

Lamer Island, Dunbar, East Lothian: Archaeological Watching Brief & Historic Building Recording Report

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On Behalf of: Dunbar Harbour Trust
Cromwell Quay
Shore Street
Dunbar
EH42 1SU

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Prepared by: Diana Sproat
Anne-Aymonne Marot
Sam O'Leary

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Author: Diana Sproat / Anne-Aymonne Marot **Date:** 31st July 2017

Approved by: Ross Murray **Date:** 31st July 2017

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Enquiries to: AOC Archaeology Group
Edgefield Industrial Estate
Edgefield Road
Loanhead
EH20 9SY

Tel. 0131 440 3593
Fax. 0131 440 3422
e-mail. admin@aocarchaeology.com

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SUMMARY

AOC Archaeology Group was commissioned by the Dunbar Harbour Trust to undertake an archaeological watching brief on the excavation of the former medieval battery of Lamer Island in Dunbar East Lothian, prior to and during consolidation works on the site. The work follows on from a Conservation Plan undertaken by AOC in 2007 and a test pit survey undertaken in June 2016 which discovered a series of wall foundations, flagstone floors and formation levels together with some 18th and 19th century pottery sherds. An element of historic building recording was also undertaken of the exposed vaults, which was discovered after the removal of blocking of the main entrance to it to the south-east side of the battery. The excavations also uncovered the base of the previously obscured walls to the centre of the battery as well as the small room to the south corner

The former battery was re-used in the later 19th century as a hospital, which consisted of the main two-storey block to the south-east of the structure with its associated vaults (a former magazine store) also re-used, together with a large building to the south corner which was used as a fumigation house for the hospital. The excavations exposed a number of original features and the original floor levels of all three of the structures.

Excavations to the north of the site identified remnants of walls most probably related to the Hospital building as well as six gun emplacements in good condition.

The excavations to the main entrance to the exterior south-west side of the battery entrance identified the foundation of a small structure, probably cottages for the hospital.

1 INTRODUCTION

1.1 Project Background

1.1.1 AOC Archaeology Group was commissioned by the Dunbar Harbour Trust to undertake an archaeological watching brief and a programme of historic building recording at the former 18th century battery of Lamer island in Dunbar, East Lothian. The area lies within the administrative jurisdiction of East Lothian Council (ELC), who are advised on archaeological matters by the East Lothian Council Archaeology Service (ELCAS). These works were required in accordance with Scottish Planning Policy (2014) and PAN 2/2011 Planning and Archaeology (2011), in order to expose, excavate and record any archaeological remains that would be subject to an adverse impact by the development proposals.

1.1.2 Lamer Island is a Category B Listed structure (Ref: LB24831) and is a D-plan bastion construction in ca. 1781. It is also located within the Dunbar Conservation Area. It is not a Scheduled Monument.

1.2 Site Location

1.2.1 Lamer Island is located to the north-east side of the town of Dunbar on a promontory overlooking the rocks at Broad Haven. It is centred on NGR: NT 68113 79358 (Figure 1).

2 OBJECTIVES

2.1 The objectives of the archaeological watching brief were to identify the nature, extent and survival of the archaeological remains of the former battery and to monitor all ground-breaking works and structural building works across the monument. In events where the preservation *in situ* of the archaeological/historical structural building material was impractical, a mitigation strategy was formulated with ELCAS to allow for the recording of all archaeological and structural features.

2.2 The objective of the historic building recording was to create a detailed record of the exposed vaults through written, photographic and drawn record (plan, section and elevation survey). An additional objective was to provide an interpretation of the features within the vaults and a history and development of the structure.

3 METHODOLOGY

3.1 Historic Building Recording

3.1.1 An 'Enhanced' survey (as per ALGAO guidelines, 2013) was undertaken of the vaults after they were exposed to the south-east of the site through the removal of one of the blocked doorways on the north-west side. This included a detailed photographic, written and drawn survey of the vaults prior to the re-blocking of the door.

3.1.2 A general and detailed photographic record was undertaken of the vaults in black and white print and colour digital in 35mm SLR and digital SLR respectively. General shots were taken of the exterior entrance and north-west wall of the vaults as well as the interior of the structure on a room-by-room basis. Detailed shots were also taken of specific features such as doors, windows, blocked openings, phase lines and fireplaces. A 1m ranging pole was used in all shots where access and health and safety allowed for scale. A running register of photographs were taken on site and have been reproduced in this report as Appendix 1.

