



Underwater Archaeological Services 2017-2018

Drottningen af Sverige (Queen of Sweden), Shetland

Undesignated Site Assessment



Ref: 109131.02
February 2018



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Document Information

Document title	Underwater Archaeological Services 2017-2018
Document subtitle	Undesignated Site Assessment <i>Drottningen af Sverige (Queen of Sweden)</i> , Shetland
Document reference	109131.02
Client name	Historic Environment Scotland
Address	Longmore House Salisbury Place Edinburgh EH9 1SH
Site location	Twageos Point, Lerwick
County	Shetland
National grid reference	HU 483 407 (HU c. 483 407)
Statutory designations	Currently undesignated
Planning authority	Shetland Islands Council
Planning reference	
Museum name	Shetland Museum
Museum accession code	
WA project name	Underwater Archaeological Services 2017-2018
WA project code	109131
Dates of fieldwork	05.08.2017-13.08.2017
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Project management by	Dan Atkinson
Document compiled by	Isgar Vico Sommer
Graphics by	Kitty Forster and Nancy Dixon

Quality Assurance

Issue and date	Status	Author	Approved by
1 13/10/2017	First Draft	IVS	
2 16/11/2017	Second Draft	IVS	
3 11/01/2018	Third Draft	IVS	
4 19/02/2018	Fourth Draft	BMack	

DATA LICENCES

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Summary

Wessex Archaeology (Scotland) (WA) was commissioned by Historic Environment Scotland (HES) to carry out an undesignated site assessment of the *Drottningen af Sverige (Queen of Sweden)* as part of the Scottish Underwater Archaeological Services contract (HS/C/2804). The objectives were to collate all plans and geophysical data of the wreck, to undertake a diving assessment to delineate the principal surviving areas and extent of archaeological potential and to enhance the photographic record of visible features. This is with the aim to provide an assessment of the site (preservation/likely threats/ archaeological potential, etc.) to underpin advice by HES to the Scottish Government on the case for designating the site as a Historic Marine Protected Area (HMPA) under the Marine (Scotland) Act 2010.

Acknowledgements

This investigation was commissioned by Historic Environment Scotland (HES), and the assistance provided by Philip Robertson and Rory McDonald is gratefully acknowledged. Wessex Archaeology (Scotland) would also like to thank the following people and organisations for the assistance they have provided (alphabetical order):

- BK Marine and the crew of *Koada*;
- Dr Ian Tate and the staff of Shetland Museum and Archives;
- Dr Val Turner, Shetland Amenity Trust
- Lerwick Port Authority; and
- Ocean Kinetics

This project was managed by Dr Dan Atkinson on behalf of Wessex Archaeology (Scotland). Fieldwork was undertaken by Graham Scott, Stephanie Said, Lesley Dalgleish, Isgar Vico Sommer, and volunteer John McCarthy. Dr Douglas McElvogue of TrenDarc observed the assessment and provided information based on his local knowledge. The report was researched and compiled by Isgar Vico Sommer. Quality assurance was provided by Dr Dan Atkinson. Illustrations were prepared by Kitty Foster and Nancy Dixon.



Underwater Archaeological Services 2017-2018

Undesignated Site Assessment *Drottningen af Sverige (Queen of Sweden)*, Shetland

1 PROJECT BACKGROUND

1.1 Introduction

1.1.1 Wessex Archaeology (Scotland) (WA) was commissioned by Historic Environment Scotland (HES) to undertake an undesignated site survey of the *Drottningen af Sverige (Queen of Sweden)* wreck, just off Twageos Point, Lerwick. The site assessment was completed with the aim to provide HES, in its capacity as advisor to Scottish Government, with suitable information to underpin consideration of the case for the possible designation of the site as a Historic Marine Protected Area (HMPA) under the Marine (Scotland) Act 2010.

1.2 The Site

1.2.1 The *Queen of Sweden* wreck (Figure 1) is recorded by HES as Canmore ID 206700, Site number HU44SE 8010.

The Swedish East India Company

1.2.2 Inspired by the success of the *Dutch and British East India Companies*, the *Swedish East India Company (Svenska Ostindiska Companiet or SOIC)* was founded in 1731 by Henrik König, Colin Campbell and Niclas Sahlgren. Although there were previous attempts to set up similar trading companies, these were not successful. After its formation, the SOIC mainly focused on the tea trade with China with additional goods traded to supplement the profits. Metals, timber, wine and spirits were loaded onto the trading vessels in Sweden and shipped to Cadiz, Spain where a large portion of the goods were traded for silver. The merchants then continued onwards to China where the company traded the silver and remaining goods for tea, porcelain, silk and other goods. Although the journeys are reported to have been highly profitable for the company very few records survive. The records were often burned to guarantee the anonymity of the individuals involved in trading and financing the business (Hodacs, 2016: 42). Due to new rules and regulations on the tea import to the United Kingdom and declining profits the company folded in 1806 (Franklin Scott, 1988: 266).

The Queen of Sweden

1.2.3 The *Drottningen af Sverige ('Queen of Sweden')* was built in Stockholm in September 1741 under the order of the SOIC. The vessels dimensions were around 44.8 m x 11.9 m x 5.6 m (Joffre, 1981). With a cargo capacity of 387 *läster* or 947 metric tons (Campbell, 1996: 34) and 32 guns it was the biggest ship built for the SOIC at the time. The vessel was completed in 1741 and carried out several successful expeditions to Canton, China.

1.2.4 On the 9th January 1745, the *Drottningen af Sverige* together with the *Stockholm* sailed from Gothenburg for Canton. The *Queen of Sweden* was under the command of Captain Carl Tretuinger with William Elliot, Peter König, Alexander Ross and Charles Bratt as supercargoes (representatives of the ship's owner, responsible for overseeing the cargo

and its sale). The vessel was loaded at maximum capacity with 387 *läster*, 30 cannons, and 130 crew (Joffre, 1981). The cargo consisted amongst other items of 1.9 tons of lead ingots, French wine, German spirits, Chinese porcelain as well as navigational and medical instruments.

- 1.2.5 Both ships were to pick up a shipment of silver from the city of Cadiz (Koninckx, 1980: 158), using the 'north-about route' to avoid the English Channel by passing north of Shetland. However, on the 12th of January both ships were caught in the strong winds and blizzards and carried towards Shetland. The *Stockholm* wrecked off the coast of Dunrossness while the crew of the *Queen of Sweden* watched unable to help. After deciding to sheer off and wait out the storm, the crew decided to make for Lerwick and assist the survivors of the *Stockholm*. By the time the *Queen of Sweden* reached the entrance of Bressay Sound the blizzards returned, and succumbing to the hazardous conditions the vessel sank just of Twageos Point at the mouth of Lerwick harbour. Fortunately, there were no losses from either of the ships' crews.

Salvage and Archaeological History

- 1.2.6 Following the wrecking of the *Queen of Sweden* and the *Stockholm* the crew managed to recover the sails, ropes, masts, yards, weapons, and some of the cargo. Salvaged items were sold to pay the locals for the food and lodgings for the crew of the vessels.
- 1.2.7 Following the initial salvage by the crew, professional salvors Robert Hunter & Co. had recovered a total of 154 bars of lead by June 1746., Two French salvors, the 'Eschauzier Brothers' recovered a further 1330 bars of lead, four anchors and one gun. The last reported salvage operation was completed by George Innes & Co. on the 22nd October 1746. A total of 266 pigs of lead were recovered (Joffre, 1981).
- 1.2.8 The site was re-discovered by Jean-Claude Joffre in October 1979. Over the next three years Joffre surveyed and excavated selected areas of the site (See Figure 2). The site was surveyed by John Adams and Chris Dobbs in October 1987 (Dobbs, 1987). It was concluded that although the most productive areas had already been excavated by Joffre the site is likely to contain additional site material in the sandy areas not previously excavated. A sketch plan of the site was provided by John Adams (Figure 3). The investigation and excavation by Joffre resulted in the recovery of a large number of artefacts, most of which are now located in the Lerwick Museum. Over 248 artefacts were recovered including, a large number of glass bottles and flagons; a large number of pieces of China porcelain; and lead weights, clay pipes, wooden tableware, musket shot, cannonballs, and a variety of coins (See Appendix 4).
- 1.2.9 Datum points (pitons) were fastened in the bedrock close to the site and some cannons were moved from their original position to a gully in the north-eastern part of the site (see Figure 6 cannon cluster). It is unclear why the cannons were moved.
- 1.2.10 In 1990, Steve Liscoe with the support of the Archaeological Diving Unit (ADU) ran a Nautical Archaeology Society (NAS) training course with the Shetland Scottish Sub Aqua Club (SS-SAC) and completed a pre-disturbance survey of the site which produced the latest site plan (Figure 4). Some additional NAS courses were undertaken at the site in the following years, including survey work and excavation, incorporating some test pits of the flint mounds and areas north of the guns. Although it is not specified which guns are referred to, it is most likely that Liscoe refers to the area just north of WA_Cannon 01 and 02, as this was the main area of work during the 1990 expedition.



- 1.2.11 In 2001, 13 lead ingots were raised by John Morrison of the Shetland Scottish Sub Aqua Club (SS-SAC), one of which was donated to the Lerwick Museum (Mr T. Watt, written communication 2nd May 2002).
- 1.2.12 Following the recovery of the 13 lead ingots the Archaeological Diving Unit (ADU) inspected the site in 2002 with a mini ROV (ADU 02/26).
- 1.2.13 In 2012 Wessex Archaeology was commissioned by Historic Scotland to undertake geophysical survey over a number of wreck sites off the coast of Shetland as part of the Archaeological Services in Relation to the Protection of Wrecks Act (1973) (Wessex Archaeology, 2012). This included a site scan sonar survey of the *Queen of Sweden*. Eight anomalies of archaeological interest were identified located in the upper part of the survey area around the wreck site (See Appendix 5).
- 1.2.14 In 2015 15 ingots and one ship timber (See Appendix 2) were raised by local Shetland diver Donald Jefferies. These ingots were reported to the Receiver of Wreck (Mr D. Jefferies 2017, pers. comm).

1.3 Aims and Objectives

- 1.3.1 The primary aim of the project was to carry out a site assessment with the goal of establishing whether the archaeological remains are still in place, what archaeological potential the site has, and outlining the extent of the archaeological remains.
- 1.3.2 Secondary objectives were to enhance the photographic record of the features visible within the site.
- 1.3.3 Back up sites were agreed to be the *MTB 686* just outside Lerwick Harbour, the archaeological remains of the *De Hahn* by the old fish market, in Lerwick Harbour and the survey of an unidentified intertidal wreck on St.Ninians. The results of these investigations are presented in Appendix 3.
- 1.3.4 The following detailed objectives were set by HES (revised WA Method Statement 2017: Table 1):

Objective	Objective Summary
1	To collate any available plans of the wreck and geophysics data showing the site in its surrounding environment.
2	To undertake a diving assessment of the wreck site with a view to delineating the principal surviving areas of archaeological potential. The level of recording should be sufficient to enable definition of a possible protected area should designation under the Marine (Scotland) Act 2010 be taken forward in the future.
3	To enhance the photographic record of visible features of the site. It would be desirable to record using stills photography and video some key visible archaeological features as a basis for any future work, including publications and interpretation.
4	To provide an undesignated site assessment report and management statement, also GIS shapefile information and images of the work. This should be suitable for public dissemination and archiving.



2 METHODOLOGY

2.1 Diving

2.1.1 Diving operations under the Diving at Work Regulations and Scientific and Archaeological Approved Code of Practice were carried out by a six-person SCUBA team using air as a breathing gas. The use of surface supplied diving (using equipment that is supplied with breathing gas from the surface using an umbilical) was considered but ruled out because anchoring close enough to the site was considered likely to be problematic, given the resources available. Each dive was undertaken by two free swimming divers acting as a buddy pair with through-water communications. Excellent underwater visibility of not less than five metres was experienced throughout.

2.1.2 The diving support vessel (DSV) was the *Koada*, a coded workboat operated by BK Marine out of Lerwick.

2.2 Positioning of the site

2.2.1 After identifying the location of the site through an initial swim over of the area, divers attached a marker buoy on the first cannon they encountered. Following the marking of the site divers used the existing 1990 site plans produced by Steve Liscoe (Liscoe, 1990) to try and find the remaining cannons and have a clearer understanding of the extent of the archaeological potential of the site. The cannons were found using the 1990 plan in combination with pendulum searches with a tape measure. Once sufficient cannons were found, the cannons on the outer edges of the site were marked with small marker buoys and a DGPS (Differential Global Positioning System) position was taken using a Hemisphere GPS A100 DGPS. Although the DGPS provides an accuracy of 0.2 m, a total inaccuracy of up to 3 m was expected due to the difficulty in providing a precise position of the marker buoy above the cannon due to the effects of tide and current. To provide more accuracy several DGPS positions were taken and the distances between the cannons were recorded using a compass and a measuring tape. This enabled a 'correction' to confirm as accurately as possible the positions recorded by the DGPS.

2.3 Recording of details

2.3.1 Detail shots were taken with a Sony RX100 Camera with an underwater housing and photographic scales. Additionally, both divers had either a Gopro3 or Gopro 5 attached to the full-face mask throughout most dives which enabled the recording of video footage of the site.

3 RESULTS

3.1 Site Survey

3.1.1 Since the wreck site is quite dispersed the depth varied between 14 m and 25 m. A current was encountered running north to south across the site at varying strengths dependant on the state of the tide. The site geology consists of bedrock outcropping and gullies dispersed with a veneer of sand and gravel. During the dive survey, the site was entirely covered in kelp. Although this made the site survey more challenging it provided a good indicator on the stability of the site. As the site is protected through the large outcrops of rocks, mostly located in between gullies and covered in kelp, waves and currents appear to have a limited

effect on the site. Therefore, there will not be much longshore drift (movement of sediment along the coast parallel to the shoreline) and the site would appear to be stable.

- 3.1.2 Currently the site is being used as a dive location for dive charters and as an occasional fishing spot. Since there are no commercial scale fishing methods practiced on the site it is unlikely to be influenced by these types of activity (Mr M. Gair, pers.comm).
- 3.1.3 A total of four GPS locations were established with a DGPS, which together form the basis of the known extent of the site. A central point with the coordinates 1°7'58.813"W 60°8'48.156"N has been established using WGS 1984. A total of three cannons (WA_Cannon 01-03) were given GPS coordinates and a cluster of cannons (WA_Cannon 05-12) were marked by one GPS coordinate with a 15 m buffer introduced around the extent. This resulted in a total area of 7,467 m² which forms the area of archaeological interest related to the *Queen of Sweden* site. A detailed site plan is set out in Figure 6.
- 3.1.4 Although one cannon was not located by the divers, an approximate location is known (see 3.2.1). A 30 m working buffer has been applied to the four GPS coordinates to ensure that all possible archaeological material is covered in the assessment of the site.
- 3.1.5 The detailed site plan has been overlaid with the initial site plan drawn by Joffre (Figure 5). Although there is a slight discrepancy between the two plans in Figure 5 the overall site area of the 1981 plans corresponds quite closely with the area recorded by the archaeological divers in 2017. The detailed site plan has also been overlaid with the 1990 Steve Liscoe site plan showing the newly recorded positions of the three cannons marked with DGPS positions (Figure 7). Figure 7 highlights the positions of the recorded cannons and allowed for an overview of potential changes in the site since 1990.

3.2 Material Remains

The cannons

- 3.2.1 A total of 12 of the previously reported 13 cannons were relocated (Figure 6). These cannons were labelled WA_Cannon01 to WA_Cannon12. Detailed shots were taken of WA_Cannon 01-03 and some of the cluster of cannons - WA_Cannon 05-12 (Plates 1-5). WA_Cannon 04 was located 25.8 m 330° north of WA_Cannon 01. Additionally, one cannon that was not relocated was reported by a local Shetland diver to be around 20m north east of WA_Cannon 01, and south east of the cluster of cannons - WA_Cannon 05 to 12 (Mr D. Jefferies, pers. comm). All cannons were surveyed as part of NAS courses between 1990 and 2006.

