



## Mingary, Ardnamurchan, The Sound of Mull

**Designated Site Assessment** 

**Archaeological Report** 



# ARCHAEOLOGICAL SERVICES IN RELATION TO THE PROTECTION OF WRECKS ACT (1973)

## MINGARY, ARDNAMURCHAN, SOUND OF MULL

DESIGNATED SITE ASSESSMENT: ARCHAEOLOGICAL REPORT

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#### **Summary**

Wessex Archaeology was commissioned by Historic Scotland to undertake a diver assessment of the Mingary designated wreck site. The site lies within the Sound of Mull, off the Ardnamurchan peninsula. An area designated under the Protection of Wrecks Act (1973), with a radius of 250m, was established on 19<sup>th</sup> August 2000. This work was undertaken as part of the Contract for Archaeological Services in Relation to the Protection of Wrecks Act (1973).

The site was discovered in 1999 by diver Phil Richards. The main site consists of four of guns lying end to end in an east-west direction across the slope of a reef with a fifth lying approximately 7m to the north-northwest. A stoneware Bellarmine jug, copper kettle, pieces of lead, and a possible lead vent apron with 'an apparent inscribed date of 1638' were recovered from the site at the time of its discovery. The artefacts and guns suggested a 17<sup>th</sup> century date for the site.

Diving operations were undertaken between 16<sup>th</sup> and 25<sup>th</sup> August 2006. A total of 17 dives were undertaken, achieving a total dive time of 1302 minutes. Investigations were conducted in accordance with the brief supplied by Historic Scotland; this focussed on an assessment of the extents and stability of the site. As a response to this measured plan was produced for all visible artefacts. Around this visual and metal detector searches and a probe survey were conducted, with the survey locations being plotted by tracked diver survey and fully recorded.

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#### Acknowledgements

This investigation was commissioned by Historic Scotland as part of the Contract for Archaeological Services in Relation to the Protection of Wrecks Act (1973). The assistance provided by Philip Robertson of Historic Scotland is gratefully acknowledged.

Wessex Archaeology would also like to thank Garry Momber and Steve Barlow for their assistance and information on the site.

The fieldwork was carried out by Graham Scott, Hanna Steyne, Labhaoise McKenna and Dietlind Paddenberg with the assistance of vessel skipper David Burden. Hanna Steyne supervised the fieldwork and Graham Scott supervised the diving. The report was compiled by Hanna Steyne and Steve Webster. Kitty Brandon prepared the illustrations and the project was managed for Wessex Archaeology by Steve Webster.

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## **Front Cover**

Mingary Castle

### **Back Cover**

The shore adjacent to the site

## DESIGNATED SITE ASSESSMENT: ARCHAEOLOGICAL REPORT Ref: 53111.03rr

#### 1. BACKGROUND

#### 1.1. Introduction

- 1.1.1. This document constitutes a Designated Site Assessment: Archaeological Report for a programme of work undertaken as part of the Contract for Archaeological Services in Relation to the Protection of Wrecks Act (1973). The document has been prepared by Wessex Archaeology (WA) for Historic Scotland (HS). It comprises an assessment of the wreck off Mingary Castle, Ardnamurchan, Sound of Mull (**Figure 1**).
- 1.1.2. The work was conducted in accordance with a brief produced by Historic Scotland (HS 2006). Surface supplied diving operations carried out under the Inshore/Inland ACOP took place between 16<sup>th</sup> and 25<sup>th</sup> August 2006 from the diving support vessel *Xplorer*. The site did not experience any noticeable tidal movement during the assessment period, and diving was possible throughout the day. A total of 16 dives were undertaken, achieving a total of 1292 minutes of bottom time.

#### 2. OBJECTIVES

- 2.1.1. The project objectives as outlined in the brief (HS 2006) were as follows:
  - Obtain a licence from Historic Scotland prior to the works;
  - Obtain a licence from Historic Scotland prior to the works;
  - Contact Phil Richards and Garry Momber (recent licensee and archaeological adviser) to inform them of the works and to enlist their co-operation if required;
  - Contact Phil Wren (Sector Manager, MCA, Fort William) to ensure that the Kilchoan Auxiliary Coastguard team are aware of the works;
  - Contact James Bromham (Highland Council Planning Department) if required to assess state of play with the Maclean's Nose fish farm development (see 4.2);
  - Contact Phil Wren (Sector Manager, MCA, Fort William) to ensure that the Kilchoan Auxiliary Coastguard team are aware of the works;
  - Carry out a dive(s) and produce a structured record of field observations of exposed remains;
  - Comment on the stability of the site, and the likely preservation potential of the sediments in the vicinity;
  - Attempt to delineate the outer extent of remains;
  - Comment on the state of play with the Maclean's Nose fish farm site that was the subject of an Environmental Impact Assessment in 2002. The site concerned was approximately 1km ESE of the designated area. If the site is

- currently in operation, the works should assess whether there is visible evidence of fish farm detritus on the site;
- Assess the suitability of the site for a Visitor Scheme, similar to those currently run on other designated sites in the Sound of Mull (Duart Point and HMS *Dartmouth*).

#### 3. EXISTING SITE DATA

#### 3.1. Position

3.1.1. The position for the site, as given in the Statutory Instrument (SI) 2000/287, is as follows:

Lat.	56° 41.4930' N	
Long.	06° 04.4192' W	
WGS84		

Easting	Northing		
679213	6286868		
WGS84 UTM zone 29			

3.1.2. From the centre point of the SI (given above) the designated area consists of a circle with a radius of 250 metres, excluding any area above high water mark of ordinary spring tides (**Figure 1**).

#### 3.2. SURVEY DATA

- 3.2.1. The site was subject to an archaeological diver and geophysical survey in conjunction with RDF Media in 2002. An interim report describing the initial results of the archaeological diver survey was submitted to the Advisory Committee on Historic Wreck Sites (ACHWS) (Momber 2003). Six artefacts were recovered including three pieces of unattached timber and a concretion that appeared to contain an iron bar, all from the north side of gun C1 (renumbered 2004 during the WA survey). Two pieces of lead sheet were recovered from the seabed surface to the south of the main site.
- 3.2.2. As part of the RDF programme, magnetometer and sidescan surveys were undertaken by GSE and a swath bathymetry survey was undertaken by Reson over an area bounded by the slipway on the west of Mingary Bay and the east of Ruba' a' Mhile reef. The sidescan and bathymetry surveys suffered in quality due to the heavy kelp growth in the area, whilst the magnetism of the local bedrock affected the magnetometer surveys (Stuart Leather pers. comm.).
- 3.2.3. None of the raw survey data was seen by WA, and its whereabouts is not clear. WA saw tiff image screen dumps of sidescan targets, but these were not georeferenced. It is understood that historical research also formed part of the RDF survey. This data was not seen by WA.

#### 4. METHODOLOGY

- 4.1.1. A four-person diving team, using surface supplied diving equipment, was deployed from the diving support vessel *Xplorer*, a 12-metre inshore survey catamaran. A one-point anchoring system was used on the site.
- 4.1.2. The divers position underwater and archaeological features were acoustically tracked and position-fixed during the survey using a Long Baseline tracking system. This produced co-ordinates projected in WGS84 UTM zone 29. All positions are accurate to within approximately +/-1m.
- 4.1.3. All features on the seabed deemed to be of archaeological interest, including unidentifiable concretions and metal detector hits were allocated a context number from a sequence starting at **2001**, but no features were physically tagged. A full list of context numbers is in **Appendix I**; the results are illustrated in **Figure 2**.
- 4.1.4. Digital still photographs were taken using a housed Canon G2 digital camera with a 0.56 wide-angle adapter and an Ikelite strobe. Video images were taken using a hat mounted single chip Colourwatch Digital Inspection Camera, recording onto miniDV tape.
- 4.1.5. The metal detector survey was undertaken using a Fisher Pulse 6X, over search areas defined using the diver tracking system. An area measuring 20m x 15m was searched using the metal detector (**Figure 3**).
- 4.1.6. The topographic survey was undertaken using a wrist-mounted UWATEC dive digital dive timer/depth gauge. Results are shown in **Appendix II** and illustrated in **Figure 4**. A probe survey was undertaken using a 1.5m long steel rod marked with centimetre intervals. Results are shown in **Appendix III** and illustrated in **Figure 5**.
- 4.1.7. Three sediment samples were taken from the vicinity of the site, away from visible archaeological features. These samples were allocated a number starting at 4001. They represent the surface sediments (4001), underlying darker sediments (4002) and possible fish farm detritus (4003). The sediments were analysed and assessed at Wessex Archaeology, and the results are shown in **Appendix IV**.
- 4.1.8. All data acquired during diving operations was recorded in real time within an MS Access database and onto WA pro forma archaeological recording sheets.