3.1.3 A written survey of the vaults was also undertaken using AOC *pro forma* recording sheets with comment on condition, construction, fixtures and fittings, modern interventions and any evidence for phasing and function.

3.1.4 A measured survey of the vaults was undertaken using a Trimble TX-5 3D laser scanner. The entirety of the survey was tied into the National Grid using GPS. 2D external and internal elevations together with a ground floor plan and sections through the vaults have been produced from the laser scanner data, which have been



Figure 1: Site location plan

01/20245/REP/01/01



Figure 2: Site plan of Lamer Island showing areas subject to archaeological investigation 01/20245/REP/2a/01

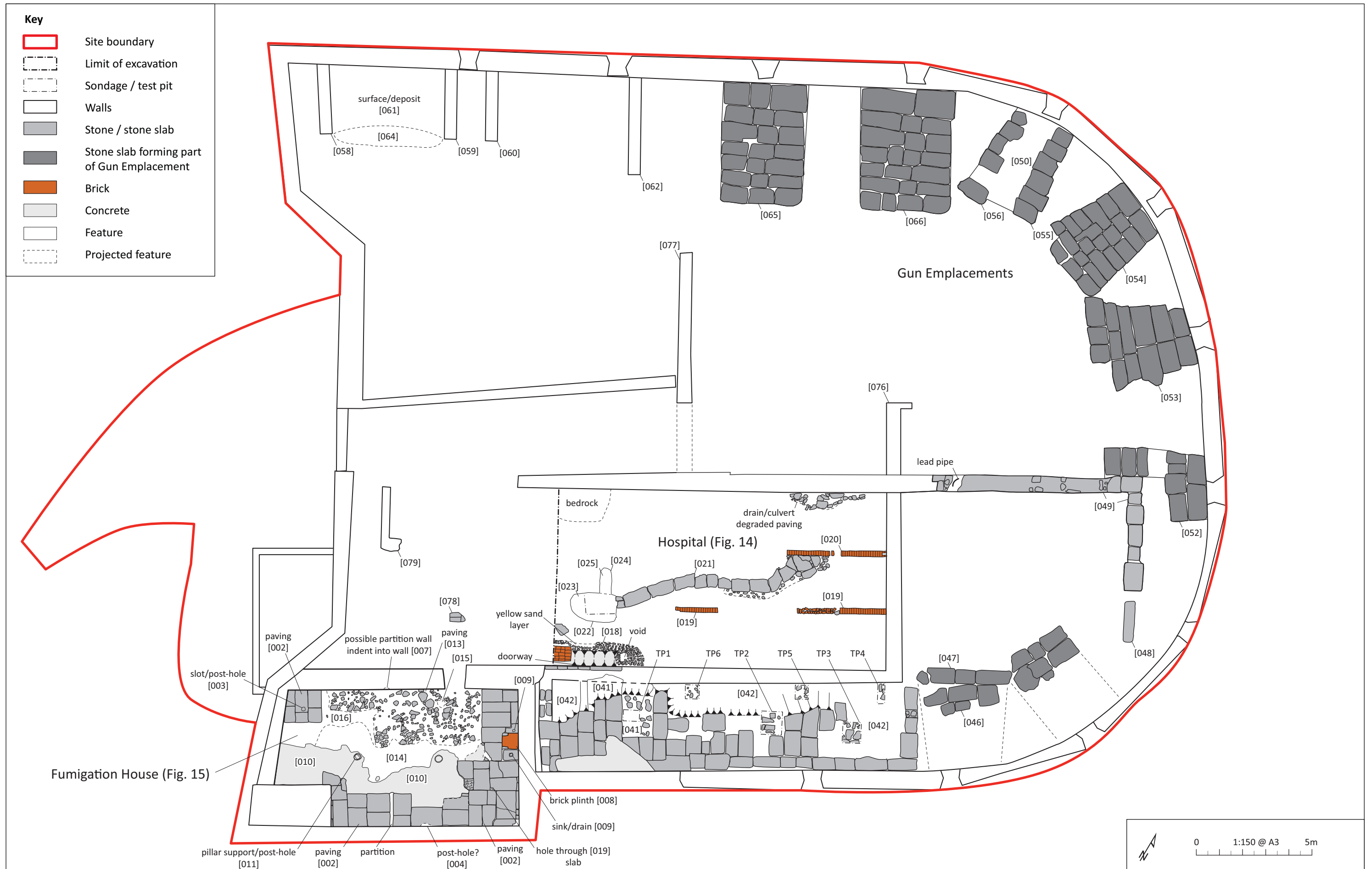


Figure 2b: Plan of Lamer Island showing Hospital, Fumigation House and Gun Emplacements