The ingots

- 3.2.2 During the expedition, contact was made with a local Shetland diver, Mr Donald Jefferies. On receiving an invite to the house of Mr Jefferies, a total of 15 ingots were examined. These ingots were raised in 2015 and reported to the Receiver of Wreck. The ingots include both rectangular shaped and lozenge shaped ingots with a combined weight of 1150 kg (see Appendix 2). Mr Jefferies reported that these ingots were raised from the same location as the currently visible ingot on the seabed. Additionally, Mr Jefferies reported to WA that there are two areas that he noted to contain a high concentration of finds (see Figure 6) (Mr D. Jefferies, pers. comm).
- 3.2.3 Only one ingot remains visible on the site and detailed shots were taken as a record (Plates 7 and 8). The lead ingot has a roughly rectangular shape and measures 70 cm in length 16 cm width and a total height of 6 cm. An additional ingot is reported to be located 30-50 m

north of WA_Cannon 03 but was not located by the archaeological divers during the investigation (Mr D. Jefferies, pers. comm).

Wooden planking

- 3.2.4 A total of three small pieces of what is suspected to be wooden ceiling planking were observed by the team. These pieces are partially buried in sediment and covered by rocks. At least two of the pieces appear to be partly joined lengthwise although it is unclear by what method (Plate 6). The wooden planking remains are located close to the lead ingot on the seabed (Plates 6 and 7) and are clear evidence of remains of hull structure below the sediment and possible small-scale excavation of the site by third parties. It is unclear whether the structure is dislocated or part of a more substantial structure buried in the sediment.
- 3.2.5 One timber was recovered by a local diver, Mr D. Jefferies in 2015, although it was unclear where exactly the timber was located within the site (see Appendix 2).

3.3 Archive visit and 3D recording

- 3.3.1 The Lerwick Museum Archive and Museum Stores were visited by the team between the 7th and 11th August 2017. Some artefacts related to the *Queen of Sweden* were recorded photographically such as the three lead ingots located in the museum stores (Plate 9 & 10).

4 DISCUSSION

4.1 Introduction

- 4.1.1 The *Queen of Sweden* wreck site has been investigated numerous times by both archaeologists and sport divers throughout the last 40 years. While some of these investigations have contributed to our understanding of the site and its significance, very few have resulted in archaeological publication. The main publications on the site comprise various short articles by Joffre, a sport diver and amateur archaeologist, and mention of the site by Dr. Colin Martin in his publication 'Scotland's Historic Shipwrecks' (Martin, 1998: 114). Although some extensive historical and archival research has been undertaken, further archaeological investigations into the material culture, such as the cannons and ingots and numerous finds, is necessary to comprehensively understand the site and its context. Dr. Colin Martin together with Paula Martin have recently illustrated the hanging lamp that was found on the *Queen of Sweden* wreck site, now located at the Shetland Museum Archives (Paula Martin, pers.comm).
- 4.1.2 The site currently consists of a large number of cannons, a range of small finds on the seabed, and an unknown amount of finds within the seabed substrates including structural remains. Although some material remains such as glass shards and porcelain shards were observed on the seabed, the extent of the finds below the surface are unclear. Due to the recently uncovered wooden remains that were found with the ingot and the information from Mr D. Jefferies it is clear that structural ship components and other artefacts are buried within the seabed.
- 4.1.3 The current management of the site is regulated by the Shetland Museum and the local archaeologist, Dr. Val Turner. Under the current Marine Spatial Plan the site is provided protection from developers under Policy MSP HIS3 which recommends protection in situ as far as possible and gives special consideration for archaeological assets such as the Queen



of Sweden wreck (Shetland Island Council 2015). Additionally, the regional Marine Plan for Shetland states that when preparing or amending a Regional Marine Plan the Marine Planning Partnership must consider archaeological or historical characteristics of the region, which again would include the Queen of Sweden. This would include the *Queen of Sweden* as an archaeological asset of the region (Scottish Government 2017).

4.2 Primary Aims of the 2017 site survey

4.2.1 The brief for the 2017 assessment was to:

- Collate any available plans of the wreck and geophysics data showing the site in its surrounding environment;
- To undertake a diving assessment of the wreck site with a view to delineating the principal surviving areas of archaeological potential. The level of recording should be sufficient to enable definition of a possible protected area should designation under the Marine (Scotland) Act 2010 be taken forward in the future.
- To enhance the photographic record of visible features of the site.
- To provide an undesignated site assessment report and management statement, also GIS shapefile information and images of the work.

4.2.2 All available plans of the wreck were digitized and all geophysical data has been collated.

4.2.3 The photographic record of visible features has been enhanced (See Appendix 1).

4.2.4 A total area of 7,467 m² has been established as the likely extent of archaeological interest for the *Queen of Sweden* wreck site. This is based on various GPS locations together with a 30 m buffer which would ensure that any stray finds not noted by the archaeological divers during this survey campaign would be encompassed within the area of archaeological interest.

4.2.5 Given the recovery of the 15 ingots reported to the Receiver of Wreck as well as the reports of other salvage of archaeological material known to have been removed from the site in the last 40 years or so, WA notes that the site is under clear threat.

4.2.6 If the decision to designate the site is enacted, as part of the ongoing management of the site, HES could consider the preparation of a formal conservation management statement with appropriate discussion with local stakeholders in Shetland to foster local stewardship of the site. This would provide a clear understanding of how the conservation of the site and its enjoyment by researchers and the wider public can be managed effectively into the future.

5 ARCHIVE

5.1.1 The project archive, consisting of digitised site records, digital photographs and videos, is currently stored by Wessex Archaeology (Scotland) under project code 109131 and will be archived with HES. The survey data will also be archived with HES with full MEDIN compliant metadata. All finds recovered have been delivered to the Shetland Museum and Archive Service and declared to the Receiver of Wreck under Droit number 335/17.



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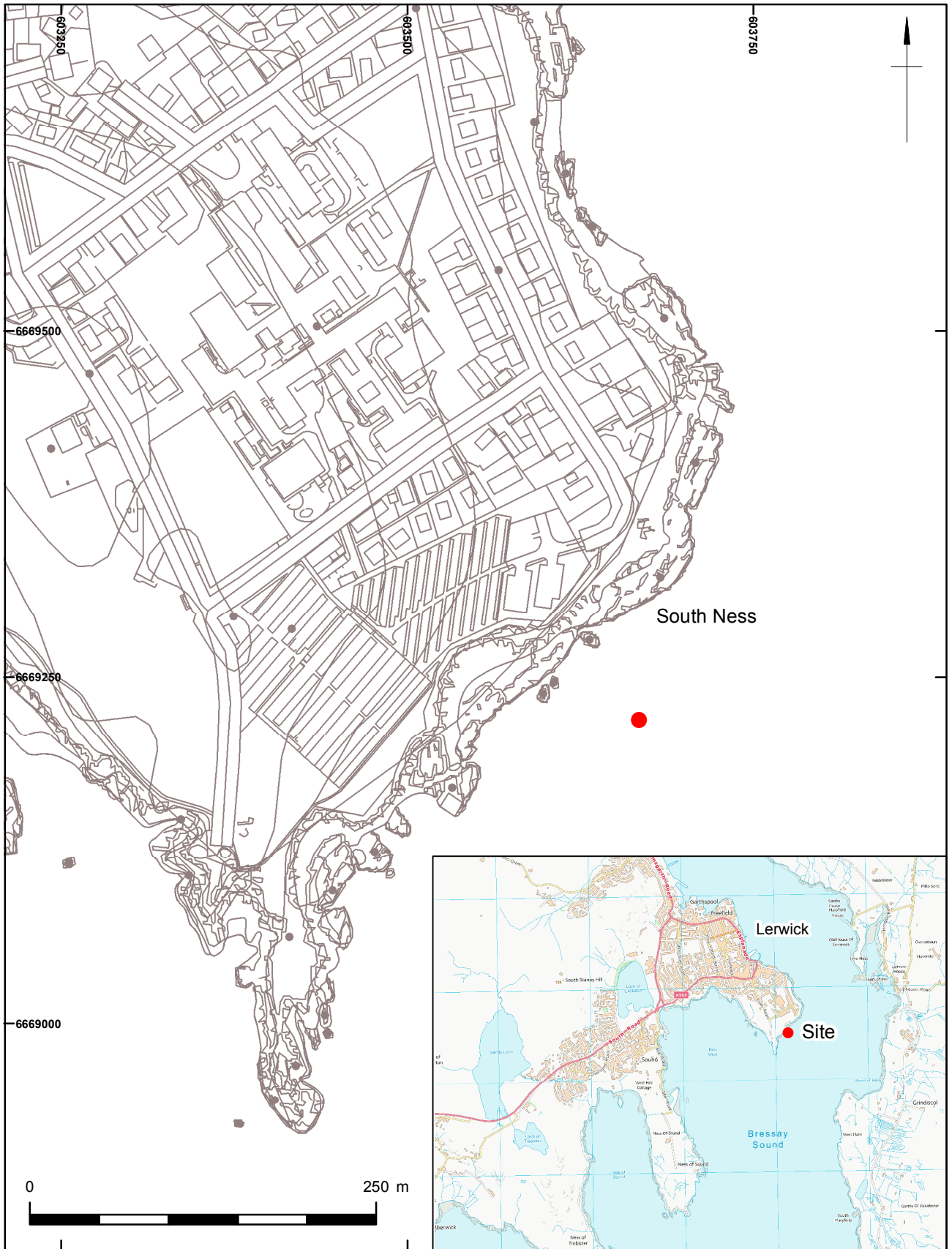
Magnus Gair, personal. communication 07.08.2017

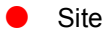

Paula Martin personal. communication 15.11.2017



APPENDICES

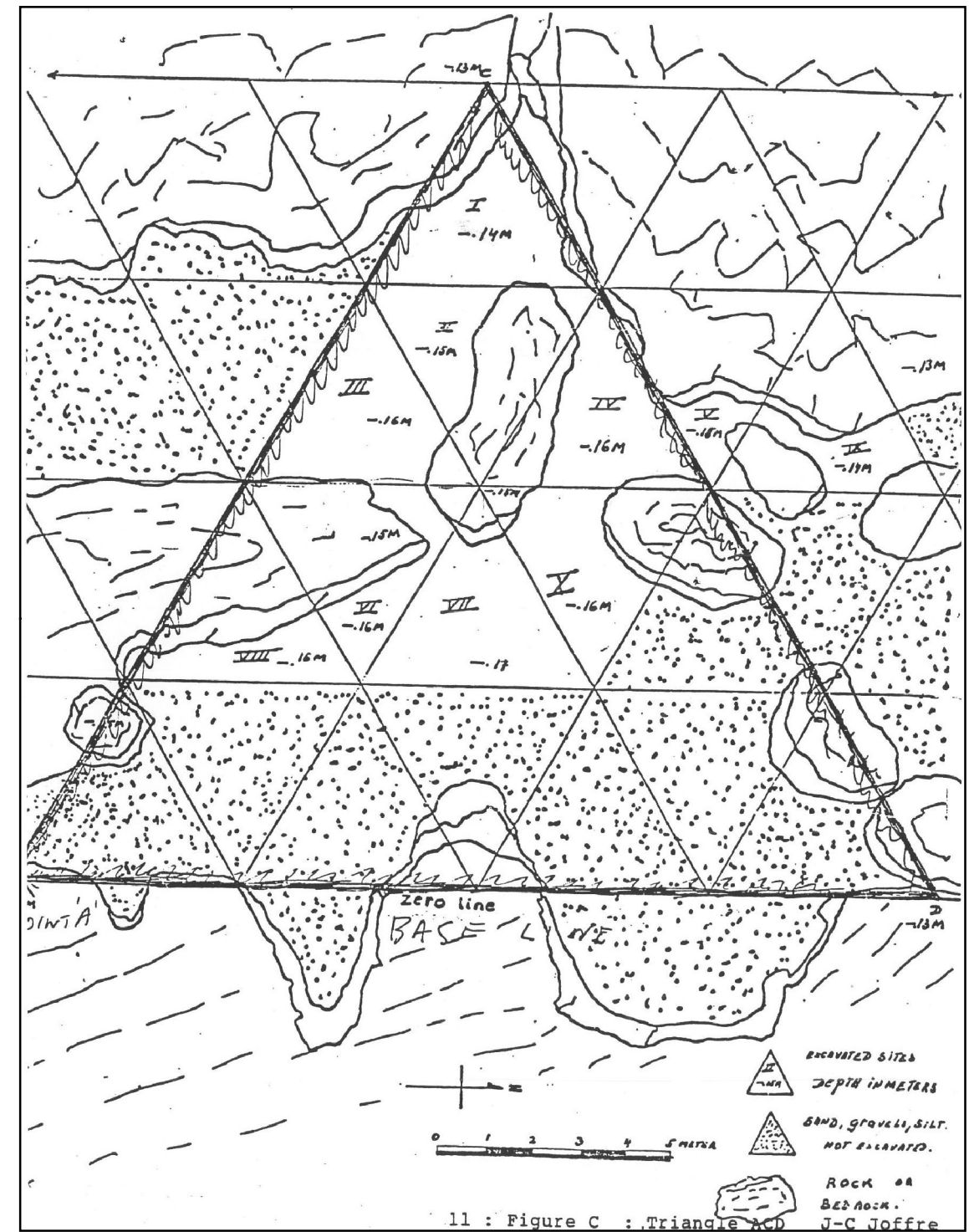
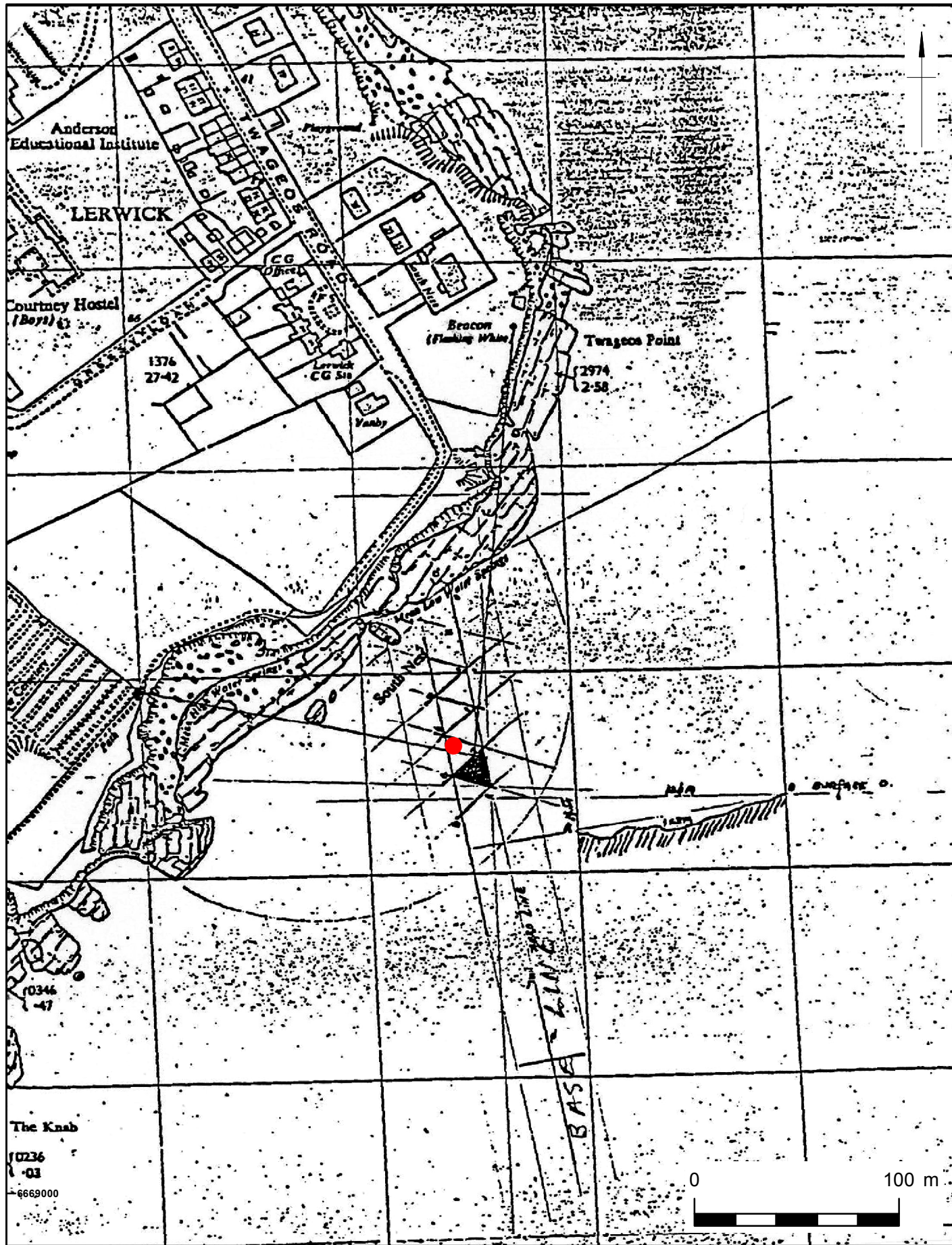
Appendix 1 Figures and Plates