#### 5. RESULTS

#### **5.1.** SITE POSITION

5.1.1. The following position for the site was obtained by tracked diver survey in 2006.

Lat.	56 41.402' N	
Long.	06 04.408' W	
WGS84		

Easting	Northing			
679224	6286709			
UTM zone 29N				

5.1.2. The position is an averaged position for the muzzle of gun **2004**, taken over the course of nine dives. It lies 160m south of the position given as the centre point of the designated circle in SI 2000/287, but is still well within the Designated Area.

#### **5.2. SITE HISTORY**

- 5.2.1. The site was discovered in 1999 by Phil Richards who found four guns and a small number of artefacts, which were recovered and reported to the Receiver of Wreck. The main site consists of four of guns lying end to end in an east-west direction across the slope of a reef, with a fifth discovered later lying approximately 7m to the north-northwest. Artefacts recovered initially from the site include a stoneware Bellarmine jug, copper kettle, pieces of lead, and a possible lead vent apron with 'an apparent inscribed date of 1638' (ADU Report no 00/10). The artefacts and guns suggested a 17<sup>th</sup> century date for the site.
- 5.2.2. After the initial discovery the site was the focus of attention from local sports divers, with multiple claims of discovery. In 1999 the ADU was due to undertake an undesignated site assessment, however they did not dive on the wreck due to the conspicuous presence of their boat over the site and concerns about artefacts being recovered by scuba divers.
- 5.2.3. The ADU viewed video footage of the wreck site and, based on a suggested 17<sup>th</sup> century date for the wreck and the perceived threat to the site by looters, the site was designated on 19<sup>th</sup> August 2000 under SI 2000/287.
- 5.2.4. The site was subject to investigation as part of the RDF Media 'Wreck Detectives' series in 2002, including geophysical and diver survey and historical research. Six artefacts were recovered from the site during the diving investigation.
- 5.2.5. A sixth gun is reported to have been found recently to the north-east of the site (Steve Barlow pers. comm.). However, this find has not been confirmed or located by WA.

#### **5.3.** VESSEL HISTORY

- 5.3.1. The site has not been formally identified, but a 17<sup>th</sup> century date has been given to the site based on the guns and the recovered artefacts.
- 5.3.2. Historical research undertaken as part of the RDF Media Wreck Detectives television programme identified a diary written by John Weir in 1644 that describes a shipwrecking incident. Weir was a Puritan imprisoned in Mingary Castle by the Earl of Argyll at the time and describes a siege of the castle (www.channel4.com). He describes the wrecking of a Dutch ship close by that had been sent by the king to attack the castle in 1644 (*The Scotsman* 27 March 2003). WA has not seen or established the location of the diary.

#### **5.4.** SITE ENVIRONMENT

#### Seabed Geology and Hydrodynamic Environment

- 5.4.1. The Ardnamurchan peninsula has geological outcrops of national and international importance and is designated as an SSSI. The area has sites illustrating volcanic activity during the early part of the Tertiary period (60 million years ago) and Moine sequence sedimentary rocks of marine origin dating to 1000 million years ago. The Tertiary volcanic activity in the area has removed or obscured much of the geology dating to the Triassic, Jurassic and Cretaceous periods.
- 5.4.2. The geology of Mingary Bay is largely undifferentiated Moine sedimentary rock, with basalt dykes running generally north-east–south-west across the Ardnamurchan peninsula. Ben Hiant, a peak of 528m OD, forms the eastern edge of Mingary Bay and has been identified as one of five Tertiary volcanoes on the Ardnamurchan peninsula.
- 5.4.3. Sidescan images of the area immediately around the wreck site show the guns lying on a gentle slope beneath the Rubh' a' Mhile reef. The slope beneath the reef is a boulder field made up predominantly of three rock types: Moine sedimentary rocks, basalt and lava.
- 5.4.4. In the absence of available bathymetric data for the area around the wreck site, a survey using a wrist-mounted digital dive timer/depth gauge was undertaken along 30m lines at compass points radiating out from the muzzle of gun **2001** (**Figure 5**). The survey suggests that the guns lie on a narrow and ill-defined shelf within the boulder slope. The boulder slope is steeper to the west and north-west, rising to the Rubh' a' Mhile reef. The shallow slope continues gently to the east whilst it steepens slightly to the south where it eventually drops off to 30m to the south of the site.
- 5.4.5. The surface sediment around the guns (**4001**) is a light yellow-brown coarse sand made up almost wholly of small shells and shell fragments, including sea urchin spines and shell fragments, razor shells, topshells, slit limpets, small whelks and limpets. There are rare small, angular fragments of metamorphic rock with a maximum diameter of 5mm within the sediment. The layer varied in thickness between 0.06m and 0.20m, averaging at around 0.10m across the area probed.
- 5.4.6. Underlying **4001** is **4002**, a similar but darker and finer sediment. Layer **4002** is a silty sand, predominantly made up of fine broken shells with occasional igneous and metamorphic rock fragments. The finer silty part of **4002** is grey, whilst the shelly component is a browny-yellow colour. **4002** is more compact than **4001** and possibly represents the resistant layer encountered during the probe survey.
- 5.4.7. The sediment movement patterns around the site have not been investigated but the impression of a weeks diving in benign weather conditions suggested that there was very little movement of surface sediments. It is difficult to know how mobile the boulders are, but the fact that there are no boulders lying up against the guns suggests that the field is stable. Systematic mapping of the edge of the field over time would help track any movement.

#### **Marine Biology**

- 5.4.8. The area is covered in heavy kelp growth dominated by Cuvie (*Laminaria hyperborea*), with both sugar kelp (*Luminaria saccharina*) and Furbellows (*Saccorhiza polyschides*) present.
- 5.4.9. The kelp forest covering the site supports a range of easily identifiable marine life including dogfish (*Scyliorhinus canicula*) and dragonets (*Callionymus lyra*); edible crabs (*Cancer pagurus*) and velvet swimming crabs (*Necora puber*) were noted on the site. Shellfish including scallops (*Pecten maximus*) and razor shells (*Ensis spp.*) were seen, along with numerous common sea urchins.

#### 5.5. ARCHAEOLOGICAL FEATURES

#### **General Description**

- 5.5.1. The site lies on the southeastern side of Rubh' a' Mhile (Rock of a Thousand) a rocky peninsular that reaches 2m above CD (Chart 2394). The known wreckage lies within an area of gently sloping seabed at between 8m and 11m below CD. The site lies approximately 700m to the southeast of the 14<sup>th</sup> century Mingary Castle.
- 5.5.2. The site is made up of five cast iron guns, four of which are clustered together lying approximately east west across the reef slope (**Plate 1**). A fifth smaller gun lies approximately 7m to the northwest (**Figure 2**). There do not appear to be any obvious additional outlying guns, however a sixth gun has been reported to lie to the northeast of the site.
- 5.5.3. A probe survey was undertaken in order to establish the thickness of sand (sample **4001**) in the area surrounding the guns. Four 9m long lines were probed at 1m intervals. The results indicate that the maximum probed thickness of the surface layer in the vicinity of the guns is 0.2m (**Figure 5**). A number of probe positions encountered boulders on the surface, and hand probing beneath the surface sand often found boulders and large cobbles similar to those on the surrounding boulder slope. In some areas a more compact, dark grey sand (sample **4002**) was found beneath the surface sediments.