reproduced as **Figures 11 - 13**. More detailed information on the laser scanner survey can be found in Appendix 5.

3.2 Archaeological Watching Brief

- 3.2.1 The archaeological watching brief consisted of the supervision of all ground-breaking works undertaken as part of the development by an experienced field archaeologist together with the excavation of any archaeological features exposed in order to establish their extent, condition, character, quality and date. The excavation was by means of a small mechanical excavator equipped with a toothless ditching bucket in shallow units/spits.

4 HISTORICAL BACKGROUND

- 4.1 The first mention of Lamer Island was in 1445 in a charter by James II, conferring the privilege of Dunbar (AOC 2007, 10). The charter mentions both the harbour and Lamer Craig, possibly an earlier name for the island. However, it is not mentioned in the known historical record after that until 1781 when Captain Fall, an American privateer, attempted to board and cut a vessel at Dunbar Harbour (*ibid*). 12 pounder guns were transported to Lamer Island in response with an additional two 9 pounders at the nearby castle to try and defend against the privateers. This was enough to make Fall retreat to the Isle of May (Miller 1859). Fall's attempt to steal from the town was the second attempt in as many years (John Paul Jones did the same in 1778) and hence the people of Dunbar were motivated to build a battery to protect themselves from any future attacks. The battery was constructed the same year of Fall's attack in 1781 to plans by Andrew Fraser (AOC 2007, 1). Funded by both the town council and the East Lothian and Merse Whale Fishing company, it was more of a civil undertaking rather than a military one and was therefore of a more traditional fort design as opposed to the latest 'cutting edge' military designs of the late 18th century. It was constructed of local red sandstone and consisted of sixteen embrasures housing six, nine, twelve and eighteen pounder guns along with four carronades (Graham 1967). The magazine, guard and store room were added to the centre of the fort by 1795 according to an assessment of the site by William Garret in that year (AOC 2007, 1). He made a (albeit quite schematic) sketch of the site, which shows the buildings within the fort as a simple L-shaped line which roughly outlines the north-west elevation of the vault (Figure 3).