<p>Coordinate system: WGS84 UTM z30N</p>  	<p>Digital data reproduced from Ordnance Survey data © Crown Copyright 2017. All rights reserved. Reference Number: 100022432. Contains Ordnance Survey data © Crown copyright and database right 2017. This material is for client report only © Wessex Archaeology. No unauthorised reproduction.</p>			
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	Scale:	1:4000 @ A4	Illustrator:	ND
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Site location

Figure 1



Coordinate system:
WGS84 UTM z30N

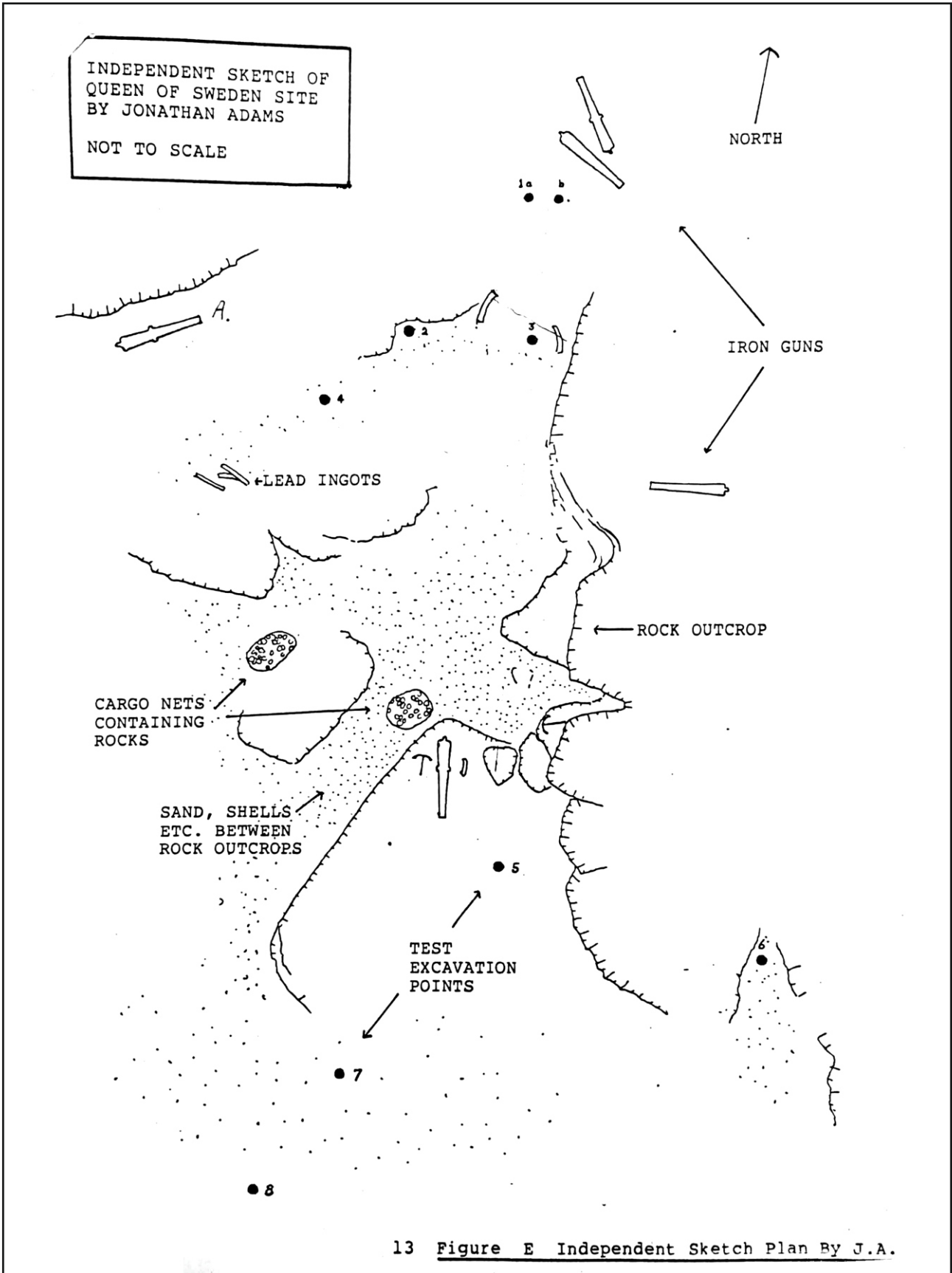
● Site


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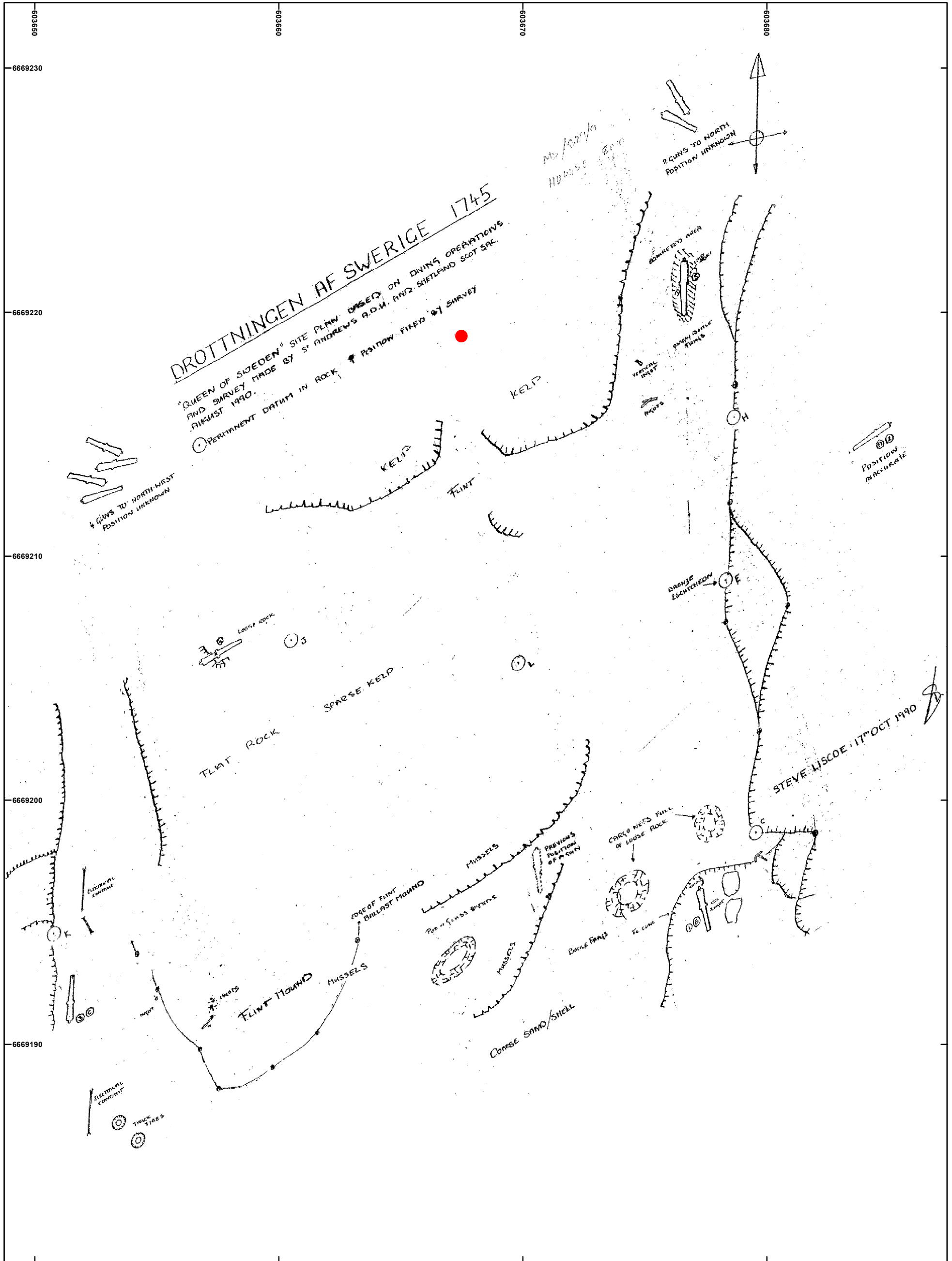
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Site map and excavated area from J-C Joffre 1981

Figure 2



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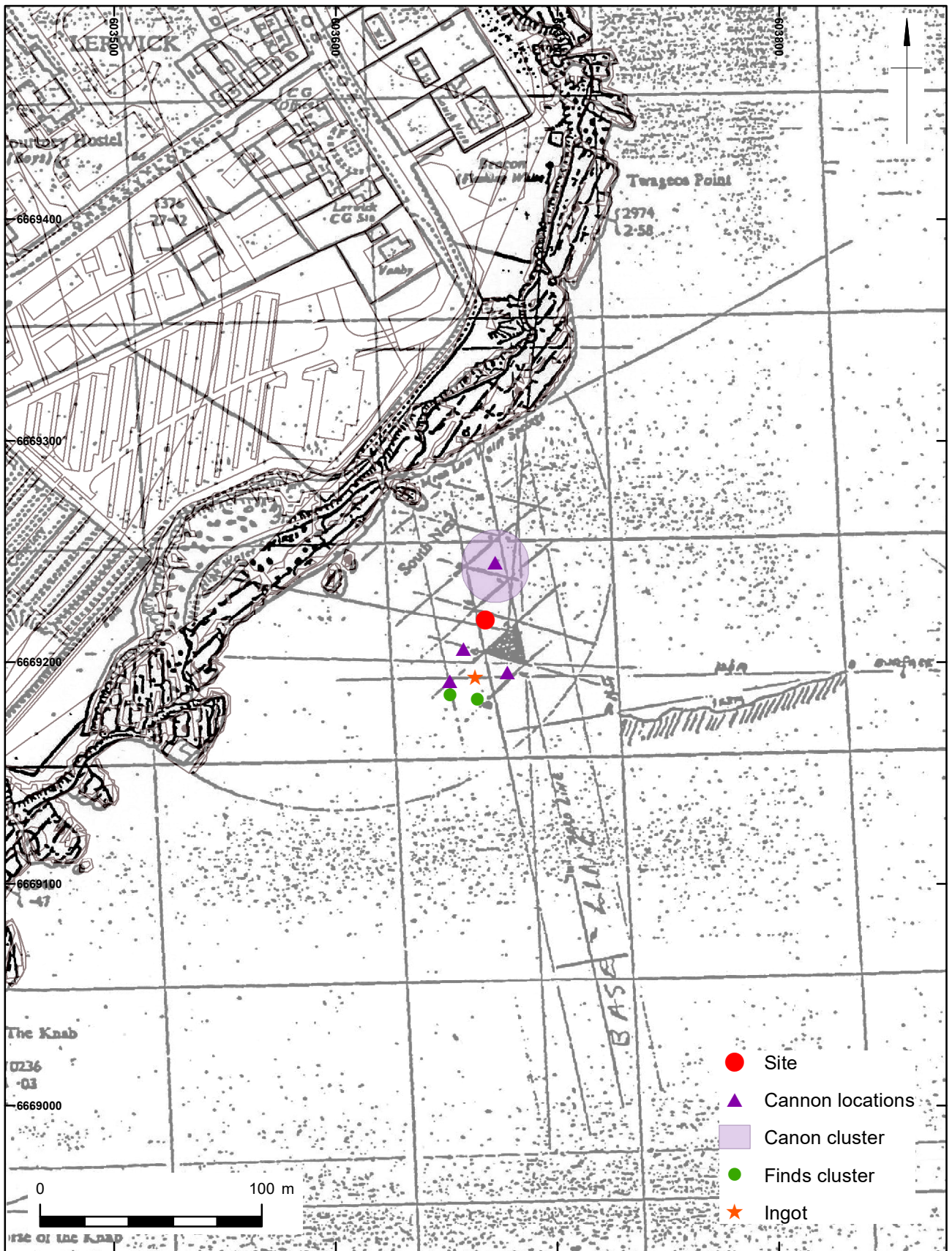
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● Site

0 10 m

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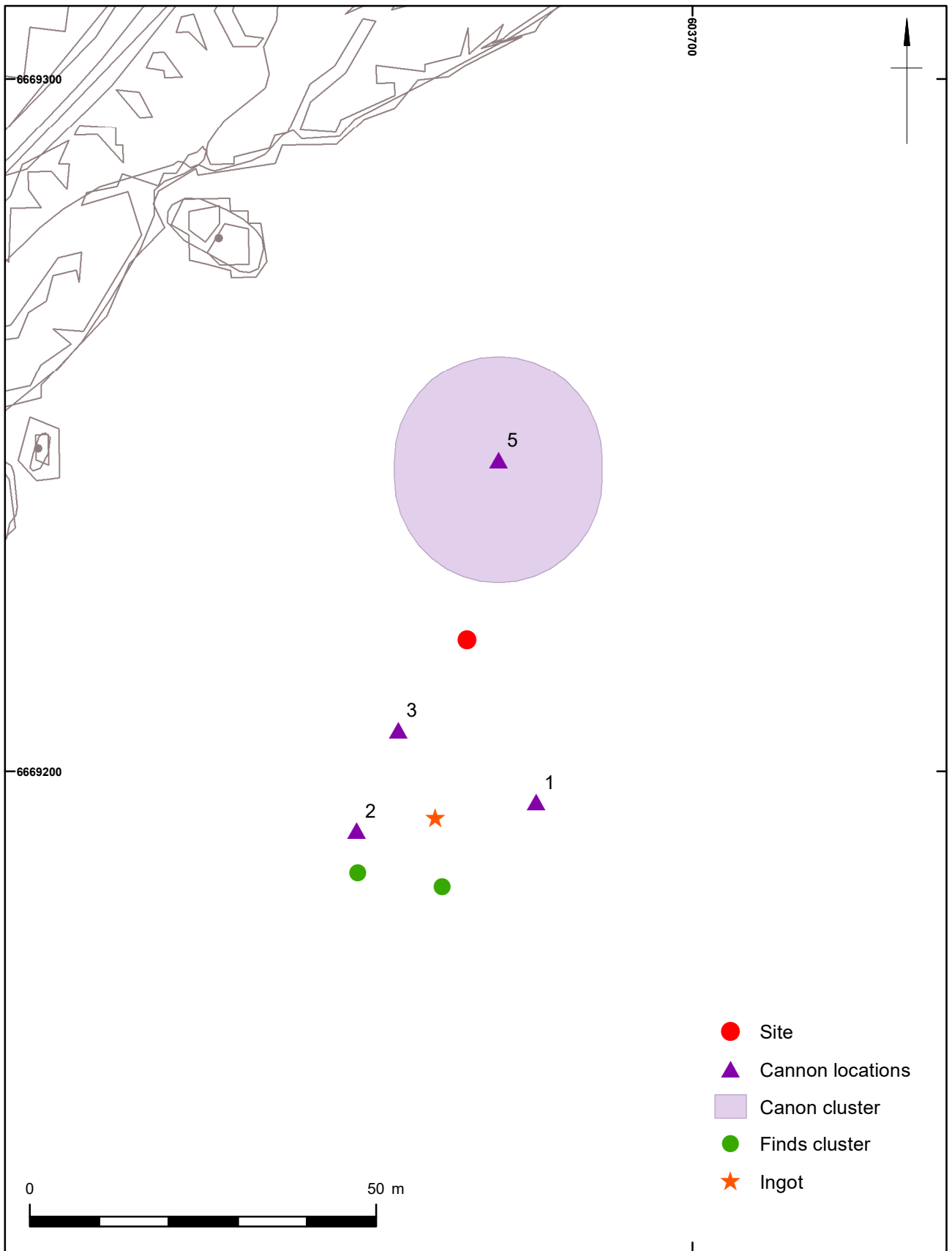
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Site plan showing how the current site correlates with the 1980 excavation