#### **Archaeological Features Recorded in 2006**

- 5.5.4. The five guns were located and positioned by tracked diver survey. Detailed survey of the guns was not undertaken as this was completed as part of the 2002 RDF survey. A brief description of each gun is presented below.
- 5.5.5. Gun **2001** corresponds to gun C4 on the 2003 site plan, which was recorded then as being 3.11m long. The tracked survey gave a length of 2.8m which, allowing for the system's inherent inaccuracies, corresponds well to the previously recorded tape measurements. **2001** is the largest of the five guns on the site, and lies at the eastern end of the site aligned approximately northeast southwest, with the muzzle to the northeast. Unlike the other guns, **2001** sits at an angle with one trunnion vertical. The gun is fully exposed, and lies on top of boulders and sand. There is visible active rusting of the gun on the cascabel, where it also looks as if some of the concretion has come away and recently reformed. Feature **2042** is an unidentifiable iron concretion lying beneath and attached to **2001**.

- 5.5.6. Context **2010** is a small piece of partially visible timber with an exposed length of 0.2m, which lies 0.3m north of gun **2001**. It is round in cross-section and approximately 0.02-0.03m wide. It is thinner at the exposed end, possibly due to erosion, and does not appear to have been worked.
- 5.5.7. Gun **2002** corresponds to gun C3 on the 2003 site plan, which was recorded then as being 2.62m long. The tracked survey gave a length of 2.9m which, allowing for the system's inherent inaccuracies, corresponds well to the previously recorded tape measurements. The gun lies in alignment with **2003** and **2004**, approximately northeast southwest, with the muzzle to the southwest and the trunnions parallel to the seabed. It is fully exposed lying on top of boulders and sand, with a free span in the middle section. There are two small rounded protrusions beneath and either side of both the trunnions. On the north side of the gun an area of damage is visible, where it appears that an area of concretion has come away from the gun and then reformed. The fin on the top of the barrel is also visibly rusting.
- 5.5.8. Context **2007** (**Plate 3**) is a broken concretion measuring approximately 0.2m long, with a spherical impression in the surface 0.1m in diameter. An estimated ½ of the sphere remains, and although it was originally thought to be a concretion surrounding a now missing cannonball, closer inspection of gun **2002** suggests that the concretion came from the area of damage around the western rounded protrusion on the north of the gun.
- 5.5.9. Context **2009** is a small, approximately 0.04m long, concretion. It is attached to gun **2002** on the southern side of the barrel, towards the cascabel end. Context **2006** is a small unidentifiable concretion lying on the seabed approximately 1m northwest of gun **2002**.
- 5.5.10. Gun 2003 corresponds to C2 on the 2003 site plan, which was recorded then as being 2.9m long. The tracked survey gave a length of 2.3m which, allowing for the system's inherent inaccuracies, corresponds reasonably well to the previously recorded tape measurements. The gun lies in alignment with guns 2002 and 2004, approximately northeast southwest, with the muzzle to the southwest and the trunnions parallel to the seabed. The northern trunnion of gun 2003 is concreted to the cascabel end of gun 2004. 2003 is fully exposed lying on top of boulders and sand, with an area of free span in the middle. Beneath the fin on the north side there is an area of damage to the concretion, approximately 0.15m across, where the concretion has cracked, fallen away then reformed. In addition, the fin is actively rusting. Context 2005 is a small concretion, measuring 0.3m x 0.1m, that lies to the north of 2003 and to the east of the cascabel of gun 2004.
- 5.5.11. Gun **2004** corresponds to C1 on the 2003 site plan, which was recorded then as being 2.4m long. The tracked survey gave a length of 2.2m which, allowing for the system's inherent inaccuracies, corresponds well to the previously recorded tape measurements. **2004** lies in alignment with guns **2003** and **2002**, approximately northeast southwest, with the muzzle to the southwest. The gun is fully exposed and lies on top of boulders and sand. It has a large area of damage to the concretion on the top, between the trunnions, which has re-concreted, but has visible rusting (**Plate 4**). It appears that the concretion has broken away from the gun itself, which has subsequently formed a new concretion layer. (**Figure 10**).

- 5.5.12. Gun **2011** (**Plate 2**) corresponds to C5 on the 2003 site plan, which was then recorded as being 1.88m long. The tracked survey gave a length of 2.3m which, allowing for the system's inherent inaccuracies, corresponds well to the previously recorded tape measurements. The gun lies approximately 7.4m northwest of the muzzle of gun **2004** and is aligned roughly north south, with the muzzle to the north. It is fully exposed and lies on top of boulders.
- 5.5.13. Context **2036**, which lies to the southeast of gun **2011**, is a possible concretion giving a low metal detector reading. It is approximately 0.25m in diameter with two parallel lines on one side. Contexts **2027** and **2028** were both found under boulders approximately 1.8m to the west of gun **2011**. Of these, **2027** is a fragment of brick measuring 0.15m x 0.10m x 0.02m (**Plate 5**) and **2028** is a small concretion attached to a boulder.
- 5.5.14. In addition to the concretions mentioned above, which lie in the immediate vicinity of the guns, a further three were located within the general search area around the guns. Concretions **2012** and **2020** lie close together, approximately 10m to the north of gun **2002**. Of these, **2012** is a collection of small concretions found with a metal detector, lying between boulders whilst **2020** is a rectangular concretion measuring 0.20m x 0.25m x 0.15m attached to a boulder (**Plate 6**). Context **2022** is an irregular concretion measuring 0.10m x 0.12m x 0.15m that lies 5m west of gun **2004**.
- 5.5.15. Four fragments of lead sheet were found, all lying to the west of the guns, in amongst the boulder field. One (2029) was found lying loose on the surface whilst the others were found under boulders during the metal detector searches. Context 2031 was a small piece of lead sheeting pierced two oval holes approximately 0.06m apart. One side was more encrusted with marine growth more than the other. Context 2038 was two pieces of lead, the larger one measuring 0.50m long and 0.085m at the widest point. The edges were bent over and there were square-shaped holes down the sides (Plate 7). The second piece was mostly buried, so its extents, and relationship to the larger piece, could not be established.
- 5.5.16. The metal detector search confirmed that a number of the boulders in the area have a magnetic signature (**Plate 8**). A total of eight boulders (**2016**, **2017**, **2032**, **2033**, **2037**, **2039**, **2040** and **2041**) were identified as producing a reading on the metal detector. For these, context **2019** represents the centre point of an area measuring approximately 2m to 3m in radius within which every second or third boulder gave a reading on the metal detector.
- 5.5.17. In addition, there were a further seven metal detector hits (2013, 2014, 2015, 2026, 2030, 2034 and 2035) that could not be attributed to features visible on the seabed.
- 5.5.18. A further four features on the seabed were initially thought to be of archaeological interest due to their unusual shape, form or surface appearance, but were later thought to be examples of differing local geology (2008, 2021, 2024 and 2025).
- 5.5.19. None of the concretions referred to in the 2003 report as FM1, FM2 and FM3, were found, despite kelp clearance and visual and metal detecting searches of the area. Two metal detector hits were identified just over 1m away from the recorded position of FM3. However, 2015 was a metal detector hit for which no object could be attributed, whilst 2037 was attributed to a boulder. Nothing was found or seen in

the vicinity of either FM1 or FM2. With the additional absence of the two pieces of bar shot recorded as previously attached to **2004**, it appears that a number of archaeological concretions have been lost from the site since 2002.