Figure 3: Extract from sketch of 'Dunbar Battery' by William Garrett, 1795

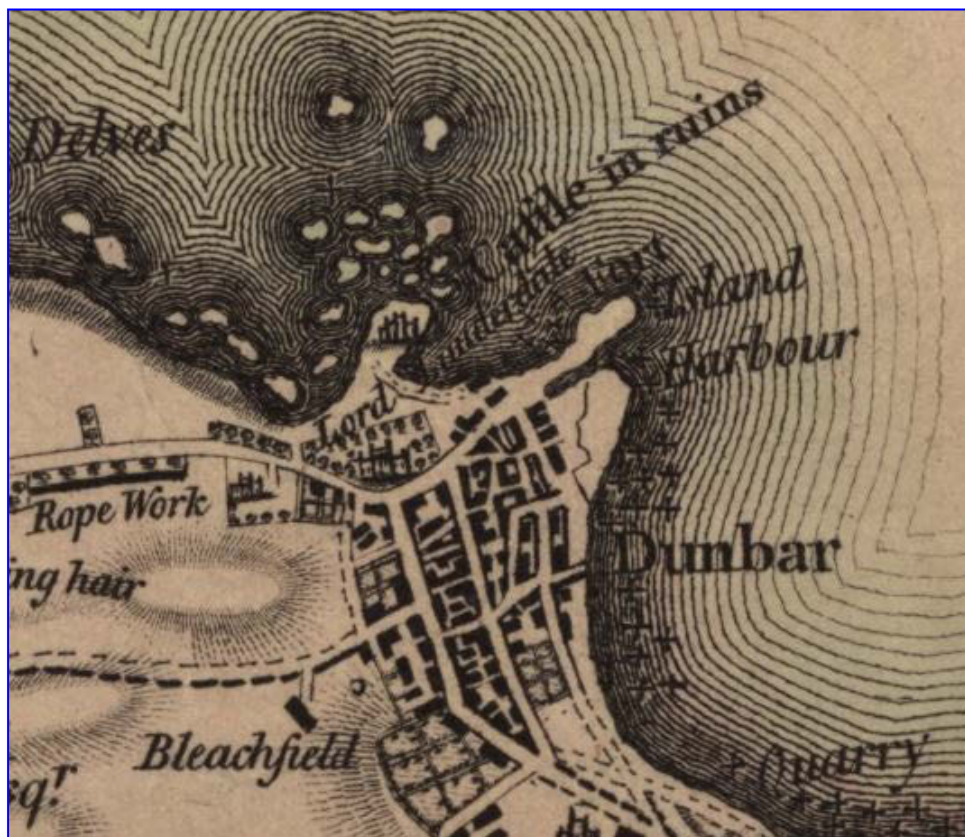


Figure 4: Extract from Forrest's map, 1803

- 4.2 The battery is first represented in the cartographic record by William Forrest's 1803 map where it is simply annotated as 'Fort' (Figure 4). It was in this very year that the main barracks were constructed (which would be converted into a hospital building some 70 years later) in response to a possible threat from the French after the outbreak of war between Britain and France in 1793 (Martine 1999). John Wood's 1830 map shows a little more detail of the battery, and shows the central building within the fort with an additional building to the south corner. There are also two buildings located to either side of the entrance to the battery to the south-west side (Figure 5).

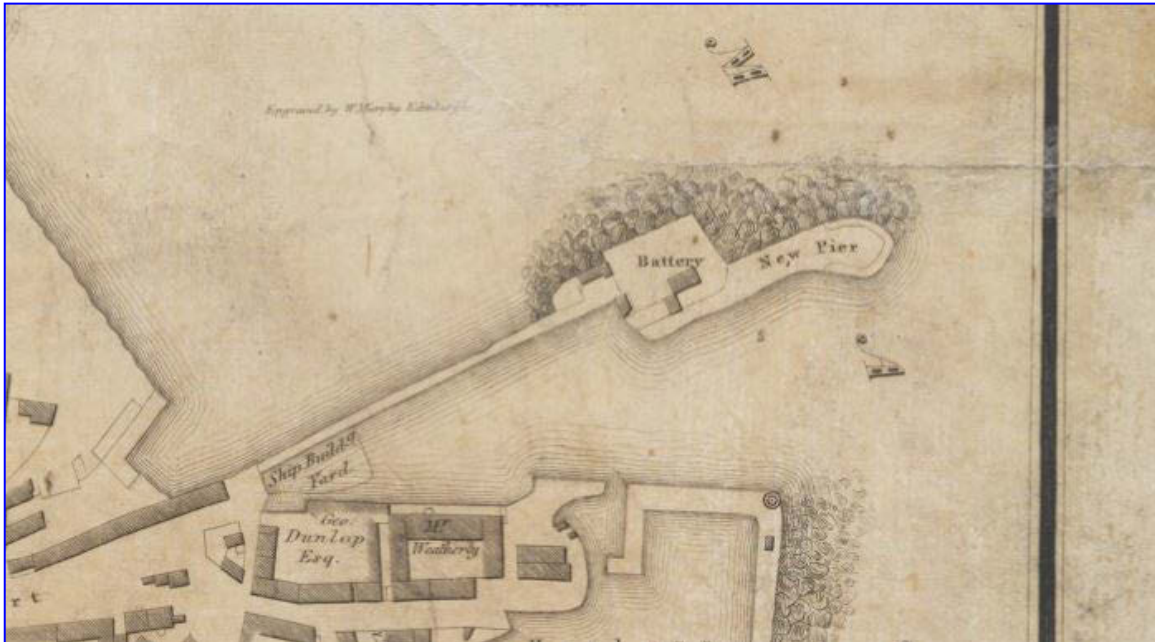


Figure 5: Extract from Wood's map, 1830



Figure 6a: Extract from Ordnance Survey, 1854

- 4.3 By the middle of the 19th century, the battery fell out of use after never having fired a single shot, as we can see by the annotation on the 1854 Ordnance Survey map (Figures 6a & 6b). The building was in fact preserved in the 1840s whilst the Victoria Harbour was constructed to the north-west side, and the south-west wharf of the harbour became integrated with it. No use could be found for the former battery, although a small causeway was constructed to maintain access to it.