Figure 5



- Site
- ▲ Cannon locations
- Canon cluster
- Finds cluster
- ★ Ingot

Coordinate system:
WGS84 UTM z30N

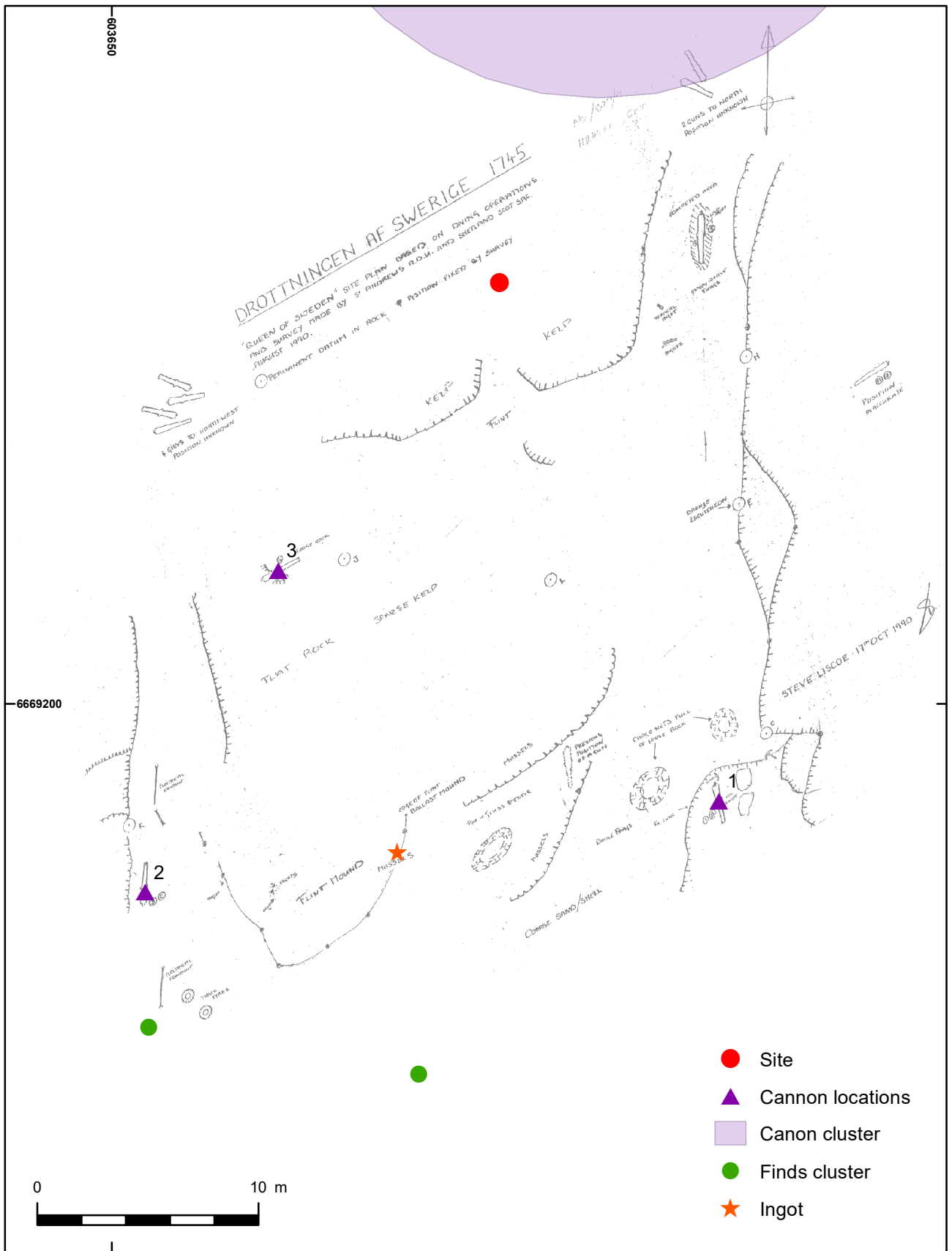



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Detailed site plan

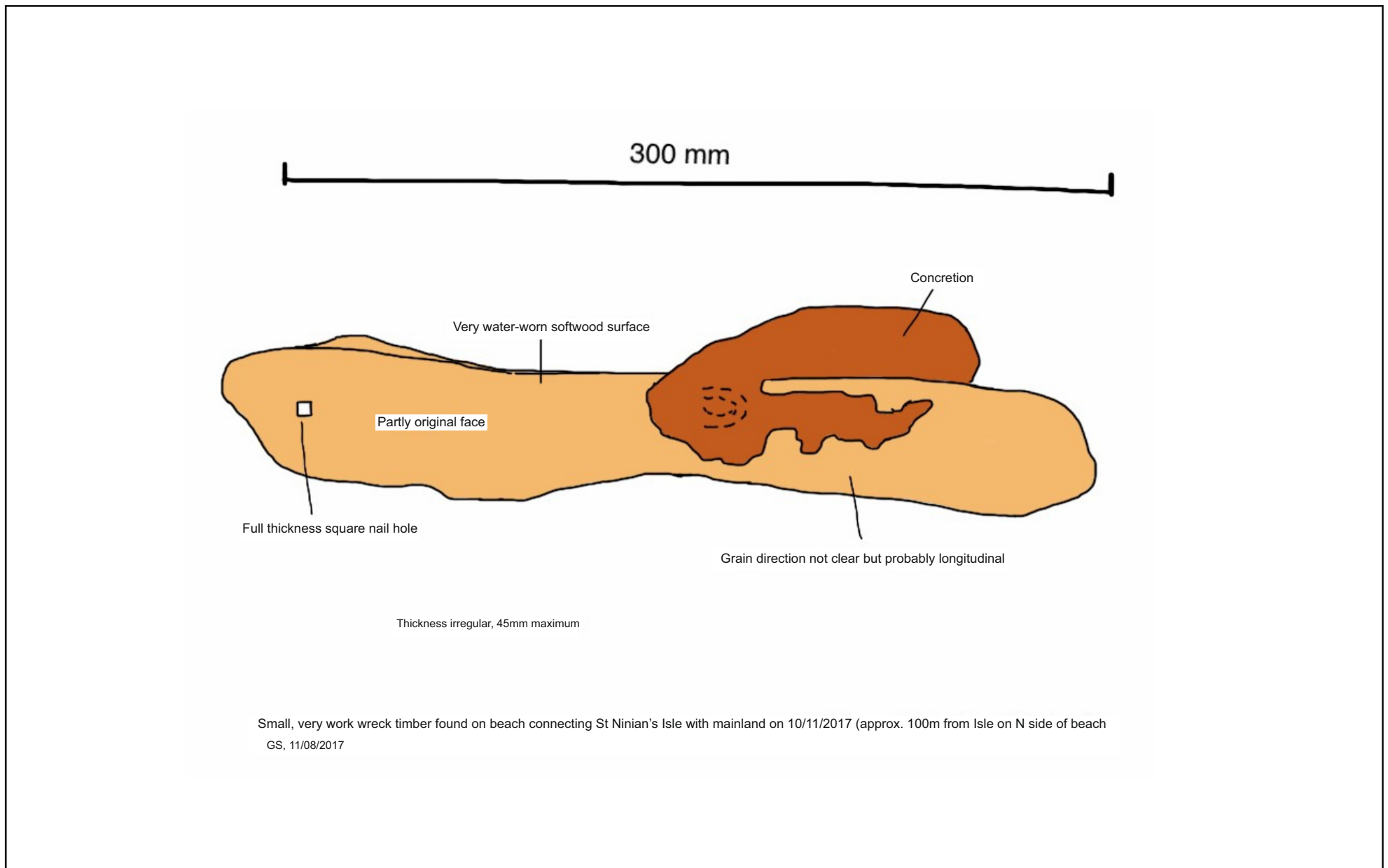
Figure 6




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Detailed site plan in relation to Steve Liscoe's 1990- site plan

Figure 7



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St Ninian's Isle beached wreck timber sketch

Figure 8



Plate 1: Shot of WA Cannon 01



Plate 2: Shot of WA Cannon 02



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Plate 3: Shot of WA Cannon 03



Plate 4: Shot of WA Cannons 05-12


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Plate 5: Shot of WA Cannons 05-12

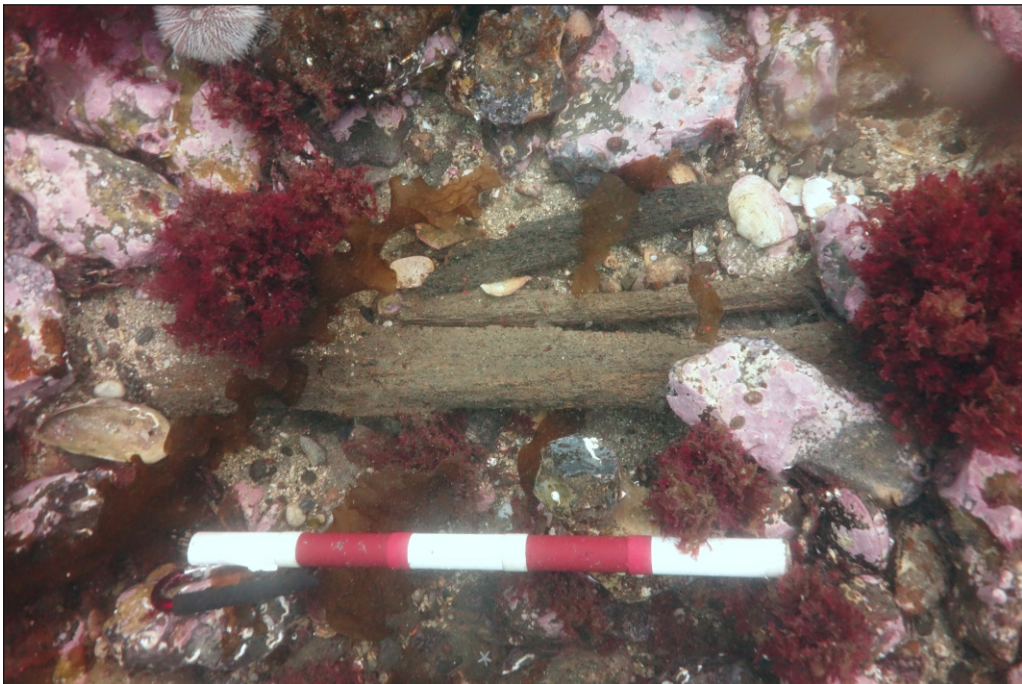



Plate 6: Possible ceiling planking

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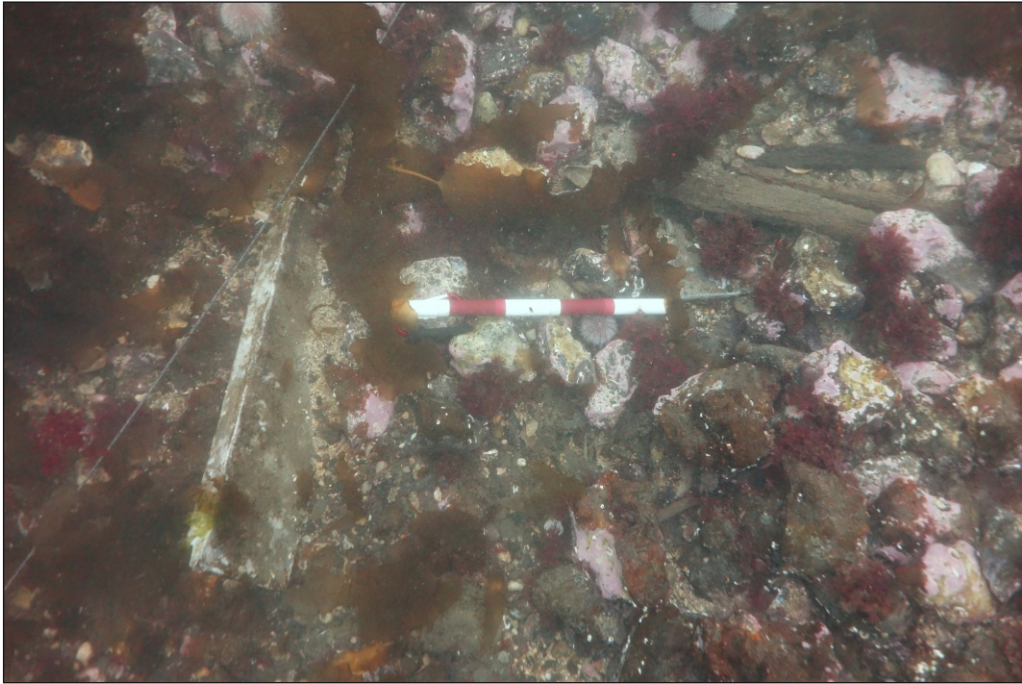


Plate 7: Shot of lead ingot and ceiling planking

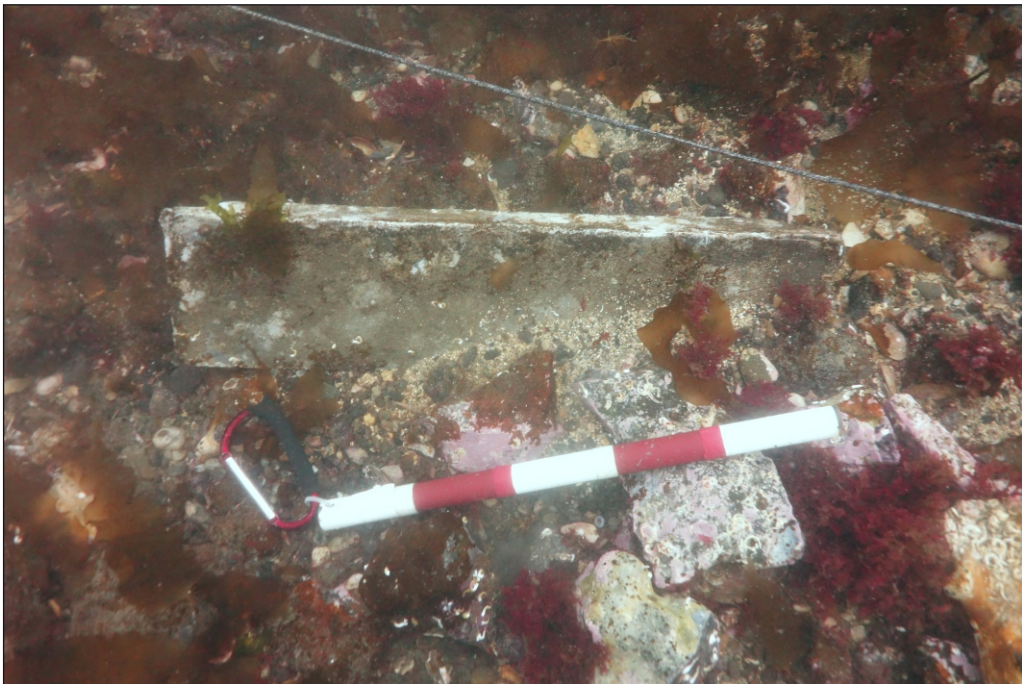


Plate 8: Detail shot of lead ingot



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Plate 9: Lead Ingots recovered from the Queen of Sweden located at the Lerwick museum store



Plate 10: Markings found on the Lead ingots recovered from the Queen of Sweden located at the Lerwick museum store

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Appendix 2 Collection of ingots and timber raised by Mr D. Jefferies in 2015