#### 6. CONCLUSIONS

#### **6.1.** Introduction

6.1.1. The overall character of the exposed archaeological material on the seabed can be summarised as follows:

Area and distribution of surviving ship structure:  Description of seabed environment:  Character of ship structure:  Character of ship structure:  Depth and character of stratigraphy:  The sand exists in pockets between the boulders. Artefacts do seem to survive between and beneath boulders, but as all work undertaken by WA was non-intrusive, to what extent this is true can not be fully qualified.  The main feature of the site is the five guns. Four of these are visibly rusting and have areas of damage from an unknown source. It has been hypothesised that the guns were being carried as cargo as they vary greatly in size.  Volume and quality of artefactual and environmental evidence, including cargo, ordnance, domestic assemblage, etc.:  The 2002 survey recorded the presence of both bar shot and cannonballs on the site, but these were no longer present on the site, the only surviving artefacts found by WA were fragmentary and can not add much to our knowledge of the wrecking incident or the ship itself.  Unknown, very little research has been undertaken on the site, and the full extent of the site is not yet known. The distribution of the guns, the range of artefacts and the seabed environment suggests that very little of the wreck remains intact, although it is possible that numerous smaller artefacts survive across a wide area in amongst the boulder field.  Apparent date of ship's construction and/or loss:  Appar		
Description of seabed environment:  The seabed is dominated by a boulder field made up of basalt, sandstone and lava with pockets of sand up to 0.20m deep.  Five guns are known with a 6th reported. Additional finds identified on site include a brick, lead sheet pieces, a small piece of wood and unidentified iron concretions.  Surviving stratigraphy appears unlikely if the thin layer of sand indicated by the probe survey is indicative of the actual stratigraphy. The sand exists in pockets between the boulders. Artefacts do seem to survive between and beneath boulders, but as all work undertaken by WA was non-intrusive, to what extent this is true can not be fully qualified.  The main feature of the site is the five guns. Four of these are visibly rusting and have areas of damage from an unknown source. It has been hypothesised that the guns were being carried as cargo as they vary greatly in size.  The 2002 survey recorded the presence of both bar shot and cannonballs on the site, but these were no longer present on the site in 2006.  Although a range of intact artefacts have been recovered from the site, the only surviving artefacts found by WA were fragmentary and can not add much to our knowledge of the wrecking incident or the ship itself.  Unknown, very little research has been undertaken on the site, and the full extent of the site is not yet known. The distribution of the guns, the range of artefacts and the seabed environment suggests that very little of the wreck remains intact, although it is possible that numerous smaller artefacts survive across a wide area in amongst the boulder field.  The guns and identified artefacts suggest a 17th century date, whilst historic records suggest that the wreck may be that of a Dutch ship that was involved in a siege on Mingary Castle in 1644.		A sixth gun has been reported to WA to exist to the northeast of gun
Five guns are known with a 6th reported. Additional finds identified on site include a brick, lead sheet pieces, a small piece of wood and unidentified iron concretions.  Surviving stratigraphy appears unlikely if the thin layer of sand indicated by the probe survey is indicative of the actual stratigraphy. The sand exists in pockets between the boulders. Artefacts do seem to survive between and beneath boulders, but as all work undertaken by WA was non-intrusive, to what extent this is true can not be fully qualified.  The main feature of the site is the five guns. Four of these are visibly rusting and have areas of damage from an unknown source. It has been hypothesised that the guns were being carried as cargo as they vary greatly in size.  Volume and quality of artefactual and environmental evidence, including cargo, ordnance, domestic assemblage, etc.:  Although a range of intact artefacts have been recovered from the site, the only surviving artefacts found by WA were fragmentary and can not add much to our knowledge of the wrecking incident or the ship itself.  Unknown, very little research has been undertaken on the site, and the full extent of the site is not yet known. The distribution of the guns, the range of artefacts and the seabed environment suggests that very little of the wreck remains intact, although it is possible that numerous smaller artefacts survive across a wide area in amongst the boulder field.  Apparent date of ship's construction and/or loss:  Apparent function:  Unknown.		The seabed is dominated by a boulder field made up of basalt,
indicated by the probe survey is indicative of the actual stratigraphy. The sand exists in pockets between the boulders. Artefacts do seem to survive between and beneath boulders, but as all work undertaken by WA was non-intrusive, to what extent this is true can not be fully qualified.  The main feature of the site is the five guns. Four of these are visibly rusting and have areas of damage from an unknown source. It has been hypothesised that the guns were being carried as cargo as they vary greatly in size.  The 2002 survey recorded the presence of both bar shot and cannonballs on the site, but these were no longer present on the site in 2006.  Although a range of intact artefacts have been recovered from the site, the only surviving artefacts found by WA were fragmentary and can not add much to our knowledge of the wrecking incident or the ship itself.  Unknown, very little research has been undertaken on the site, and the full extent of the site is not yet known. The distribution of the guns, the range of artefacts and the seabed environment suggests that very little of the wreck remains intact, although it is possible that numerous smaller artefacts survive across a wide area in amongst the boulder field.  Apparent date of ship's construction and/or loss:  Apparent function:  Unknown.	Character of ship structure:	Five guns are known with a 6 <sup>th</sup> reported. Additional finds identified on site include a brick, lead sheet pieces, a small piece of wood and
rusting and have areas of damage from an unknown source. It has been hypothesised that the guns were being carried as cargo as they vary greatly in size.  The 2002 survey recorded the presence of both bar shot and cannonballs on the site, but these were no longer present on the site in 2006.  Although a range of intact artefacts have been recovered from the site, the only surviving artefacts found by WA were fragmentary and can not add much to our knowledge of the wrecking incident or the ship itself.  Unknown, very little research has been undertaken on the site, and the full extent of the site is not yet known. The distribution of the guns, the range of artefacts and the seabed environment suggests that very little of the wreck remains intact, although it is possible that numerous smaller artefacts survive across a wide area in amongst the boulder field.  Apparent date of ship's construction and/or loss:  The guns and identified artefacts suggest a 17 <sup>th</sup> century date, whilst historic records suggest that the wreck may be that of a Dutch ship that was involved in a siege on Mingary Castle in 1644.  Unknown.		indicated by the probe survey is indicative of the actual stratigraphy. The sand exists in pockets between the boulders. Artefacts do seem to survive between and beneath boulders, but as all work undertaken by WA was non-intrusive, to what extent this is true can not be fully
ship itself.  Unknown, very little research has been undertaken on the site, and the full extent of the site is not yet known. The distribution of the guns, the range of artefacts and the seabed environment suggests that very little of the wreck remains intact, although it is possible that numerous smaller artefacts survive across a wide area in amongst the boulder field.  Apparent date of ship's construction and/or loss:  Apparent function:  The guns and identified artefacts suggest a 17th century date, whilst historic records suggest that the wreck may be that of a Dutch ship that was involved in a siege on Mingary Castle in 1644.  Unknown.	artefactual and environmental evidence, including cargo, ordnance,	rusting and have areas of damage from an unknown source. It has been hypothesised that the guns were being carried as cargo as they vary greatly in size.  The 2002 survey recorded the presence of both bar shot and cannonballs on the site, but these were no longer present on the site in 2006.  Although a range of intact artefacts have been recovered from the site, the only surviving artefacts found by WA were fragmentary and
Apparent date of ship's construction and/or loss:  historic records suggest that the wreck may be that of a Dutch ship that was involved in a siege on Mingary Castle in 1644.  Unknown.		ship itself.  Unknown, very little research has been undertaken on the site, and the full extent of the site is not yet known. The distribution of the guns, the range of artefacts and the seabed environment suggests that very little of the wreck remains intact, although it is possible that numerous smaller artefacts survive across a wide area in amongst the
11		historic records suggest that the wreck may be that of a Dutch ship that was involved in a siege on Mingary Castle in 1644.
Annual and a state of the state	Apparent function:	Unknown.
Apparent origin: Unknown.	Apparent origin:	Unknown.

#### 6.2. DISCUSSION

6.2.1. The site was surveyed and recorded in 2002 as part of the RDF Wreck Detectives programme, only an interim report has been produced on the archaeological work.

