused by construction of road.

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Plate 8: Sandy Gap, sieving of dunes.



Plate 9: Sandy Gap, Test Pit 13, spit 3.

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Plate 10: Sandy Gap, recording of test pit locations using Leica GNSS.



Plate 11: Sandy Gap, Test Pit 13, spits 8 and 9.

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