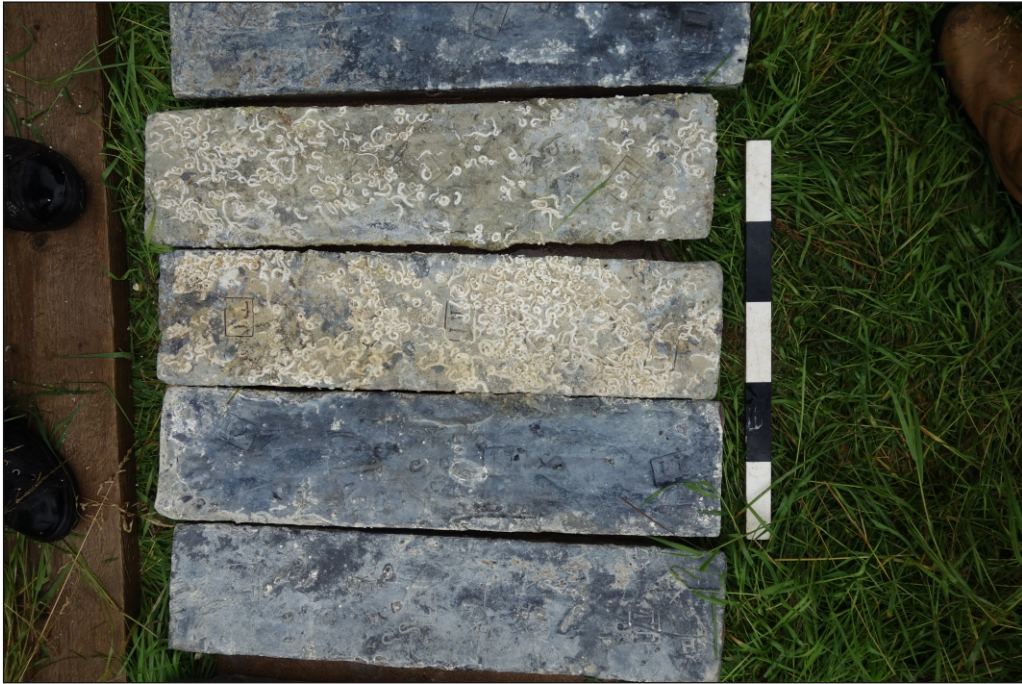


Ingots raised by Jefferies in 2015



Ingots raised by Jefferies in 2015


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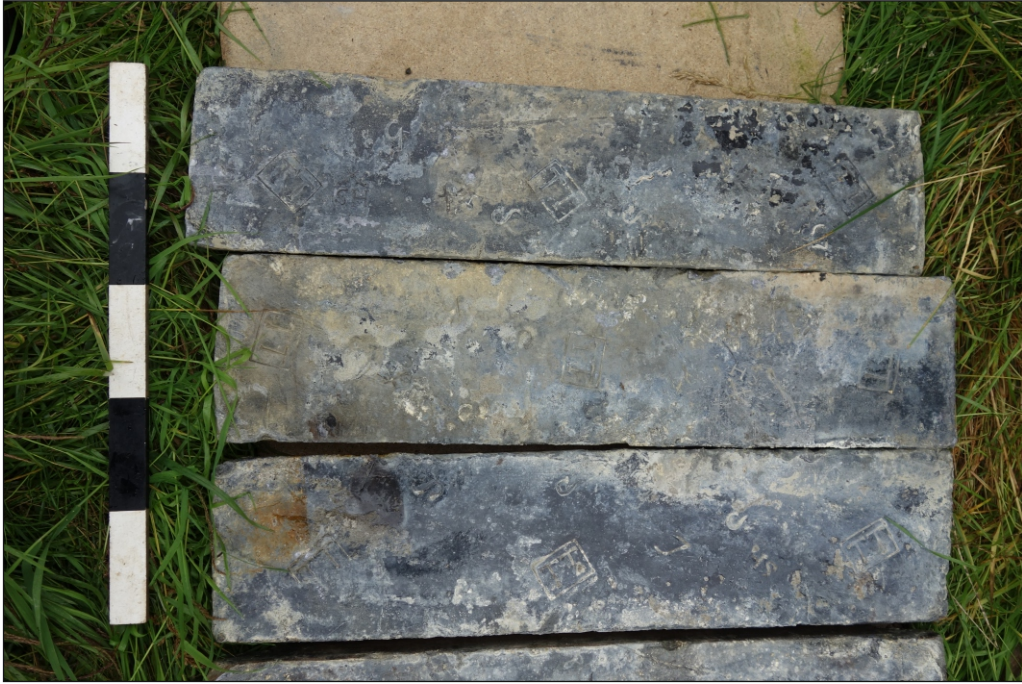


Ingots raised by Jefferies in 2015



Ingots raised by Jefferies in 2015


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Ingots raised by Jefferies in 2015



Ingots raised by Jefferies in 2015


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Timber raised by Jefferies in 2015



Detail shot of markings on ingot


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Detail shot of markings on ingot



Detail shot of markings on ingot


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Detail shot of markings on ingot



Detail shot of markings on ingot

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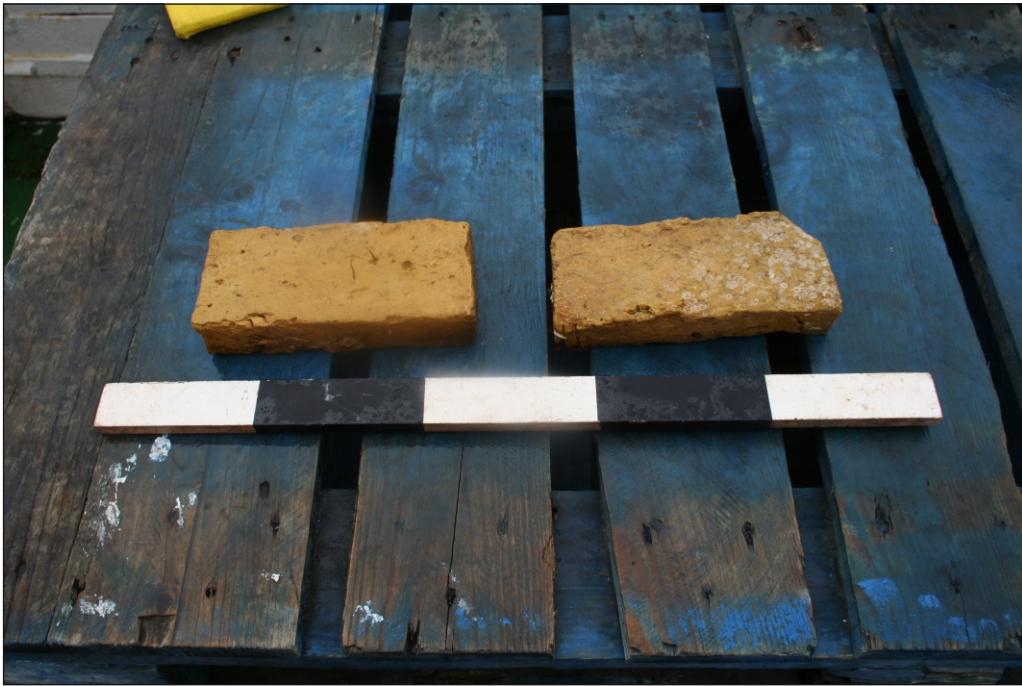


Appendix 3 Back up sites

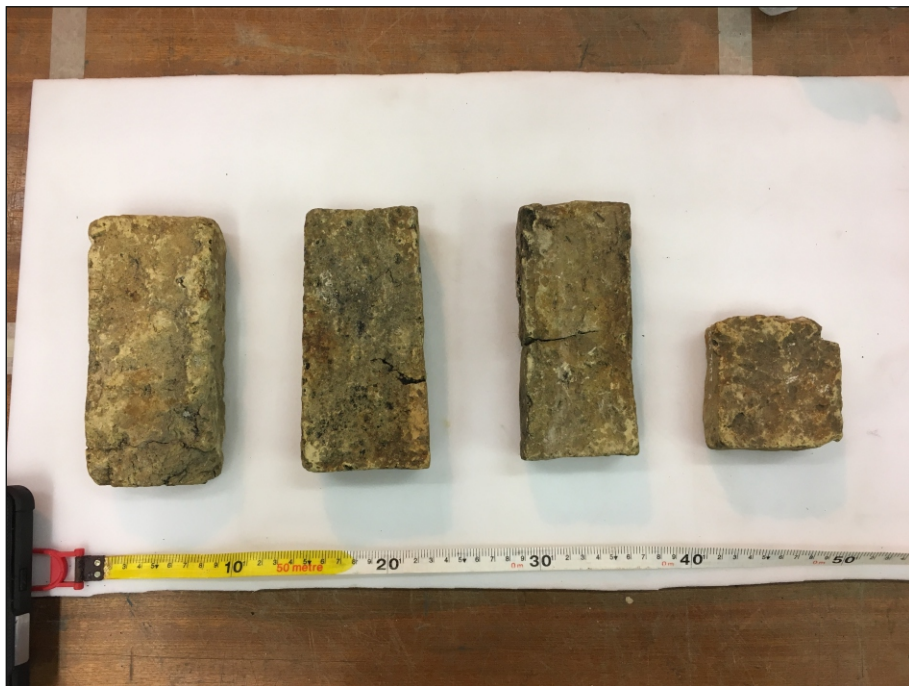
Due to increasing swell and strong winds from the northwest the dive team was weathered off the *Queen of Sweden* site between the 10th and 11th August 2017. Therefore, instead of work on the *Queen of Sweden*, a site survey was undertaken of the *De Hahn*, located at the base and extending under the current Alexandra Wharf in Lerwick Harbour. Two yellow sandstone bricks with a length of 17 cm, a width of 7.3 cm and a height of 3.5 cm were recovered (See Plates below) and passed onto the Lerwick Museum. These were compared to previous bricks that were recovered from *De Hahn*, now located in the Shetland Museum Archive and confirmed to be of the same type (See Plate below). The location was recorded as 60°9'26.49"N; 1° 8'38.04"W, which was directly opposite the compartments 29-32 of the fish market (See Plates below).

Following a request from Val Turner, the Shetland Amenity Trust Archaeologist, WA visited an unidentified intertidal site on St. Ninian's Isle beach that was reported to the Shetland Amenity Trust by Michael Stratigos. Although the wreck itself was not located by the team during the intertidal walk over, the team did locate a single timber which might be associated with the wreck (See plate below and Figure 8).


Additionally, various artefacts from the *Kennemerland* were recorded and will be processed by the project volunteer John McCarthy to create photogrammetric models that will be available to the Lerwick Museum and Historic Environment Scotland once processed.



Shot of the De Hahn bricks recovered from underneath the fishing pier



Shot of De Hahn bricks previously recovered located at the Shetland


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Shot of the fishing pier where the bricks were found



Shot of De Hahn brick 1 *in situ*


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Shot of De Hahn brick 2 *in situ*



St Ninian's beach wreck timber find

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Appendix 4 Find list from *Drottningen af Sverige* 6th of September 1980

FINDS LIST FROM "DROTTNINGEN AF SVERIGE" - 6th Sept 1980.

Original

- DS-1-80 Block-cheek Sheave and Pin. Hand made. i.e. toolmarks etc. Of Elm, very poor condition. Block 15.3 x 10.5 x 1.15cm; Sheave 9.5 x 2.0 x Hole 1.75cm dia.; Pin 6.6 x 1.6 tapered to 1.85cm.
- DS-2-80 2, Bronze items - centres from blocks, 6.9 x 6.9 x 3.7cm with a maximum dimension of 11.9cm across lugs.
- DS-3-80 1, piece of Lead, mushroom shaped having round hole through long axis centre and square holes connecting with centre hole below top rim. Possibly a top(breather) off a liquid stowage vessel? 9.8cm max dia. of top flange, 6.4cm max dia. of bottom flange long axis 6.5cm, square holes 1.6cm square.
- DS-4-80 1, Sounding lead, roughly octagonal in section, 33.5 x 5.5cm tapering to 3.8cm. Weight 12lbs 12 ozs.
- DS-5-80 1. piece of Lead cylindrical in shape, purpose unknown. 4.35 x 3.5cm dia. Weight 14ozs.
- DS-6-80 1, Bale-seal of lead marked X on one side with possibly H O above it, two diagonal holes through it. Ovoid in shape but irregular. 7.0 x 6.45 x 2.9cm. Weight 1lb 4.5oz.
- DS-7-80 Three small Copper Coins, one fragmentary, all very abraded, only one showing traces of markings. Best coin 3.1 x 0.20cm.
- DS-8-80 One Musket-ball rather distorted. 1.9cm dia. 36.83g.
- DS-9-80 3, Fragments of blue patterned China, of Chinese origin. (Export ware).
- DS-10-80 1, Handle of copper from a container possibly a kettle, twisted and somewhat abraded. 0.9cm max dia.
- DS-11-80 1, Saucer-shaped and sized dish of blue patterned ceramic. Rim kaki coloured outside. Chinese export ware; saucer 13.5cm max. dia.
- DS-12-80 1, Wooden Pin with traces of stub on one end, possibly broken. 13.5 x 2.8cm dia., of hardwood. Most likely a Pin from a block.
- DS-13-80 1, Piece of green Glass, 9.6 x 9.0cm x 0.27cm thick. Part of a domed bottom from a wine bottle.
- DS-14-80 1, Wine Bottle of green glass whole and complete. 23.2 x 12.75cm dia. Basal indentation 5.4cm deep. Deep layer of decayed glass on outside
- DS-15-80 1, Cheek of largish Block of Elmwood with hardwood(tropical) Pin, and Sheave. Sheave split laterally, probable has been protruding above sand on seabed and been eaten away by sandworm and abrasion. Some sandworm damage of cheek of block. Cheek 29.4 x 4.7 thick measured through pin hole. Pin 6.4 x 3.5cm dia.; Sheave 18.8cm dia x 3.3cm thick.
- DS-16-80 1, Lead Weight; most likely a counterpoise weigh from an object swung in gimbals. 1lb.8 $\frac{1}{2}$ ozs.
- DS-17-80 1, Circlet of Lead, like a small crown but with very irregular appendages to rim. No pattern discernable. 9.4cm cir.
- DS-18-80 1. Bottleneck of green glass with cork in situ, very similar to neck of DS-14-80. Applied bead rim around neck slightly different.
- DS-19-80 1. Piece of Green glass, thick, from base of bottle.
- DS-20-80 1, Piece of Brass Spigot.
- DS-21-80 1, Crumpled Utensil, of thin iron, hole with strainer in it visible. This vessel appears to have been lacquered inside. Possibly intrusive to wreck site; most likely a modern teapot.
- DS-22-80 1, Enamelled Teapot, crumpled - modern - discarded.
- DS-23-80 7, Plaster Casts of the various marks found on the two different types of Lead Ingot found on the wreck site.
- DS-24-80 1, Piece of crumpled Copper Sheet, sheathing, one nail hole, 325g.

- DS-25-80 1, Piece of Copper Sheet, sheathing, irregular in shape, abraded, corrosion holes.
- DS-26-80 1, Piece of Tile or similar material, light brown in colour,
- DS-27-80 (a & b). 2 Pieces of Green Glass, thick, obviously from the bottom of a wine bottle.
- DS-28-80 1, Wine Bottle of green glass, "Onion" type, complete but with a roughly triangular piece 8.6 x 7.6cm broken out of the side. 16.1 x 8.0cm max. dia. Glass thickness - 0.25 to 0.55cm. Decayed glass flaking off outside of glass to a depth of 0.05cm. 6.7% of total mass flaked off.
- DS-29-80 1, Wine Bottle "Onion" type similar to DS-28-80 but whole with cork still in place and containing liquid. Rim around mouth of bottle chipped.
- DS-30-80 1, Stoneware Flagon, whole with cork still in situ and full of liquid. (See analysis from Lothian Region analyst), 27.5 x 12.9cm max. overall dimensions.
- DS-31-80 1, Wine Bottle, not "Onion" type,; roughly made asymmetrical Bottle, green glass. Whole but cracked. Found with cork in situ and full of liquid. Emptied and sample to Lothian Region analyst whose report qv.
- DS-32-80 1, Wine Bottle "Onion" type. Whole with cork in situ. Bottle emptied and sample sent to Lothian Region analyst as above.
- DS-33-80 1, Wine Bottle cylindrical roughly as DS-31-80. Whole except for top of neck and rim completely missing. Cork still in situ. Bottle emptied and sample sent to analyst as above.
- DS-34-80 1, Wine Bottle of "Onion" type. Whole with cork still in situ. Attempt made to conserve bottle with contents intact. Bottle finally emptied - unsuccessful in conserving cork in situ.
- DS-35-80 1, Wine Bottle of cylindrical type as DS-31-80, Whole with cork in situ and full of liquid. Bottle finally emptied owing to failure to develop method of conserving cork in situ.
- DS-36-80 1, Stoneware Flagon, empty, chip missing from rim around neck and glaze abraded off over large area, otherwise whole.
- DS-37-80 1, Stoneware Flagon, found with cork in situ and full of liquid. Flagon cracked and with chip missing from body. Hole left by chip filled with resinous material - seems to have been a contemporary repair. Flagon emptied and found to be full of saltwater.
- DS-38-80 1, Stoneware Flagon, whole with cork intact, full of liquid. Kept intact so far.
- DS-39-80 1, Block of elmwood in very good state of preservation and with rope bicket still around it. Patches of yellow coating on shell of block possibly remains of varnish. There is also traces of white/grey colouring which might be the remains of paint. Overall dimensions 19.5 x 16.8 x 8.5cm. Hemp rope of 2.7cm dia, served with spunyarn but no sign of worming or parcelling. Rope in very weak condition, of the consistency of mud, had to be removed in order to conserve block.
- DS-40-80 1, Sheave of a very heavy block or perhaps a wheel of a small carriage, of lignumvitae with a bronze bush similar to DS-2-80 set into centre. traces of grease? still adhering to inside of bush. Sheave considerably abraded. 16.5cm max. dia. by 3.2cm thick.
- DS-41-80 1, Sheave from a block, of lignumvitae, abraded and irregular around edge. Dimensions 21.0cm max. dia. x 4.6cm thickness. Round hole in centre 4.7cm must have accommodated a metal bush. Nail hole on either side of central hole supports this theory. Possibly a small wheel rather than a sheave.