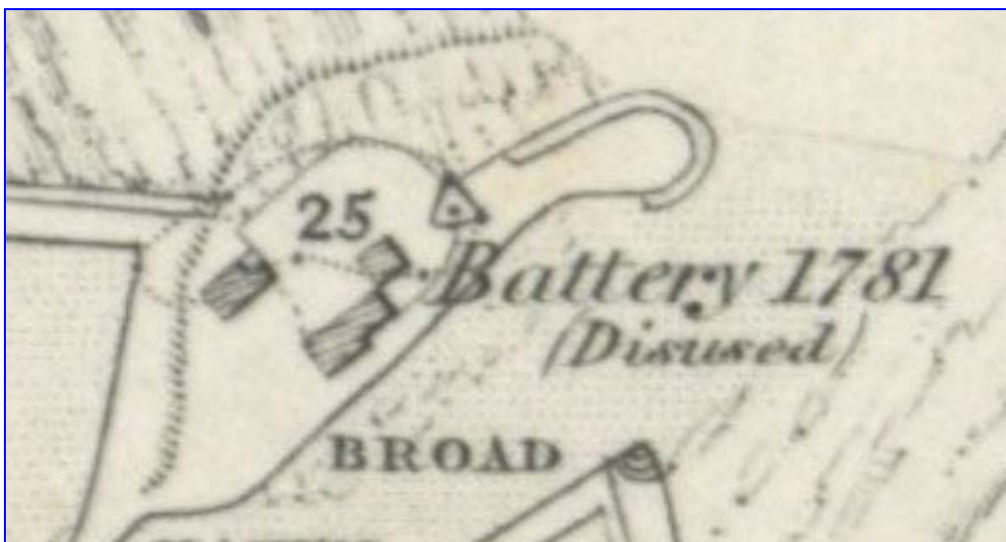


Figure 6b: Extract from Ordnance Survey map, 1854 showing detail of Lamer Island

- 4.4 By the 1895 Ordnance Survey map, the fort is annotated as a hospital (Figure 7). The conversion happened in 1874, when it was in fact adapted for use as a fever and isolation hospital, ideally located away from the citizens of the town, in response to the Public Health (Scotland) Act of 1867. The two-storey building to the centre of the fort was the primary hospital wing, only the ground floor of which survives today. The vaults (which were the former magazine store) were also possibly used at this time as part of the ancillary (domestic) functions to the wards. An 1899 sketch shows the layout of the hospital buildings and interior areas at first floor level within (Figure 8). It identifies the partitioned areas within the hospital building, including the area to the south-east that was presumably built over the vaults/magazine store.
- 4.5 The hospital, probably due to its poor condition and exposed location, was closed down by 1906. However, the battery was brought back into use some 11 years later, again as an infectious disease hospital and a military hospital during the First World War. By this time, the main hospital building had 14 beds, which were all full at the time of war (AOC 2007, 13). The hospital was also described as being in a beautiful but very inhospitable location subject to gales and other extreme weather (*ibid*). Two photographs exist of the hospital building dating from 1914 (Figures 9a & 9b). These show that the building was rendered with roughcast, no doubt to prevent against weathering of the stonework in the inhospitable weather. The north-west elevation (Figure 9a) shows the upper floor of the hospital (the ground floor sunk into the ground level of the rest of the battery against the former magazine store) with a hipped roof and small porch. The view of the hospital from the south shows the upper floor windows of the hospital with a chimney to the centre (Figure 9b).