- This included geophysical and diver survey, and historical research. However, many key questions remain unanswered.
- 6.2.2. The presence of artefacts including a brick and pieces of lead sheeting supports the suggestion that the site represents a wrecking incident rather than the jettison of guns from a ship. WA saw no artefacts were seen that would assist further in the identification or more accurate dating of the ship and the probe survey suggests that the surface sediment is little more than 0.1m thick. However, a copper cauldron was recovered from the site prior to designation and this fact alone suggests that the site does contain the potential to produce further significant archaeological data.
- 6.2.3. To date there insufficient data to confirm that the known remains mark the focus for the distribution of archaeological features from this wreck. It would be advantageous if multibeam data was available for a stretch of the coast inshore of the wreck to a point some distance offshore of the site. This would help to place the known remains within the context of potential hazards to shipping and, in conjunction with sidescan data would help to focus searches for further wreck material.
- 6.2.4. Structured searches, with evidenced and reported search areas are now a key requirement for the site. It would be advantageous if these were supported by the use of a metal detector, however the occurrence of igneous rock in the area means that the results of this type of search need to be treated with caution. Discovering the position of the reported 6<sup>th</sup> gun could be a key factor in understanding the direction of the debris scatter, and hence the wrecking event.
- 6.2.5. The existing remains may be interpreted in several ways. It has been suggested that the differences in the gun sizes may indicate that they were being carried as cargo. This interpretation is still possible, though they may also be armament for a smaller 'irregular' local vessel operating with a range of guns culled from disparate sources. More detailed ordnance recording than that detailed in the 2002 report may help to resolve this issue.
- 6.2.6. It is tempting to see the wreck as being connected to the nearby Mingary Castle. Indeed it has been suggested that there is documentary evidence suggesting that the wreck may relate to a Dutch vessel that sank during an attack on the castle in 1644. This theory needs to be investigated in much more detail if is to be supported, both in terms of documentary research and formal recording and research into the finds already recovered from the site.
- 6.2.7. Observation of sediments and surface artefacts on the site suggest that it is generally stable, and it is unlikely that further artefacts will become exposed from the sediment or be removed from site naturally. It is possible that strong westerly storms could change the benign environment experienced by WA during 2006, however it is thought unlikely that environmental conditions could be responsible for the removal of artefacts previously securely concreted to boulders and guns.

#### 7. REFERENCES

#### 7.1. REPORTS AND PUBLISHED SOURCES

Archaeological Diving Unit, 2000, 'Mingary Castle, Ardnamurchan, Scotland', Unpublished Report.

Historic Scotland, 2006, 'Brief for Archaeological Services in Relation to the Protection of Wrecks Act: mingary Castle', Unpublished report.

Momber, G., 2003, 'Report for Historic Scotland on the Survey of the Mingary Castle Protected Wreck Site during May 2002', Unpublished Report.

Wessex Archaeology, 2006, 'Mingary Designated Site Assessment: Management Report', Unpublished report ref. 53111.02rr.

#### 7.2. OTHER SOURCES

The Scotsman, 27 March 2003.

www.channel4.com.

## APPENDIX I: CONTEXT NUMBER ALLOCATION

Context No.	UTMz29 Easting	UTMz29 Northing	Object Type	Description
2001	679233	6286710	Gun	C4 on 2003 site plan.
2002	679230	6286710	Gun	C3 on 2003 site plan.
2003	679227	6286709	Gun	C2 on 2003 site plan.
2004	679226	6286709	Gun	C1 on 2003 site plan.
2005	679228	6286710	Concretion	Concretion 0.3 x 0.1m. Concretion located immediately to the east of the cascabel of gun <b>2004</b> and to the north side of gun <b>2003</b> .
2006	679229	6286710	Concretion	Small concretion north-west of Gun 2002
2007	679229	6286710	Concretion	Concretion of a round object now missing of internal diameter 0.1m. Internal space is between a quarter and a third of a sphere.
2008	679230	6286711	Possible Geology	Possible artefact, unidentified, porous but heavy. Post-ex: thought to be lava.
2009	679230	6286710	Concretion	Object attached to cascabel end of gun <b>2002</b> .
2010	679232	6286711	Timber	Timber lying under a boulder.
2011	679220	6286716	Gun	C5 on 2003 site plan.
2012	679229	6286720	Concretion	Metal detector hit. Small pieces of possible concretion?
2013	679228	6286718	Metal Detector hit	Metal detector hit. Nothing visible, possibly buried, only detected on high setting.
2014	679227	6286716	Metal Detector hit	Metal detector hit. Nothing visible, strong signal with high setting, weak signal with medium setting.
2015	679227	6286713	Metal Detector hit	Metal detector hit. Nothing visible, strong signal with high setting, weak signal with medium setting.
2016	679224	6286715	Geological	Metal detector hit which appears to come from a boulder.
2017	679224	6286715	Geological	0.2m long irregular concretion attached to a boulder which was located by metal detector. Post-ex: three types of boulder naturally concreted together.
2019	679223	6286715	Possible Geology	Approx centre point of high density metallic hits with an approx 2-3m radius.
2020	679229	6286721	Concretion	Rectangular in shape. 0.20 x 0.25 x 0.15m. Attached to a rock.
2021	679223	6286717	Possible Geology	Concretion - half of round disc? 0.3m diameter, 8cm wide, side between boulders.
2022	679220	6286708	Concretion	Irregular concretion, 0.10 x 0.12 x 0.15m.
2024	679219	6286716	Possible Geology	Quarter circle, uncertain material, but shape appears to be unnatural, too flat. 0.6 x 0.4m, Two of these plates stuck together. Post-exc assessment suggests that this is local Moine sequence sedimentary rock.
2025	679219	6286710	Possible Geology	Possible concretion, probably geological. Similar to <b>2024</b> . Post-exc assessment suggests that this is local Moine sequence sedimentary rock.
2026	679220	6286716	Metal Detector hit	Metal detector hit does not register at the low setting, nothing visible on seabed in amongst boulders.
2027	679218	6286716	Brick	Brick measuring 0.15 x 0.10 x 0.02m.
2028	679218	6286716	Concretion	Very small concretion attached to a rock, reading on the metal detector.

Context No.	UTMz29 Easting	UTMz29 Northing	Object Type	Description
2029	679219	6286714	Lead	Piece of lead (fragment of lead sheet?), very thin piece, c.0.23m long x 0.05m wide max. Roughly rectangular.
2030	679221	6286715	Metal Detector hit	Metal detector hit.
2031	679218	6286711	Lead	Metal detector hit, small piece of lead sheeting, with two small holes oval in shape, approx 0.06m apart. One side more encrusted than the other.
2032	679216	6286711	Geological	Metal detector hit. Large unusual shape boulder giving a high reading on low setting.
2033	679222	6286713	Geological	Metal detector hit. Boulder is giving the high reading.
2034	679219	6286712	Metal detector hit	Faint reading on medium setting.
2035	679219	6286709	Metal detector hit	Metal detector hit.
2036	679221	6286717	Concretion	Possible Concretion. 0.25m in diameter. Two parallel lines appear to be possibly cut through on one side. Lying immediately south-east of the cannon.
2037	679226	6286712	Geological	Metal detector hit. Boulder.
2038	679219	6286718	Lead	Two pieces of lead. Larger one: approx. 0.5m long, 0.085m wide at the widest point, bent over, square holes along the edges, leaf-shaped. Second one is a smaller piece partly buried.
2039	679222	6286714	Geological	Metal detector hit. Boulder.
2040	679220	6286711	Geological	Metal detector hit. Boulder.
2041	679218	6286716	Geological	Metal detector hit. Boulders.
2042	679232	6286710	Concretion	Concretion attached to/under 2001