- DS-42-80 1, Piece of White-wood, 37.0 x 3.2cm dia. Round Xsection bevelled at end and broken at other. Traces of nails in bevelled end. Most likely a haft of a tool such as a tar/paint brush. Some traces of Stockholm tar and fibre adhering to wood.
- DS-43-80 1, Piece of wood of roughly octagonal X-section, 25.0 long by 3.7 to 3.8cm thick. One end split and wedged open with a small wedge.
- DS-44-80 2, Large Lumps of grey/black Flint along with several smaller pieces. Two large pieces kept, (a) mass 1.5Kg, (b) 0.49Kg.
- DS-45-80 1. Flake of Flint, with flaked/sharpened edge, 9.6 x 6.4cm maxs. Most likely a flint scraper of unknown age amongst ballest or nodules of flint intended for napping into gun-flints.
- DS-46-80 1, Piece of Ceramic bottle/jar neck with stump of a handle. Brown glaze on outside and yellowish inside.
- DS-47-80 (a,b,c,d,) 4, Large sherds of stoneware Flagons similar to DS-30-80.
 (a) The largest piece consists of a base and part of side-wall,
 (b) Front/shoulder piece with part of similar blue mark to DS-30-80 and others.
 (c) Back/shoulder piece with stump of handle.
 (d) Piece of side-wall.
- DS-48-80 1, Curved piece of cast Brass 4.4cm wide, not unlike a piece of a flap type belt buckle. Rather abraded but the outline of a deer in a lying position can be described on the convex side.
- DS-49-80 Fragment of a Clay Pipe Stem.
- DS-50-80 1, Small Fish Bone.
- DS-51-80 1, InkWell of lead, cubic in shape 5.7 x 5.4 x 5.2cm.
- DS-52-80 7, Bases of green glass Wine bottles, some incomplete, 5, Necks of same and 3, parts of necks also some small fragments of Green glass. Base dias. where they could be determined reasonably accurately circa 13cm, Neck lengths 7 to 8cm.
- DS-53-80 Several small sherds of blue-patterened China including part of a tea bowl, parts of bases and wall sherds of larger vessels both saucer and plate shaped.
- DS-54-80 3, small sherds of glass - one clear and from the rim of a wine glass, one from a very thin-walled vessel and two light-green modern looking sherds possibly from an old type lemonade bottle
- DS-55-80 Three pieces of birch bark, kept for conservation experiment.
- DS-56-80 1, Wine Bottle, empty, whole. Of slightly different shape from other "Claret" type bottles.
- DS-57-80 1, Strip of Brass, length 20cm approx (irregular) x 1.0 to 0.6cm broad x 1mm thick. Hole at each end dia 3.5mm x 4.7mm), and circular mark stamped in middle of side.
- DS-58-80 1, Copper Coin, badly abraded. Dia. 1.9 to 1.35cm thickness 0.1cm approx.
- DS-59-80 4, Items of sheet Cooper, two folded tightly and of these one appears to have been deliberately folded along edge. Total mass 170g.
- DS-60-80 4, Pieces of lead Sheet, buckled and contorted. Largest piece 0.4 to 0.5cm thick, mass 1.5Kg. Total mass of three smaller pieces 0.22Kg.
- DS-61-80 3, Complete bases and three parts of bases from cylindrical bottles, Dias. of complete bases 13.0 to 13.5cm maxs. The three smaller pieces, extrapolated would give similar dias. Shoulder piece and wall sherds kept for experimentation.
- DS-62-80 1. Stoneware Flagon complete with cork in situ and full of liquid. Handle cracked and base slightly chipped. Found to be full of saltwater.
- DS-63-80 3, fairly complete wine bottle Bases and 1, half base, dias 31.0 to 14cm. The half base of very thick glass 1cm approx max.
- DS-64-80 1, Bronze Bush, annular with projecting lugs; 6.1cm ext.dia. x 3.1cm high.

- DS-65-80 1, Sheave and Pin from a block. Sheave 15.5cm dia. x 2.7cm thick. Pin 12.9cm x 3.1cm dia at one to 2.9 at the other.
- DS-66-80 1, part of a cylindrical Wine Bottle, neck and one side missing, Base 12.6cm dia.
- DS-67-80 1, Neck of Wine Bottle, incomplete, with cork in situ. Kept for expt.
- DS-68-80 Several Bones viz. 1 Section of bovine vertebra, cut with saw. 8, Long pieces of bovine ribs, 5, from proximal and three from distal end. 2, broad pieces of bovine Rib. 1, unidentified bone. All show signs of being cut with saw or cleaver.
- DS-69-80 (a and b) (a) complete base with lower wall, (b) half base with piece of side wall. Base dia. 8.2cm.
- DS-70-80 1, Handle of ceramic vessel, broken in two, square X-section, 7.0cm long. X-section 1.4cm x 0.4cm. Brown unglazed ware, unusual.
- DS-71-80 8, Pieces of Wine Bottles. 1, Neck piece, 3, with pieces of shoulder, 1, base 13.5cm dia. 1, half of a rim from a bottle neck, 1, Piece from the shoulder of a bottle.
- DS-72-80 18, pieces of crumpled Lead Sheet, largest piece 0.4cm thick and of 175g mass. Total mass 1.5Kg.
- DS-73-80 1, A Cork from wine Bottle with part of rim of bottle still adhering. Allowed to dry out.
- DS-74-80 Concretion with cavity left by iron nail, X-section 9 x 4 mm approx. Head dia. 2.4cm, length indeterminate. Concretion contained traces of fibrous material and stockholm tar. Discarded.
- DS-75-80 Base of Wine Bottle with part of side wall. Cylindrical bottle, base 12.5cm.
- DS-76-80 1, Piece of side wall from Stoneware Flagon- broken in two. Part of a handle from similar vessel.
- DS-77-80 Large piece of concretion containing base of rectangular glass Wine bottle. X-section 10.0 x 8.7cm. 1, Piece of bark with corky inner bark adhering, Some oat grains and 2, small irregular pieces of Flint. Discarded.
- DS-78-80 1, Piece of side wall from a salt glazed stoneware vessel of "Bellarmine" type.
- DS-79-80 1, Sherd form of China Plate of coarse type, rim broken.
- DS-80-80 1, Piece of side wall from a large earthenware vessel, red earthenware brown glazed on outside. 0.5cm thick, slight curvature.
- DS-81-80 1, "Pseudomorph" of the head of a square sectioned iron bolt of a ferrous/calcareous concretion, X-section 1.5cm shank and 2.2cm head.
- DS-82-80 Large piece of concretion with Neck of Wine Bottle 8.8cm long. Some sherds of glass and shape of cavity in concretion suggests an "Onion" type bottle. Some mixed grains - oats and peas. Fragments of Wood and some Rope yarns - discarded.
- DS-83-80 Piece of concretion containing cavity left by rectangular X-sectioned iron Nail, X-section 0.55 x 0.50cm. 1, Small piece of blue/white patterned China and several small irregular pieces of Flint. Cast made of nail head.
- DS-84-80 Small piece of concretion with irregular pieces of Flint and a cavity left by a rectangular X-sectioned iron nail- length 6.0cm x 0.9 x 0.65cm X-section tapering to 0.5 x 0.35. Discarded.
- DS-85-80 1. large lump of Flint, bluish/black, mass 0.75Kg.
- DS-86-80 1. Strip of Brass, bent, approx. 22.0cm long x 1.0cm wide x circa 1mm thick.
- DS-87-80 Large lump of concretion containing:- cavity left by rectangular X-sectioned iron Nail X-section 4.5mm x 4mm; cavity, long and narrow possibly left by a blade, length indeterminate x 1.35 x 0.1cm. 2, Musket Balls diam 18mm and 18.7mm.

- DS-87-80 contd from page (4)/ 6, Small, possibly pistol, Balls dias. 11.0, 10.9, 11.0, 11.2, 10.7, and 10.0mm. Cavity left by a decayed iron object of circular X-section dia 4.5mm, shaped like a bass clef or opening spiral, max. outer dia. 3.0cm. Casting attempted but unsuccessful owing to porosity of concretion.
- DS-88-80 10, Fragments of Chinese porcelain including half a tea-bowl, fragments of similar bowls and a piece of a larger vessel.
- DS-89-80 1, Piece of grey-glazed Stoneware with a trace of brown colour on edge of glazed side. Probably a piece of a Flagon similar to DS30.80.
- DS-90-80 (a & b) (a) Base of a heavy white porcelain Bowl, glazed on both sides, trace of a black maker's mark on base but indistinct. Base indented with a dia of 5.0cm. (b) Part of side of same Bowl joining to (a). Height of Bowl 7.5cm.
- DS-91-80 1, Bowl and part of Stem of a Clay Pipe. Heel chipped but a raised mark can be seen on one side. Trace of a stamp on Bowl, viz an arc of a circle, but indistinct. Handle from Knife or similar instrument, of hardwood with Brass ferrule, socket for round X-sectioned tang. Length 10.6cm dia. 2.9cm at top tapering to 1.3cm at ferrule. Brass ferrule irregular thickness but less than 1mm. Socket for tang 4.3cm deep x 0.9cm dia.
- DS-92-80 1, Handle from Knife or similar instrument, of dark coloured hardwood, peculiar spike (toothpick?) set on top of Handle, of bone or ivory. 9.9cm overall length 7.8cm length without spike, 2.4cm max width tapering to 0.95cm at ferrule, lozenge shaped irregular octohedron X-section. Spike/toothpick 2.1cm x 4.7mm max. dia.
- DS-93-80 2, Pieces of cupreous metal of round X-section and varying thickness. One piece curved, 8.3cm max. length, small threaded hole on thickest end 9mm deep x 5mm dia. Smallest piece 4.1cm long irregular thickness but tapering. Both pieces somewhat abraded but most likely join. Possibly a Knuckle Bow from a sword.
- DS-94-80 1. Triangular piece of clear Glass, a sector from the base of a Wine Glass. Overall dimensions 6.0 x 3.9cm.
- DS-95-80 4, Pieces from green glass jars and/or bottles. (1) Roughly square base from a jar, 11.7 x 9.2cm. (2) Neck and part of shoulder from "Onion" type bottle. (3) Small section from shoulder of jar. (4) Small piece of flat green glass from side wall of jar.
- DS-96-80 2, Large copper Rivets, Length 1.75cm x dia of shank 0.93cm x dia of head 1.7cm max x dia of base 2.15max. and 1.7cm x dia. of shank 1.0cm max x dia. of head 2.3cm max, (head elongated and not regular in shape), x dia of base 2.65 max. Possibly rivets from a cambus c.f. "De Liefde" 79-DG-114 and 104.
- DS-97-80 1, Shaped piece of calcareous/ ferruginous concretion, a pseudomorph of a roughly cylindrical object, unidentifiable, 10.0 x 2.7cm max dia. indistinct traces of surface pattern.
- DS-98-80 1, Base and some side wall of a clear glass tumbler or similar vessel. 5.75 base dia. x 5.7 cm average height of side wall. Glass circa 4mm thick.
- DS-99-80 1, Piece of Chinese porcelain (export). Blue cherry blossom underglaze decoration on outside. 10.3 x 6.1cm overall. Side wall 3.7cm high complete for part of the circumference. Unglazed inside rim. Part of a lid for an urn or vase.
- DS-100-80 29, Small sherds of blue patterned Chinese export Porcelain.
- DS-101-80 2, Pieces of Birchbark - kept for experimental purposes.
- DS-102-80 1, Wooden Spoon of very fine grained white-wood, like boxwood, in very poor condition, broken in two at base of the handle. Size overall length 16.5cm x 6.15 width across bowl. Conservation unsuccessful.
- DS-103-80 5, Pieces of crumpled lead Sheet, largest piece with a mass of 205g. Total mass 0.5Kg.

- DS-104-80 1, Lead Object 5.8cm long, small rectangular hole, possibly a nail hole in each end. Part of edge rolled back on itself. Width 1.9cm max,- irregular.
- DS-105-80 1, Ball of clear Glass, slightly flattened sphere, air bubbles in glass apparently arranged in fairly regular pattern, scar on base, break scar. Size:- diameters taken at right angles 3.7 and 3.1cm. Most probably broken off a decanter stopper or similar.
- DS-106-80 4, Pieces of thin lead Sheet, crumpled, thickness 0.3cm. 1, Piece of thin copper Sheet very corroded and abraded. 0.3mm thick.
- DS-107-80 7, Pieces of broken, unworked Flint. Discarded.
- DS-108-80 1, Small piece of thick, 1.0cm, green Glass from a bottle or jar base. Discarded
- DS-109-80 3, Lumps of Chalk, angular but somewhat abraded. 1, piece kept.
- DS-110-80 1, Bracket or Lug of cupreous metal, 4.0 x 2.8cm max. overall size, Two holes in flattened end and stud in the other.
- DS-111-80 1, Piece of red Tile unglazed 8.0 x 5.2 x 1.8cm maxs.
- DS-112-80 1, Leather Shoe or Slipper, most of upper complete, Single sole and heel built of very many pieces of thin leather. Upper very thin and unlined but thin crumpled mass inside shoe may prove to be remains of lining. Upper has fine cross graining which may prove to be artificial. Entire shoe in a very weak condition too weak to endure careful measurement. Length 26.50cm approx.
- DS-113-80 2, Tablespoon, large 23.0cm long x 4.7cm wide across bowl. Of brass now very thin corroded with part of the bowl of the spoon missing. Some overlying layers of metal, brittle and unlike corroded brass or copper, perhaps remains of plating. Second Spoon identical to first one in somewhat better condition.
- DS-114-80 1, Neck and shoulders of a rectangular X-sectioned green glass Jar, overall size of piece 10.4 x 8.5; neck ext dia. 3.25cm int. dia. 2.8cm, glass thickness at top of neck 4.5mm.
- DS-115-80 1. Black Button, most likely of Bone, lathe turned, 2.3cm dia. x 1.1cm max. thickness including stub. Pattern:- raised concentric circles around central pin.
- DS-116-80 1, Small strip of Lead, folded over on itself at one end, 1.1 x 1.5cm x 3mm thick.
- DS-117-80 1, Knife Handle of hardwood most likely elm, in very poor condition heavily impregnated with iron. Size:- length 9.9cm x 2.65cm at blade end and 2.7cm at top and 3.18cm in middle max. widths. Oval in X-section. Elongated tang hole.
- DS-118-80 2, Musket Balls and 5, small pistol? Balls (1) Musket Ball 18.8 mm max dia. , 38.39g; (2) Musket Ball 19.10 mm max. dia.; 40.82g (3) Pistol Ball? 15.3mm max. dia. but distorted viz. lateral flattening; 7.98g. (4) Pistol Ball 14.5mm max. dia., good condition 8.24g. (5) Pistol Ball 10.7mm max. dia., slight distortion, 6.97g; (6) Pistol Ball 10.8mm max. dia., flattened facet, 7.93g
- DS-119-80 1, Flatish piece of concretion with grain, mostly oats, "fossilised" in ferruginous compound. Photographed.
- DS-120-80 2, Pieces of White Wood from barrel tops (1) Semicircular, 35.5cm x 18.0cm x 2.0cm thick. This piece has been shaped by an adze or axe and tool marks are still clearly visible. Oat husks adhering to one side. Two square X-sectioned hardwood pegs in long edge where it has been joined to other half of barrel lid. (2) Small segment of Barrel Lid, 31.3 x 7.2 x 1.4cm, Tool marks visible.
- DS-121-80 1, Wooden Block, a Clew Line Block, with Sheave complete but piece missing from one cheek of shell; Shell of block 24.4 x 21.5 x 11.5cm. Shoulder stands 3.4cm above shell. Sheave aperture 3.2cm. Sheave of lignumvitae, 3.0cm x 15.0cm dia. Wooden Pin 2.6cm dia. Strop groove 2.8cm wide at max wide at tail of block.