Figure 7: Extract from Ordnance Survey map, 1895

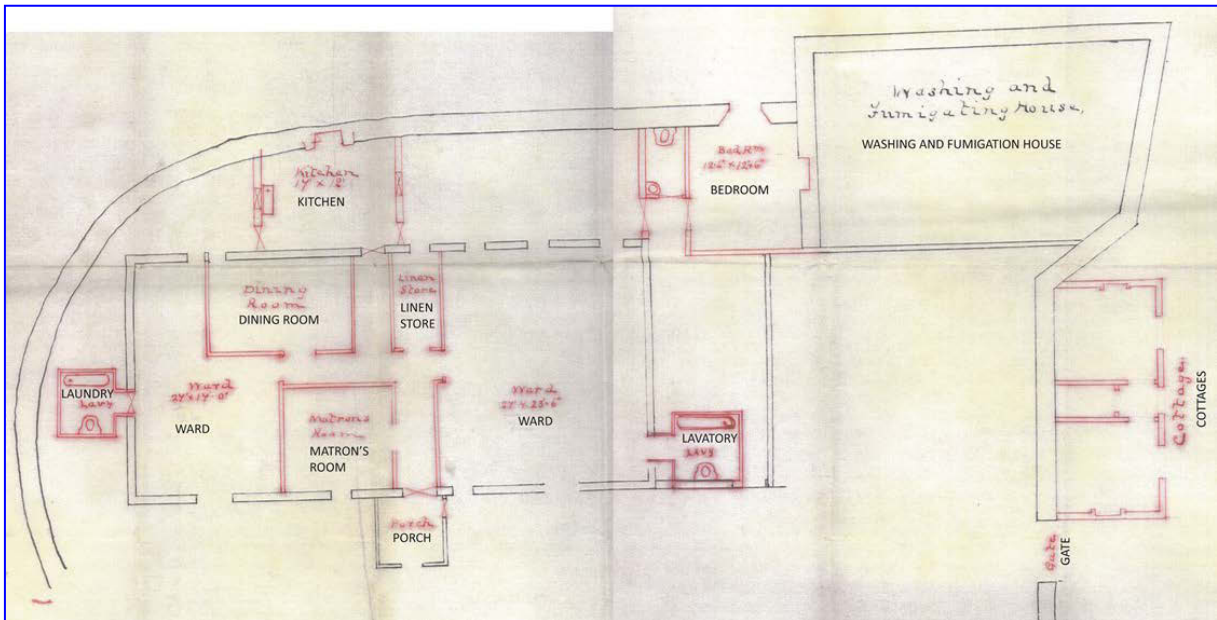


Figure 8: Sketch plan of the layout of the first floor of the hospital, 1899

4.6 By the end of the War, the hospital became a cottage hospital and was opened as such in 1919. The cottage hospital was in use for several years and was even visited by the Princess Royal who donated £20 (*ibid*, 14). The condition of the building continued to deteriorate, however, and its roof was eventually blown away in a storm in 1937. A fire in the building also occurred during that year when the battery was the site of a bonfire and fireworks display in celebration of King Edward's coronation (Pugh 2003). The 1948 Ordnance Survey map shows the battery some years after the Second World War, as a disused structure, although the former hospital buildings are still depicted - it is even annotated as a 'Casual Sick House', indicating that some use may have been made of the former structures (Figure 10).



Figure 9a: Photograph of the 1872 hospital building from the west, showing the north-west elevation, 1914



Figure 9b: Photograph of the 1872 hospital building from the south, 1914



Figure 10: Extract from Ordnance Survey map, 1948

- 4.7 A publicity paper produced for the Town House at Dunbar in 1964 notes that a dwelling house exists within the battery (Publicity Dept Town House Dunbar 1964). However, Lamer Island has remained since at least the 1930s/1940s and, as such, only the interior ground floor of the former hospital building has survived as bare stone rubble walls (the structure was built partially below ground) containing a number of features such as doorways and windows. The doorways to the vaults to the south-east side of the hospital building were blocked with stone and have only been recently re-opened.

5 RESULTS: HISTORIC BUILDING RECORDING

5.1 Introduction

- 5.1.1 The archaeological watching brief provided the opportunity to look once again at the former battery house and munitions store, known more commonly as the hospital and vaults, to the south-east side of Lamer Island, both in terms of the newly exposed wall but also the original floor levels and other associated features which were exposed as a result of additional stripping in these areas. The fumigation house (the smaller room to the south corner of the battery) was also subject to the same stripping and again, original floor surfaces and other features were exposed.
- 5.1.2 The following descriptions will look first at the newly exposed vaults, then the hospital building to its north-west and finally the fumigation house to the south corner. It should be read in conjunction with [Figures 11 - 13](#), which provide detailed floor plans, elevations and sections of the relevant areas.