## APPENDIX II: TOPOGRAPHIC SURVEY RESULTS

Position	UTMz29N	UTMz29N	Depth of water	Description
<b>ID</b> 10152	<b>Easting</b> 679249	Northing	13.6m	Sand with occasional boulders.
10152	679249	6286689 6286690	13.4	Sand with occasional boulders.  Sand with occasional boulders.
10153	679246	6286691	13.3m	Sand with occasional boulders.  Sand with occasional boulders.
10154	679245	6286692	13.2m	Sand with occasional boulders.  Sand with occasional boulders.
10155	679243		13.2m	Sand with occasional boulders.  Sand with occasional boulders.
10158		6286693		Sand with occasional boulders.  Sand with occasional boulders.
10158	679241 679240	6286694 6286695	12.9m 12.7m	Sand and boulders.
10160	679238	6286697	12.7m	Sand and boulders.
10161	679238	6286699	12.3m	Sand and boulders.
10162	679237	6286701	12.2m	Sand with occasional boulders.
10163	679236	6286703	11.9m	Sand with occasional boulders.
10164	679235	6286705	11.9m	Sand with occasional boulders.
10165	679235	6286707	11.6m	Sand with occasional boulders.  Sand with occasional boulders.
10166	679234	6286708	11.4m	
10167	679233	6286710	11.3m	Sand with occasional boulders.
10168	679233	6286711	11.3m at <b>2001</b>	11.0m depth on top of <b>2001</b> , 11.3m on seabed.
10169	679234	6286712	11.3m	Start of Line 2.
10170	679235	6286712	11.4m	11.4m deep at 4m on tape.
10172	679261	6286717	11.9m	Sand and boulders.
10173	679260	6286718	11.9m	Sand and kelp and boulders.
10174	679258	6286717	11.9m	Sand and boulders.
10175	679256	6286716	11.9m	Sand and boulders.
10176	679254	6286715	11.9m	Boulders and sand.
10177	679252	6286715	11.9m	Sand and boulders.
10178	679251	6286716	11.7m	Sandy with kelp between boulders.
10179	679248	6286714	11.7m	Sand and boulders.
10180	679246	6286713	11.7m	Sand and boulders.
10181	679244	6286713	11.6m	Sand and boulders.
10182	679243	6286713	11.6m	Sand and boulders.
10183	679241	6286713	11.6m	Sand and boulders.
10184	679239	6286713	11.5m	Sand.
10185	679236	6286713	11.5m	Sand.
10186	679236	6286712	11.4m	Sand.
10187	679235	6286712	11.4m at	11.1m deep on top of gun <b>2001</b> , 11.4m on
		40.450	WA2001	seabed.
10188	679207	6286703	5.7m	Start of Line 3. Boulders.
10189	679208	6286703	7.0m	Boulders.
10190	679210	6286703	8.3m	Boulders.
10191	679212	6286703	9.1m	Boulders.
10192	679214	6286703	9.5m	Boulders.
10193	679215	6286704	9.8m	Boulders.
10194	679217	6286705	10.2m	Boulders.
10195	679219	6286705	10.5m	Boulders.
10196	679221	6286706	10.8m	Boulders with a little sand visible in between.
10197	679223	6286707	10.9m	Sand and boulders.
10198	679224	6286708	11.1m	Sand and boulders.
10199	679226	6286708	11.3m	Sand and boulders.
10200	679228	6286709	11.4m	Sand.
10201	679230	6286709	11.4m	Sand and boulders.
10202	679231	6286710	11.5m	Sand.
10203	679233	6286711	11.6m at <b>2001</b>	11.3m on top of gun <b>2001</b> , 11.6m on seabed.
10205	679227.36	6286727.56	7.6m	Start of Line 4: Boulders.
10206	679227.27	6286726.73	7.9m	Boulders.

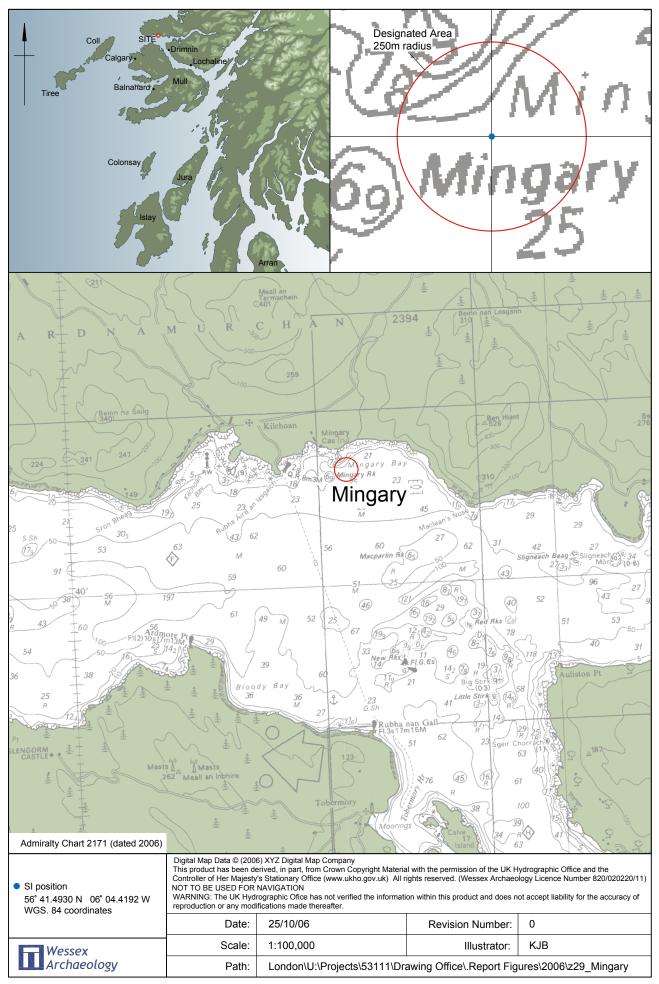
Position ID	UTMz29N Easting	UTMz29N Northing	Depth of water	Description
10207	679227.55	6286724.78	8.2m	Sand and boulders.
10208	679228.09	6286721.71	8.3m	Sand and boulders.
10209	679228.82	6286718.26	8.3m	Sand and boulders.
10210	679229.42	6286716.11	8.6m	Sand and boulders.
10212	679227.54	6286726.07	9.5m	Sand and boulders.
10213	679227.24	6286723.94	9.8m	Boulders.
10214	679228.92	6286720.86	10.4m	Boulders and sand.
10215	679228.15	6286720.55	10.7m	Sand and boulders.
10216	679229.74	6286719.66	11.1m	Sand and boulders.
10217	679216.42	6286701.12	11.3m	Sand and boulders.
10218	679216.42	6286701.12	11.3m	Sand.
10219	679232.53	6286712.18	11.6m	Sand.
10220	679232.65	6286711.79	11.7m at <b>2001</b>	11.4m on gun <b>2001</b> , 11.7m on seabed.

## APPENDIX III: PROBE SURVEY RESULTS

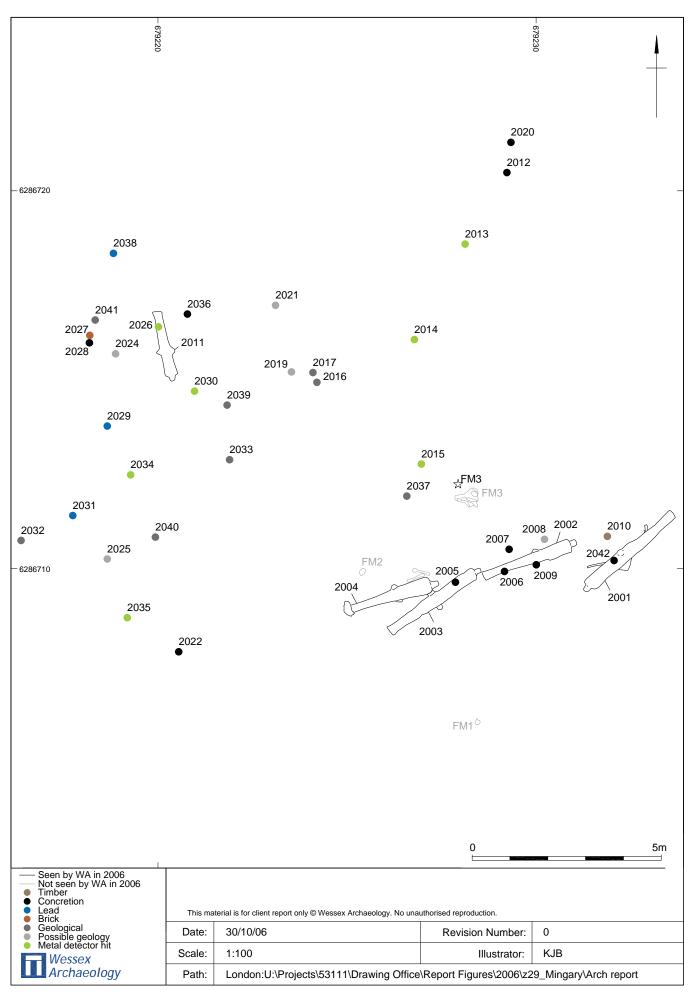
Observation	Probe	UTMz29N	UTMz29	Description
10108	Depth	Easting	Northing	-
10108	0.12m 0.08m	679234 679232	6286711 6286713	0.12m depth of sand, hits small rock.
10109	0.08m	679232	6286713	0.08m penetration in sand. 0.14m penetration.
10110	0.14m 0.15m	679232	6286712	0.15m penetration.
10111	0.13m	679231	6286712	0.08m penetration, resistant, not hard base.
10112	0.00m	679229	6286712	0.20m resistant base.
10113	0.20m	679228	6286711	0.08m penetration, resistant base.
10115	<0.10m	679226	6286711	<0.10m penetration, cannot see as boulders are in the way.
10116	0.10m	679226	6286711	0.10m penetration, fine sediment on surface.
10119	0.10m	679224	6286710	0.10m penetration onto cobbles.
10122	0.10m	679234	6286711	Resistant base 0.10m penetration.
10123	0.07m	679233	6286710	0.07m penetration, resistant base.
10124	zero	679233	6286710	Zero penetration; on top of cannon.
10125	0.11m	679231	6286709	0.11m penetration, grey very fine sediment, resistant base.
10126	0.11m	679230	6286710	0.11m penetration, resistant base.
10127	0.08m	679229	6286709	0.08m penetration, resistant base.
10128	0.10m	679228	6286709	0.10m penetration, hard in an area of boulders
10129	0.10m	679228	6286709	0.10m penetration, hard base.
10130	0.15m	679227	6286708	Resistant base 0.15m penetration. In amongst boulders.
10131	0.06m	679226	6286708	0.06m penetration, hard base.
10132	0.10m	679234	6286711	Resistant base at 0.10m penetration.  Investigated and hard layer made up of small stones.
10133	0.12m	679234	6286710	0.12m hard penetration.
10134	0.11m	679233	6286710	Fine grey sediment 0.11m penetration, hard base.
10135	0.10m	679231	6286709	Coarse sediment of shell and stones. 0.1m resistant base.
10136	zero	679230	6286709	No penetration, in boulders.
10137	zero	679230	6286708	No penetration, dense boulders.
10138	0.08m	679228	6286708	Resistant base 0.08m penetration.
10139	0.10m	679228	6286707	Hard base (likely boulder) 0.10m penetration.
10140	0.10m	679228	6286707	Resistant base at 0.10m penetration in between boulders.
10141	0.08m	679226	6286707	0.08m penetration in between boulders.
10142	0.10m	679234	6286709	0.10m resistant base.
10143	0.11m	679233	6286708	0.11m penetration, resistant base.
10144	0.11m	679234	6286707	0.11m hard penetration.
10145	0.10m	679232	6286707	0.10m penetration hard base amongst boulders.
10146	0.08m	679230	6286707	0.08m penetration onto rock. In amongst boulders.
10147	0.15m	679229	6286706	0.15m penetration, resistant base.
10148	0.14m	679228	6286706	0.14m penetration on resistant base.
10149	0.10m	679226	6286707	0.10m penetration hard base.