- DS-122-80 Wooden Block, standard type, of elmwood with lignumvitae sheave and wooden Pin. Length:- 25.0 x breadth 21.6 x width 11.1cm. Sheave aperture 20.0 x 3.7cm. Sheave 16.4 dia. x 3.0cm. Pin 3cm dia. Strop groove 3.1cm max. width at tail of block.
- DS-123-80 1, Small piece of Whitwood, 9cm long. Of no significance. Kept for control piece in glycol/alum bath, then discarded.
- DS-124-80 5, Scraps of wood, of no significance; kept for experiment.
1, Vegetable object like a bean or large seed, very poor condition.
7, Vegetible objects like pieces of stalk or root. (R.S.M. unable to identify it other than it is of a large species of grass.)
- DS-125-80 1, Thin piece of wooden branch, most likely hazel. Length 15.0cm x circa 2.0cm max. dia. Kept for experiment then discarded.
- DS-126-80 1, Piece of hemp Rope 21.0cm long. Dept for P.E.G. experiment then discarded.
- DS-127-80 3, Wine Bottle Bases, one from "Onion" type bottle two from cylindrical type. Sizes 13.5cm; 12.5cm; 13.0cm.
- DS-128-80 1, Wine Bottle similar to DS-56-80 but somewhat slimmer. Base dia. 10.0cm. Cork in situ. Large piece of side-wall missing.
- DS-129-80 1. Wooden object, of soft wood, a barrel bung or similar, circular X-section and tapering form 6.9 to 6.2cm.
- DS-130-80 A very large number of Chinese porcelain sherds, some minute, including pieces of tea bowls, saucers, plates and parts of larger vessels. Some items are brown outside and blue/white internally, others are b/w on both sides. One piece has traces of gold colouring
- DS-131-80 1, Large Deadeye of elmwood 28.1cm max. dia. x 12.6cm. three typical holed through thickness of wood of approx 3.7cm dia. Strop groove irregular width circa 2.9cm. Hewn by handtools and slightly assymmetrical - tool marks visible.
- DS-132-80 4, Pieces of Chinese porcelain from a large vessel, blue/white pattern under glaze on outside, Two pieces have shoulder of vessel and part of neck which is unglazed.
- DS-133-80 6, Pieces of thick Chinese porcelain from a punch bowl. Black and gold over glaze pattern, hand painted. Black decoration coming off as powder.
- DS-134-80 15, Pieces of Chinese porcelain (1) Piece of Chinese porcelain bowl, blue on white under glaze patterning inside.
(b) Piece of Chinese porcelain Bowl from smaller vessel internal decoration and brown outside. (c) Piece of Chinese poecelain Saucer, decorated on inside and brown outside.
(d) 12, Small fragments of Chinese porcelain, similar to above.
- DS-135-80 Fragments from the base of a clear glass tumbler.
- DS-136-80 3, Bases and some fragments of square green glass Jars, (1) complete base 11.7 x 10.8cm. (2) 9.7 x 8.9, glass of irregular thickness. (c) 9.8 x 9.8cm, irregular thickness.
- DS-137-80 6, Pieces of metal from a Teapot. Metal seems to have been a non-ferrous alloy most likely tutanego but very little metal now remains. Spout with filter at lower is still reasonably whole. All in a very weak and crumbling condition.
- DS-138-80 1, Comb, Fine toothed, double sided, of Ivory, 9.5 x 5.5 at ends and 5.1 across middle x 3mm thick. Broken in two.
- DS-139-80 1, Base of clear Glass, broken at bas of bowl, foot complete, from a wine Glass.
- DS-140-80 2, Pieces of decorated clear glass from the side walls of wine Glasses. (a) Inscribed rather than cut glass. some lettering not easily deciphered. (b) Similar piece of glass, without lettering. Original rim dia. approx 6.6cm.

- DS-141-80 1, Piece of plain, clear glass, of very good quality. From the top edge of a wine glass. Original dia. 7.3cm.
- DS-142-80 1, Base from a clear glass Tumbler with some side-wall still attached. Thin, good quality glass; elongated pontill scar viz. 1.7cm long axis.
- DS-143-80 2, Objects of Lead (a) Flat rectangular Lead Object made of two concentric, square sheets of thin lead sheet one slightly smaller than the other, fastened together with studs. Possibly the door from a very small lantern or similar. Larger sheet 7.4 x 5.8cm x 1.0mm; Smaller sheet 5.0 x 7.0cm x 1.0mm thick (b) Thin piece of lead sheet, crumpled and folded; 8.5 x 1.8cm.
- DS-144-80 2, Objects, (a) Small, square X-sectioned container, 6.0 x 6.0 x 3.5cm deep. Of lead with a decorated Brass top, slightly distorted (b) Small Lid of thin brass sheet, ring head of flattened folded brass, max. dia. 4.8cm
- DS-145-80 1, Small flat object of slate-like stone; 14.6 x 3.0 tapering to 2.6 x 0.5cm. A small hone.
- DS-146-80 2 Pieces of Buckles; (a) of a very soft white metal severely decomposed; 5.1 x 4.1cm. (Disintegrated during cleaning process) (b) Fragment of a brass Buckle, one end missing, knurled pattern; estimated original length 2.6cm
- DS-147-80 2, Pieces of Flint (a) a gun-flint, small platform type 3.0 x 2.5 x 0.8cm. (b) Unusual ovoid Flint convex on one side, chip broken from end, axes 3.1 x 2.7 x 0.75cm.
- DS-148-80(a) 2, Small copper Coins 2.5cm max. dia. Motif:- crossed arrows in a square shield below a crown, letter **K** on L.H. side of shield; other side:- three crowns, diagonally milled edge. Both coins in very poor condition. (b) 1, Small disc of a whitish metal, dia. 2.6cm. Possibly a Chinese coin. (received in a state of rapid disintegration, no conservation possible) (c) Brass Button, high domed with ring fastened to back and two holes in back plate. Dia. 2.0cm x 1.4cm max thickness including ring at back.
- DS-149-80 4, Clay Pipe Bowls with some stem attached, 5, Pieces of Stem. (a) 2, Bowls one with heel missing and the other with figure 2 and letter **M** on opposite sides of heel; both with some stem attached. (b) Bowl with 12cm of stem and a bowl with no stem both marked with three crowns and "FR" in a circle. No marks on heel. (c) 5, Pieces of stem, no marks.
- DS-150-80 1, Stoneware Spirit Flagon, cork missing, cracked from neck to base on one side, iron stained over part of surface.
- DS-151-80 1, Vessel of severely corroded, flattened metal, a cupreous metal, having three groups of three copper rivets where, presumably, feet have been attached. 21.5cm max. dia but distorted x 13.4 cm deep.
- DS-152-80 2, Object of badly corroded metal. (a) A small Bowl of very corroded metal, small ring-like lug on one side. Metal to corrupt to react to ordinary test but most probably tutanago. 13.0cm max dia., Base 4.8cm max. dia, 5.3cm outside depth. Possibly a Porringer. (b) Piece of Lid, of similar metal and condition to (a), possibly of (a) but having a slightly smaller radius. It is possible that a rim is now missing. 11.0cm max. dia. x 2.3cm depth. Shape convex upward, Remains of handle on top.
- DS-153-80 Heel and some other fragments from a large leather Boot. Heel fastened with hardwood pins. Breadth of heel 7.8cm x 7.5cm long. Leather in a very soft poor condition.
- DS-154-80 1, Object of good quality glass, uncorroded, most likely lower part of stem and of a Wine Glass. Surface seems to have been coated with a black substance.

- DS-155-80 1, Small "Onion" type bottle of light green-tinted, good quality glass; 6.6cm x 4.7cm dia. Probably a perfume or medicine.
- DS-156-80 1, Brass core of Table Spoon similar type to DS-113-80. Most of bowl missing. Letters G B in a depressed square and another indecipherable mark on top/back of handle.
- DS-157-80 1, Base and 3.0cm of side-wall from a clear, good quality glass tumbler. 5.7cm base dia. Ovoid pontill mark 2.0cm max. dia.
- DS-158-80 2, Pieces of bovine Bone, butcher's tool-marks visible. (Discarded)
- DS-159-80 1, "Onion" type wine Bottle, broken in two pieces with piece of side-wall missing. Cork in situ. (Cork used in alum/glycol exp.).
- DS-160-80 2, "Onion" type wine Bottles: (a) full with cork in situ and ullage space. (b) Neck broken at top - empty.
- DS-161-80 1, Green glass wine Bottle of unusual design, irregular hexagon X-section; empty with some very small cereal grains inside.
- DS-162-80 1, Green glass bottle, round X-section and moulded, complete, empty and with cork inside. Almost certainly much younger than the wreck and intrusive.
- DS-163-80 2, Necks and 2 Bases from square X-sectioned green glass Jars. (a) Neck with some side wall, cork in situ (b) A similar Neck without sidewall. The two bases measure 12.8 x 11.2cm and 9.8 x 9.0cm.
- DS-164-80 10, Pieces of green glass Bottles and Jars including one round base, one complete rectangular base 9.8 x 8.8cm with some side-wall attached-a good example.
- DS-165-80 1, Wine Bottle, cylindrical type, complete with cork in situ and full of liquid, no ullage space visible.
- DS-166-80 35, pieces of Chinese Porcelain including half a saucer or small plate; a fragment of a large plate. Most pieces are blue/white underglaze decoration but four small pieces have flower patterns of applied black and gold.
- DS-167-80 1, Small piece of brown glazed Earthenware 0.8cm thick.
- DS-168-80 1, Wine Bottle, cylindrical type, cork in situ and full of liquid, no ullage space detectable.
- DS-169-80 1, "onion" type Wine Bottle, full, with cork in situ but protruding as if having experienced internal pressure. Very small ullage space detectable.
- DS-170-80 "Onion" type wine Bottle, complete but with top portion of neck displaying old crack which parted when handled. Some saltwater in bottle.
- DS-171-80 "Onion" type wine Bottle, whole, empty, no cork.
- DS-172-80 Cylindrical type wine Bottle but somewhat different from the others having a longer neck and wider mouth. Height 21.6cm, base 13cm neck 10.0cm long body 11.6cm, neck dia at top rim 2.55cm, Dia. of mouth inside circa 2.20cm but irregular and flaring outwards. Depression in base 4.0cm deep.
- DS-173-80 7, Bottle necks, all with corks in situ. One neck has sufficient side-wall attached to identify an "Onion" type bottle.
- DS-174-80 2, Large lumps of concretion, one with bottle top and one with a bottle base.
- DS-175-80 1, Tablespoon similar in shape to DS-113-80 but in very good condition. Of bright silvery metal with stylised ornamentation on top of handle. No marks detectable.
- DS-176-80 1, Cannon Ball, dia. approx. 9.0cm, mass 1.25Kg; in poor condition.
- DS-177-80 1, Musket Ball, 1.82cm max. dia., 34.83g.

- DS-178-80 1, Small non-ferreous object, possibly part of the internal mechanism of a gun.
- DS-179-80 1, Piece of Rim from an earthenware Jar, reddish-brown in colour with quartz grits in matrix. Everted rim; top of shoulder decorated with two parallel lines. External dia. 10.7cm, extrapolated.
- DS-180-80 1, Clay Pipe Bowl complet, in good condition, with heel. Dia. of top of bowl irregular 2.0cm to 1.8cm. Decorated on front of bowl, with a stylised FR crowned in circle. Five pieces of Stem lengths and dias as follows:- 6.5 x 0.9; 3.3 x 0.7; 2.9 x 0.9 7.5 x 0.7; 1.3 x 0.7cm.
- DS-181-80 1, Disc of Copper or alloy, dia. 4.6cm x 0.15cm thick. Indentations on both faces but very indistinct. Object seems rather large for a coin.
- DS-182-80 1, Object of brass, ovoid in plan and convex upwards, Axes 3.2 and 2.6cm. Decorated with floral(indistinct) pattern around rim on upper side and possibly, a crown in centre. Two threaded holes, one in centre of top and one in side at end of long axis. Thick cast metal 36g. A decorative mount possibly from a dagger hilt.
- DS-183-80 1, Bowl and part of the Handle of a Tablespoon, of different type and of different metal from DS-113-80. Of soft white metal with dull blue/grey surface. X-section of handle irregular hexagon.
- DS-184-80 3, Sections of Clay Pipe Stem, 7.8, 0.8; 5.1, 0.7; 6.8, 0.9cm.
- DS-185-80 2, Pieces of adjoining base and sidewall from a large Chinese porcelain vessel, glazed with blue underglaze pattern on outside. Base dia. 14cm. extrap. Base raised slightly, thickness of sidewall 0.5cm. Pattern identical to pieces DS-132-80 - probably part of same vessel.
- DS-186-80 Large number of sherds of Chinese porcelain, mainly of tea bowls saucers etc but with some pieces from larger vessels.
- DS-187-80 1, Stoneware Flagon, with cork in situ and full of liquid but crack down one side and also on inside of handle. (Subsequently found to full of salt water).
- DS-188-80 Two small objects of Mother-of-pearl; (a) axes 3.0 x 2.5cm approx. Paint figure discernable - a St. Christopher or similar?
(b) Piece of similar mother-of-pearl but abraded and broken.
- DS-189-80 1, Head from a Caulking Mallet. Of hardwood most possibly beech; Octagonal in X-Section. Head has usual sawcut along long axis to facilitate the fitting of an unwedged handle. This cut allowed some lateral expansion of the head while the handle was being fitted, then the head was 'nipped' firmly on to the haft by rivets and rooves fitted through head at right angles to haft and equidistant from centre of haft-hole. Dim. 28.0 x 7cm max. overall, tapering from 7.0cm at centre to 4.9cm at ends. Haft hole tapering from 4.0cm to 2.6. Two iron rings which would surrounded the hammer faces are completely missing but iron stain indicated their position.
- DS-190-80 4, Parts of a Block found diseparately and at different times. (a) Cheek of block shell, broken in two; (b) other cheek and ends of block shell; (c) Sheave; (d) Pin, broken with one end missing. Block shell of elm, sheave of lignumvitae, Pin of ? hardwood. Overall dia. 30.0 x 26.0cm x 5cm thick. Pinhole 3.8 to 3.5cm dia. x 10.6cm long. Sheave 19.1cm max. dia. x 3.5cm, hole 3.6cm max. dia.
- DS-191-80 1, Small rectangular piece of soft whitewood, cut square at one end and roughly dovetailed at the other; piece from dovetailed end and split longitudinally. Most likely a piece of a drawer from a desk or similar. (Used as a control piece in P.E.G. tank).
19.9 x 16.7cm

- DS-192-80 1, Length of 4cm. dia. three strand hemp rope, broken into several pieces. Longest piece 86.0cm. Several pieces of detached strands. In very poor condition.
- DS-193-80 1, Cannon Ball found in a large lump of concretion, in conditions of rapid deterioration. 9.4cm max. dia., mass 2.10Kg wet. (not kept)
- DS-194-80 1, Piece of softwood, the top part of the backres from a chair. 32.5 x 5.5cm max. dim. overall.
- DS-195-80 1, Piece of Chinese porcelain, part of sidewall from near the shoulder of a vase. Fits on to piece DS-132-80.
- DS-196-80 1, Hardwood Pin from a block, 10.5 x 2.8 tapering to 2.5cm. considerable wear appearant on one side of the pin.
- DS-197-80 3, Castings made from spaces left in the concretion by decayed iron. (1) Space left by a piece of square X-sectioned iron 6.9 x 1.55 x 1.6cm, slightly curved at end. (b) A casting of a very similar object possibly the other end of the same object. but with a more pronounced curve at end, 8.2 x 1.5 x 1.4cm. (c) Casting of a space left by a flat piece of iron not blade shaped in plan but edged. 14.4 x 3.9 to 3.5cm overall dim., 4.0mm at thick edge tapering to infinity.
- DS-198-80 2, Bases from earthenware flagons. Interesting spiral formation on inside left by former.
- DS-199-80 2, Small pieces of hardwood, (a) of walnut 12.2 x 4.5 max. overall dim., 5.5mm thick. (b) of tropical hardwood?, 10.0 x 5.0cm max. overall diam. and 4.9mm thick. Tool marks on one side of both pieces.
- DS-200-80 1, Small object of hardwood, knoblike with hole through long axis, flanged at one end and cylindrical at other, 6.7 x 6.8 tapering to 4.6cm; dia of central hole 2.4cm.
- DS-201-80 1, Piece of Oak, flat but with retangular piece cut from side reducing its thickness to about half over about three quarters of its length. One definite hole through thinned part and several smaller holes containing remnants of nails. Max. dims. 22.2 x 7.5 x 1.8cm.
- DS-202-80 1, Part of a Chair-like piece of furniture, of white semi-hardwood, most likely part of DS-194-80., back leg and back-rest side piece. Broken in two. Displays mortice and pin joints. Length 43.0cm.
- DS-203-80 1, Piece of Birch-bark.
- DS-204-80 1, Block with sheave and pin in situ but with part of side of shell worm-bored and abraded away. Of elm wood with lignumvitae sheave and hardwood? pin. Dims. 22.6 x 19.5 x 9.5cm; Sheave-13.9cm, (Shell broken in half during handling.)
- DS-205-80 1, Piece of Whitewood from a barrel Top. Half an elipse in shape with tow hardwood pins in straight edge where it has been pinned to other part of barrel lid. Dims. 38.5 x 13.1 x 2.0cm
- DS-206-80 1, Piece of Whitewood from a barrel Lid. Similar to DS-205-80. 29.9 x 11.5 x 2.8cm.
- DS-207-80 1, Piece of triangular but irregular shaped Oak with a hole possibly a nail hole through one angle, Max. dims. 30.4 x 16.8 x 6.0cm
- DS-208-80 Bones with cleaver cuts detectable, most likely from ships stores. Two pieces of oovine bone and six pieces of bovine bone. One pieces is the proximal end of tibia with epiphysis still unfused.
- DS-209-80 1, Piece of base and sidewall from an unglazed ceramic pot but with traces of brownish glaze inside. Dims. base dia. 10.5cm x 5.4mm sidewall thickness. An unusual piece in the context of this wreck.