5.2 The Vaults / Former Magazine Store

- 5.2.1 The Vaults were inspected after the doorway on the north-west elevation was unblocked on 13th September 2016. They consisted of an enclosed structure with bare stone rubble walls containing three separate chambers separated by square-set doorways. These have been numbered rooms V1 – V3 on [Figures 11 - 13](#), which shows a detailed plan, elevations and sections through the vaults. The building lies to the north-east side of the hospital and is orientated north-east/south-west.
- 5.2.2 Vault 1 to the south-west end consists of a small chamber measuring 4.05m x 3.45m ([Figures 11 & 12](#)). With bare stone rubble walls, carrying through to the vaulted roof, the vault has no features in the north-east elevation ([Plates 1 & 2](#)), although to the north-west and south-east elevations are four slit windows with large lintels and in-out surrounds ([Plates 3 – 5](#)). Access is from Vault 2 to the south-west elevation through a tall square-headed doorway, almost up to the vaulted roof ([Plate 6](#)). All of its fixtures and fittings have been removed. The flooring of Vault 1 consists of cut flag stones [034] of various sizes and is probably the original floor surface.
- 5.2.3 Vault 2 measures 4.95m x 3.45m with the return of the door in the north-east wall through to Vault 1 ([Figures 11 & 12](#); [Plate 7](#)). The north-west wall has two doorways, both stone-blocked, the north-easternmost of which is set much further back into the vaulted roof with a stone lintel ([Plates 8 & 9](#)). The opposite south-east wall has no features ([Plate 10](#)) and access to Vault 3 is to the south-west wall through a low square-headed doorway with a large stone lintel and small feature above it ([Plate 11](#)). Although no excavations took place within the vaults themselves, the flagged stone floor [057] of this chamber to the east and west corners is still *in situ* ([Plates 12 & 13](#)). The floor of Vault 2 is covered by a compact burnt sand layer [035], probably caused by the fire of 1937. A compact sand and stone surface [036] and its foundation layer (038) and possibly (037) were exposed directly below the burnt sand layer.
- 5.2.4 Vault 3 is the largest chamber to the south-west side of the vaults and measures 4.35m x 3.45m ([Figures 11 – 13](#)). The return of the square-headed doorway through to Vault 2 can be seen to the north-east wall, although the lintel and area around the small feature above it has been broken away on this side ([Plate 14](#)). On the opposite south-west wall is a small centrally-placed blocked fireplace with dressed stone surround ([Plates 15 & 16](#)). The adjacent north-west wall contains the main entrance into the vaults today (albeit now blocked once more) which is roughly central to the chamber wall and contains a wide door jamb for an inward-opening door ([Plates 17 & 18](#)). Immediately adjacent to this to the south-west side is another thinner stone-blocked doorway or recess ([Plates 19 & 20](#)). As with Vault 2, the south-east elevation has no features ([Plate 21](#)) and the stone-flagged floor has survived ([Plate 22](#)). The floor consists of a black burnt sand with stones and blocks surface [039].

5.3 The Hospital

- 5.3.1 The external elevation of the vaults comprises the north-west elevation of the vaults and the south-east internal elevation of the hospital building. The features identified in the interior north-west elevations of the vault also appear here, stone-blocked in red sandstone, including two of the four slit windows to Vault 1 to the north-east side (Plate 23), the two central doorways to Vault 2 (Plate 24) and the main entrance and adjacent blocked doorway to Vault 1 (Plate 25).
- 5.3.2 The opposite north-west and north-east internal elevations of the former hospital building have no features (as they were built below the ground level), and are constructed of red sandstone rubble (Plates 26 - 29). The single course of a north-east elevation [076] was exposed abutting the north-west interior elevation of the former hospital, in line with the north-east internal elevation of the hospital and extending to 2.43m to the north-west with a 1.0m return to the east.
- 5.3.3 The archaeological watching brief of the ground floor of the former hospital building exposed approximately 0.9m more depth than had previously been exposed and identified the original floor structures and other features of the battery building which was later converted into a hospital in the later 19th century (Figure 14; Plates 30 & 31). Turf, topsoil and made ground were removed to reveal the remains of two red brick walls orientated north-east/south-west ([019] and [020]) and a slate lined culvert [021] covered with paving stones (Plates 32 & 33). Both red brick walls [019] and [020] were a later addition to the battery and are likely to relate to the hospital structure as partition walls. Culvert [021] was truncated to the south by an oval-shaped, steep-sided pit [022], which was possibly a soak away pit. A north-west/south-east aligned linear feature [024] merged into a pit [022] slightly to the west of culvert [021]. Also steep sided, the function of feature [024] is unclear, although it may have been contemporary with culvert [021]. A shallow cobble and mudstone topped gully [027] was also exposed to the north-west of wall [020].
- 5.3.4 A rectangular area of set cobbles [018] partially overlain by a mortared surface, extended 0.9m from the north-west elevation of the vaults. The mortared surface was set against the red sandstone wall and the vaulted entrance. This was probably a cobble lined threshold to Vault 1 as indicated by the concave groove showing wear (Plate 36). The surface continued to the south as a red brick set also displaying a worn concave groove and was excavated to a length of 3.60m.