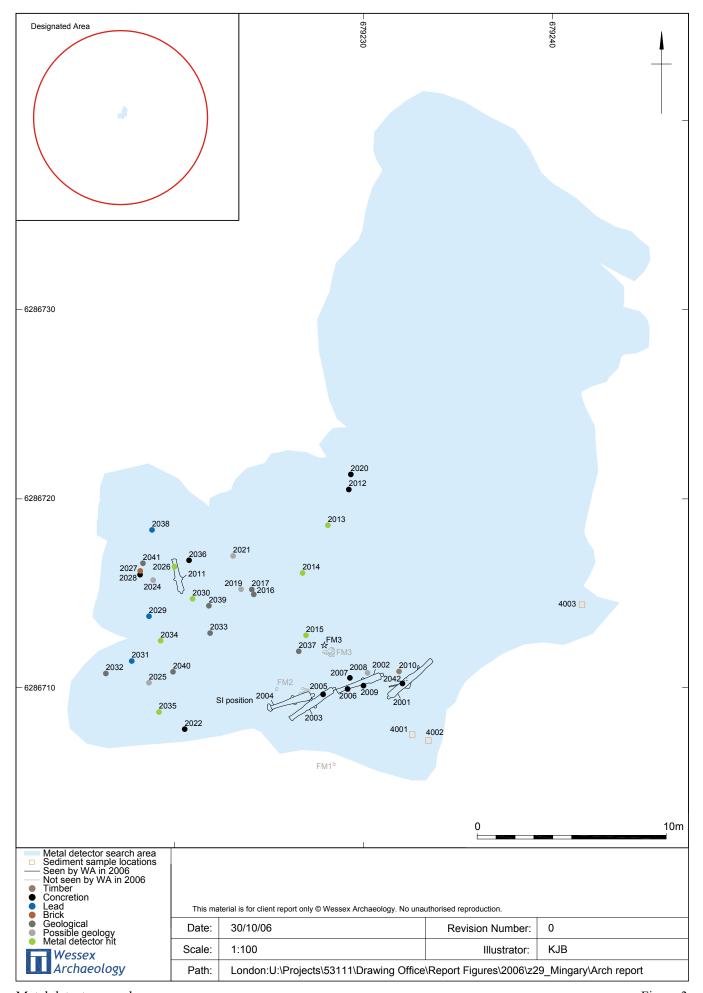
## APPENDIX IV: SEDIMENT SAMPLES

Sample No.	UTMz29 Easting	UTMz29 Northing	Description
4001	679233	6286708	Light yellowy-brown coarse sand comprising mostly whole and broken shells with rare angular small metamorphic rock fragments with a max diameter of 5mm.  Shells include sea urchin, razor shells, top shells, slit limpets, small whelks and limpets.
4002	679233	6286707	Similar to WA4001 but finer and darker.  Dark yellowy-brown comprising broken and small shells with igneous and metamorphic rock inclusions, and a grey silty sand.
4003	679242	6286714	Possible fish farm debris.