- DS-210-80 1, Piece of clear glass, a segment from the base of a wine Glass of approx 7.8cm dia. extrap.
- DS-211-80 3, Pieces of black Flint, one a reasonably good shaped Gun-flint. The other tow pieces very irregular.
- DS-212-80 1, Small V-shaped piece of branching Coral.
- DS-213-80 8, Pieces of Ceramic. (a) 1, Piece of Salt-glazed Stoneware, bellarmine-like. (b) 1, Piece of Stoneware Flagon common to this wreck. (c) 1, indeterminate piece of Rim. (d) 1, Sherd from neck of small glazed Jar, 5.5cm dia. approx. extrap. (e) 1, Triangular sherd from, possibly, a Bowl, glazed on both sides, 7.8mmthick (f) 1, Triangular sherd form a very thick -1.77cm - very coarse, glazed object like a modern drainpipe, but glazed on inside mottled/brown (g) Unusual pinky-coloured sherd, unglazed on outside and possibly glazed on inside, 0.92cm thick. (h) 1, Sherd of coarse-grained ceramic, white/cream, 1.12cm thick.
- DS-214-80 2, Vertibrae from large fish, most likely from ship's stores.
- DS-215-80 1, Plate, of pewter in remarkable condition; touch marks on inside of rim and on outside bottom. Dia. 21.7 and inside rim 16.7cm.
- DS-216-80 2, Pieces of a Pump, originally of copper or yellow-metal, top half consists of the bottom of the priming bowl 21.0cm dia. and part of shaft 102.0cm long x 5.2cm dia with a joint circa 34.0cm from bottom of piece. A spout 9.5cm x 3.6cm dia tapering to 3.1cm joins the shaft circa 4.0cm below the bottom of priming bowl. The lower portion of the object 20.5 x 5.83cm dia. outside, is in very poor condition and composed almost entirely of corrosion by products. The bottom end contains a flap valve internally hinged, of copper. The lower extremity is thickened to 6.3cm dia where an end piece has been fitted to contain the valve. Valve inlet is circa 2.3cm dia. but irregular.
- DS-217-80 Part of a Block, without sheave but with Pin intact. 15.5 x ? x 6.9cm thick. Pin 6.9 x 2.2cm.
- DS-218-80 3, Pieces of Trenail. all roughly octagonal in X-section. Lengths 6.8; 8.4 and 13.3cm; Dias. respectively 3.9; 4.3 and 4.8.
- DS-219-80 1, Part of a Block shell viz. one half of one cheek 19.2 x 7.7cm
- DS-220-80 1, Piece of Wood of indeterminate type, three long edges straight and one curved 24.3 x 1.9cm. Three nail holes and two hardwood pins penetrate through the wood across its width.
- DS-221-80 1, Hardwood sheave Pin, 23.0cm long x 5.1 tapering to 4.7cm dia.
- DS-222-80 1, Piece of hardwood possibly oak of indeterminate shape and purpose, possibly bored for a trenail.
- DS-223-80 1, Piece of white semi-hardwood, shaped, seemingly part of a piece of furniture. 14.9cm long.
- DS-224-80 1, Part of a copper Lid with a handle attached, abraded and thin. Handle rivetted to lid. Max. overall dims. 21.5 x 31.3cm. Overall base of Handle 18.7cm; rise of handle above lid 4.6cm
- DS-225-80 1, Piece of Lead, round in X-section, flat at one end and domed at the other, Dia. 3.44cm at max. tapering to 2.85 at flat end. Axis 2.6cm. Most likely a counterweight from an object which has been swung in gimbals.
- DS-226-80 1, Knuckle Bow of Brass, overall dims. 12.3 x 9.2cm; one quillon ends in a pear-shaped knob the other seem to be broken off. Rectangular tang-hole 1.25 x 0.85cm. Bow is of circular X-section with a decorative thickening in the middle. Dias. from 0.69 to 1.36cm. Possibly connects with DS-182-80.
- DS-227-80 1, Green Glass Wine Bottle, cylindrical type, asymmetrical; whole, with cork in situ. 23.0cm high x 12.5cm dia. base.

- DS-228-80 1, Green glass Wine Bottle, same type and dimensions as DS-227-80
- DS-229-80 1, Green glass Wine Bottle, "Onion" type, empty, no cork, sherd missing from top of neck. Dims. 21.5cm high x 14.5cm base dia. Neck circa 10.0cm long i.e. above body of bottle; int. dia of 'mouth' of bottle 2.2cm, ext 3.4cm.
- DS-230-80 1, Green glass Wine Bottle, of cylindrical type and rather unusual shape viz. tapering somewhat from base to shoulders; empty cork missing; chipped at mouth, Dims. 20.25cm x 13.0cm base dia., domed base rises by 4.0cm.
- DS-231-80 1, Green glass Wine Bottle, very similar cylindrical type bottle to DS-227-80. Dims 24cm X base dia. 12.25cm. Domed base rises 4.25cm.
- DS-232-80 1, Neck from "Onion" type wine bottle, broken at base of neck, Cork intact
- DS-233-80 1, "Onion" type bottle minus neck. May be from DS-232-80 but cannot now fit. Dims. 10.0cm high x 14.0cm basal dia.
- DS-234-80 1, Spirit Glass of thin greenish glass, in a very fragile condition, and with a thick coating of decayed glass. Hole through the bottom. Base, flanged out and decorated with raised 'beads' of glass, 4.0cm dia. Height of glass 7.0cm x 5.75cm dia. at mouth.
- DS-235-80 1, Button of non-ferrous metal, with loop at back. Dims. 3.0 x 0.5cm.
- DS-236-80 1, Buckle of soft whitish metal-unidentified. Object in poor condition and covered by a deep layer of corrosion by-products; central bar missing. Dims. Overall 5.5cm x 4.5cm, breadth of metal at side and end 1.0cm.
- DS-237-80 1, Green glass Wine Bottle, cylindrical type, whole, full and with cork in situ but no ullage space. Dims. 23.0cm high x 12.5cm basal dia. Domed bottom raised 4.5cm.
- DS-238-80 1, Green glass Wine Bottle of "Onion" type, whole, full and with cork in situ. Dims. height 19.0cm x 14.0cm basal dia.
- DS-239-80 3, Pieces of thick Wool Cloth, twill weave, rather rough. Further fragmentation was unavoidable during conservation. Four main pieces kept. Dims. overall lengths. 7.0cm. 12.0cm 6.0cm and 5.0cm.
- DS-240-80 1, Base with some side-wall from a very large vessel, most likely a beer container. Other fragments found but not handled by Museum. Basal dia. 19.0cm with well rounded, (belled out) sides, sidewall 23.0cm high and overall dial of piece 53.0cm max. Thickness of side wall 3.0cm.
- DS-241-80 1, Brass Lamp - A large Bowl of sheet brass with lamp fountain swung in gimbals above it. Top of fountain pierced for three wicks around primiter while filling aperture is centrally situated and covered with a small lid.
- DS-242-80 1, piece of 4½inch Hemp Rope, has been served with spunyarn but no sign of worming or parcelling. Has been part of an eye spliced around iron thimble or similar, the mark of which can still be seen. 12.5cm o.a.l.
- DS-243-80 1, Piece of Woolen Cloth, heavy blanket weave. Piece of calcarous concretion still adhering. Dims. 23.0 x 9.0cm.
- DS-244-80 1, Piece of heavy weave Woolen Cloth. Seems identical in quality to DS-243-80. Piece of calcarous concretion adhering.
- DS-245-80 1, Small piece of matted hair, finer than human hair. No sign of tar sulphur etc. so unlikely to have come from ships sheathing. Most likely a piece of disintergating felt.
- DS-246-80 2, Pieces of nondescript wood. Kept for calibration purposes in P.E.G. tank.
- DS-247-80 5, Pieces of oak, very small, used as calibration pieces in acetone/resin process.

DS-248-80

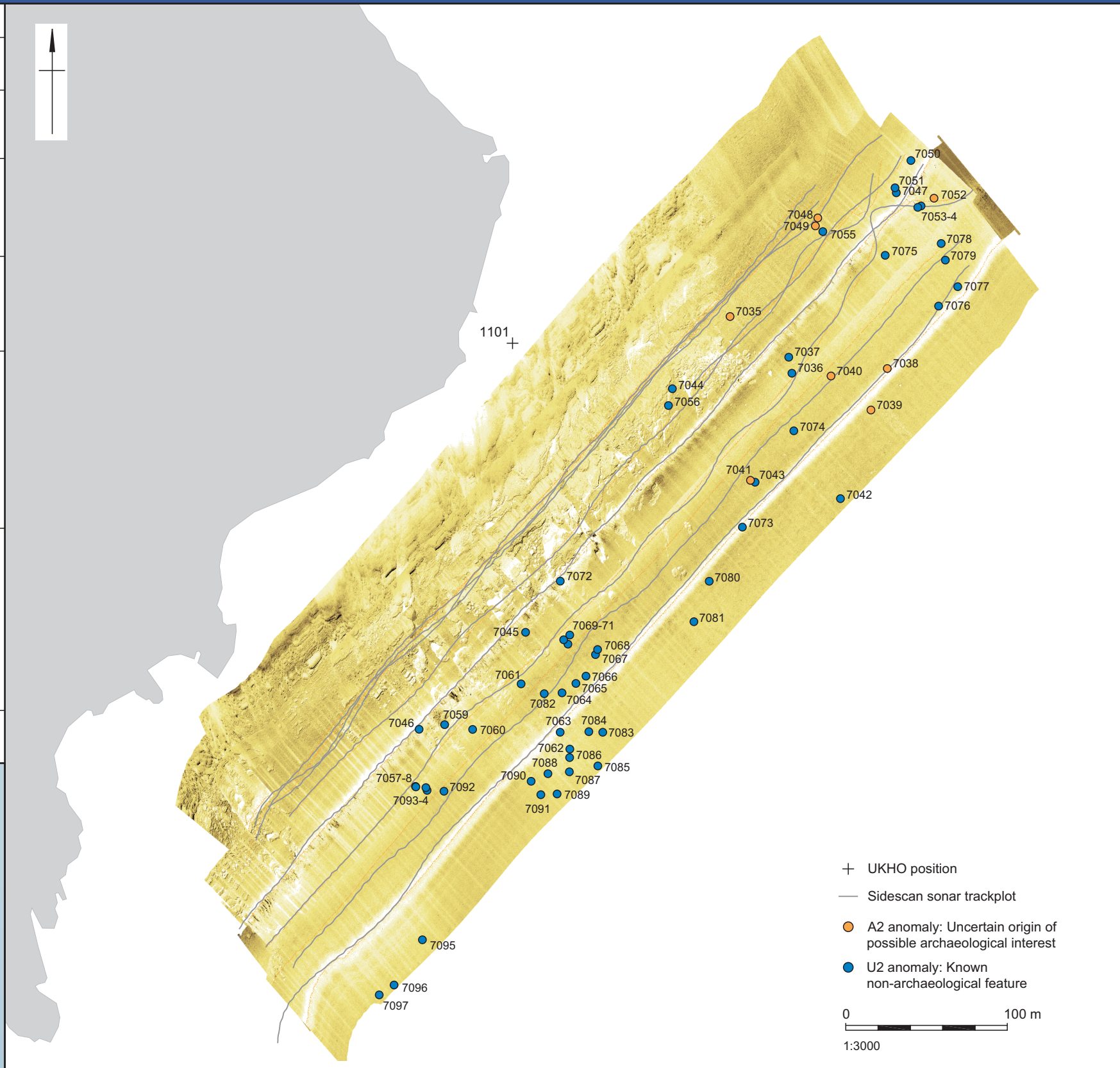
1. Hinged ruler of white semi-hardwood, most likely Boxwood
1 foot long extended, calibrated in eighths of inch. In very soft
condition but not abraded. Hinge frozen and wood iron stained.



Appendix 5 WA 1101: *Drottningen af Sverige*, Archaeological Services in Relation to the Protection of Wrecks Act (1973) - Wrecks of the Coast of Shetland - Geophysics Survey A3 Graphic

WA 1101: *Drottningen af Sverige*

Date sunk	12/01/1745
Geophysical survey dimensions and notes	No geophysical anomalies were identified either of the wreck itself or of any wreck debris at the recorded location.
Build	The <i>Drottningen af Sverige</i> ('Queen of Sweden') was built in Stockholm in September 1741. The ship was 44.8m long and 950 gross tons and carried 32 guns. It was the biggest ship built for the company at the time.
Use	Built for the Chinese trade of the Swedish Asiatic Company it left Gothenburg in Sweden for Canton on 9th January 1745 with another company ship, the <i>Stockholm</i> . They planned to sail around the north of Shetland. Both ships were only partly loaded as they were to call into Cadiz to take on silver specie and each had taken on board pig iron ballast to bring them into trim (Henderson 1985: 208).
Loss	The ships were caught in strong ENE winds (presumably a gale) and blown towards Shetland. The 130 crew of the <i>Drottningen</i> witnessed the wreck of the <i>Stockholm</i> before they themselves were wrecked in poor visibility in a snowstorm on 12th January, the ship striking a rock as they sought shelter in Bressay Sound. Miraculously, no-one was lost from either ship.
Extent of Survival	The SMR reports that 'Little remains of vessel except a few iron cannon... Occasional artefacts can be located by systematic searching in the crevices.' The seabed is described as sand and gravel with large rocky outcrops. The site is described as being up to 21m deep with kelp-covered shallower areas subject to wave action (K. Thompson, pers. comm.) Some changes in the condition of the site have been recorded by avocational divers in the last 10 years. In 2000, 'the cannon, lead and flint ballast and small fragments of china were observed'. In 2007 the same diver reported that the site was 'mostly the same but the large flint ballast mound had completely broken up...probably due to wave action' (K. Thompson, pers. comm.) The <i>Drottningen af Sverige</i> is an SIC protected wreck.
Investigation	The site was attempted to be salvaged in 1746 by W. Elliot, R. Hunter & Co, Eschauzier Bro, and G. Innes & Co. Subsequently a small area (reportedly about 5% of the site was excavated in 1979 by J-C Joffre and 350 finds recovered. Site assessments involving fieldwork were carried out by the ADU in 1990 and 2002 (ADU 1990: Report 073). Neither of the reports from these assessments has been seen by WA. A pre-disturbance survey of this wreck by ScotSAC assisted by the ADU in 1990 is reported to have located guns, ingots and scattered artefacts near a flint ballast mound at what appear to be the entrances to two gullies. No ship structure was observed. It is not clear what invasive work was carried out subsequently but it is understood that recoveries were made. None of the work carried out on this site appears to have been published.
References	Ferguson, 1988; Gibson, 1986; Larn & Larn, 1998; Martin 1998a; Ridley, 1992; Whittaker, 1998



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	Path: W:\Projects\179170\DrawingOffice\Report figs\Geophys\12_03_27				

Figure 6



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