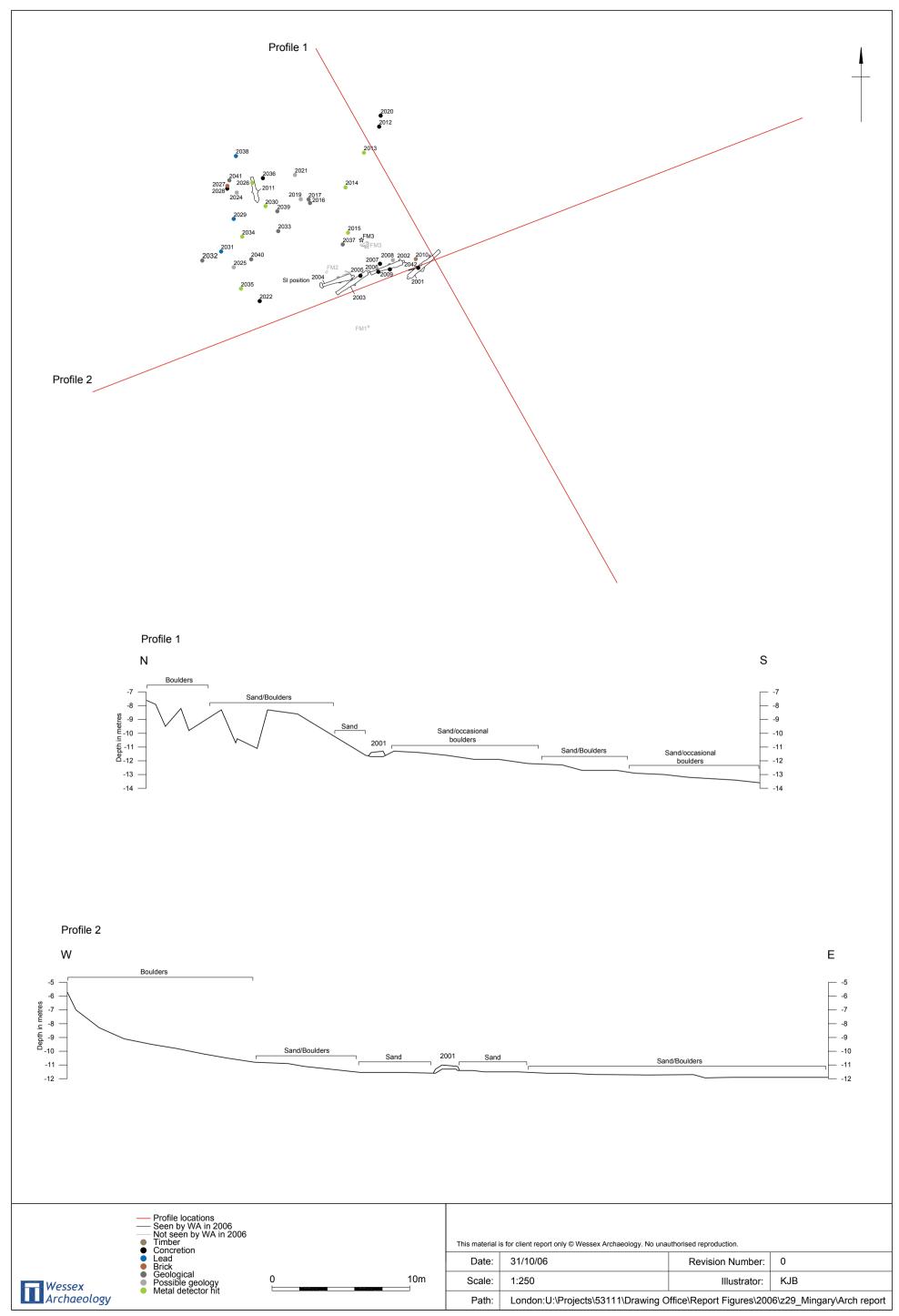


Mingary site location Figure 1

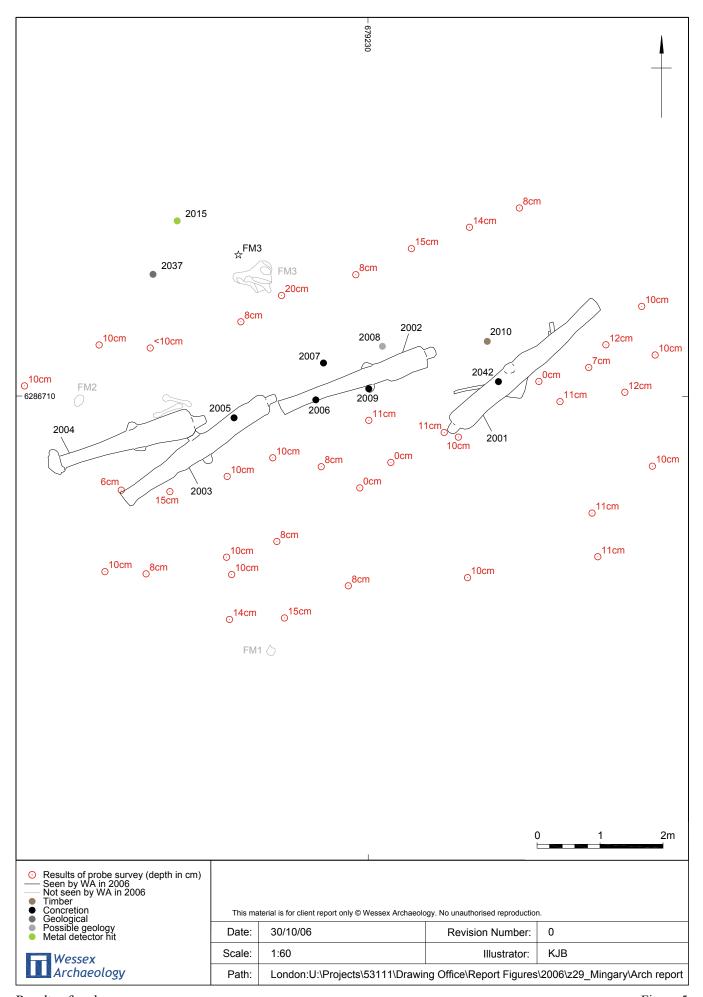




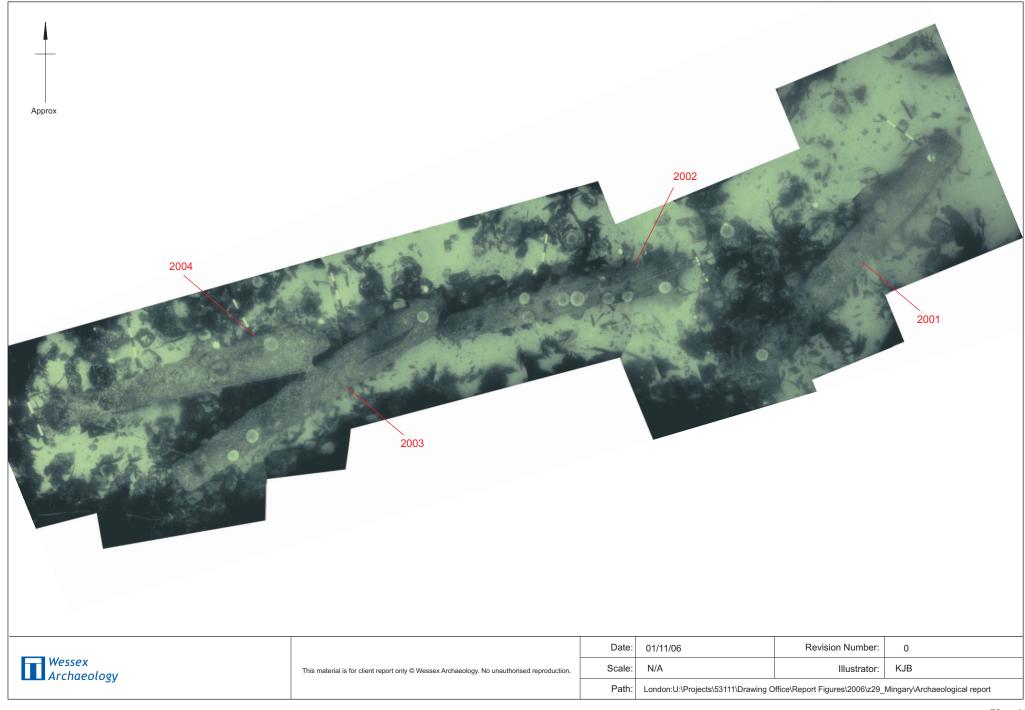
Metal detector search area Figure 3



Results of topographic survey



Results of probe survey Figure 5



Photomosaic of guns 2001-2004 Plate 1



Plate 2. Gun 2011



Plate 3. Damage on 2002 and concretion 2007

Wessex Archaeology	Date:	01/11/06	Illustrator:	KJB
	Path:	London:U:\PROJECTS\53111\Drawing Office\Report Figures\2006\z29_Mingary\Plates A4.cdr		29_Mingary\Plates A4.cdr



Plate 4. Damage to concretion on 2004



Plate 5. Fragment of brick 2027

Wessex Archaeology	Date:	01/11/06	Illustrator:	KJB
	Path:	London:U:\PROJECTS\53111\Drawing Office\Report Figures\2006\z29_Mingary\Plates A4.cdr		29_Mingary\Plates A4.cdr



Plate 6. Concretion 2020

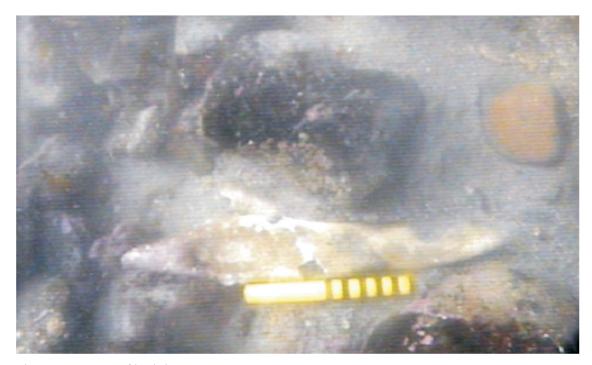


Plate 7. Fragments of lead sheet 2038

Wessex Archaeology	Date:	01/11/06	Illustrator:	KJB
	Path:	London:U:\PROJECTS\53111\Drawing Office\Report Figures\2006\z29_Mingary\Plates A4.cdr		



Plate 8. Boulder producing a metal detector reading

Wessex Archaeology	Date:	01/11/06	Illustrator:	KJB
	Path:	London:U:\PROJECTS\53111\Drawing Office\Report Figures\2006\z29_Mingary\Plates A4.cdr		







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