5.3 The Fumigation House

- 5.3.1 As with the hospital building, the room to the south corner of the battery was originally known as the Fumigation House and was excavated to its original floor level. The walls exposed consisted of the internal walls of a large room measuring 11m x 6m with walls surviving to the north-west side.
- 5.3.2 The main entrance into the building was through the north-west wall through a small doorway, little of which survives (Plate 37). Flanking the entrance are two areas which have a greyer tinge to the stonework, and this may indicate where a partition or other piece of equipment/feature rested against the walls (Plate 38). The south-west side of the wall then angles forward slightly and there is a round-headed drainage feature at ground level (Plates 39 & 40). It consists of an arched opening with neat on-edge voussoir stones standing in front of a square drainage feature cut into the stone slab flooring [002]. The end south-west side of this wall survives to a much greater height and has the slot at head height indicating a former floor level here, or roof storage (Plate 41). A small rectangular beam slot is located within it. There also appears to be two phases of build to this stretch of wall, with the lower construction being of larger red sandstone blocks, with the area above this in a more randomly coursed lighter beige sandstone. The scar for the former lean-to roof here can also be seen (Plate 42). The red sandstone build, recessed floor level and roof scar continue around to the south-west end wall of the fumigation house (Plate 43). Above this, more phases of construction can be seen, possibly two phases with a smaller stone randomly course and heavily rendered build above and set back from the lower construction and an additional phase of build above it. There is a large platform to the south corner of the room along this wall (Plate 44).

- 5.3.3 Moving round to the south-east wall of the fumigation house, the red lower sandstone build and the recess for the upper floor continues, although there are few features along this wall in general (Plate 45). The possible two later phases of build as described from the south-west wall also continue, and two first floor windows have also survived up to at least two-thirds of their height. Another slot to the centre of the wall indicates the position of a former partition wall here. To the north-east side of this wall is also a crudely blocked low-set opening (Plate 46). This feature does not appear to have any definite surround, so may be an inserted opening for a pipe or ventilation that has been later blocked up.
- 5.3.4 The north-east elevation of the interior of the fumigation house survives only to the height of the adjacent north-west wall to the north-west side and then to almost first floor level to the south-east side (Plate 47 & 48). The slot once again continues round to this wall and a first floor window survives to the south-east, again surviving only to two-thirds its height.
- 5.3.5 The excavations to the original floor levels also exposed a number of features (Figure 15; Plate 49). A square, faced draining feature [029] was cut into the stone slab flooring at a depth of 0.67m and filled with an upper rubble fill (030) and a sandy clay lower deposit (031), below a round-headed drainage feature at ground level in the north-west elevation. The upper rubble fill (030) contained fragments of 19th and 20th century pottery and animal bone. Moving to the west, six concrete slabs [002] are located in the north-west corner of the with a 0.12m x 0.12m square-cut into the middle slab, [003]. A structure 0.80m in height and covered with a flat concrete layer was also exposed after the removal of the rubble which was set over a slightly vaulted brick roof. This roof extended 2.4m from the external south-east wall and a north-east/south-west aligned red sandstone block wall to the north.
- 5.3.6 As mentioned above, some elements of the original flagstones [002] had survived within the room, mostly around its edges against the north-east and south-east walls and to the west corner. The central area of the building was devoid of the flagstones, although a white lime mortar deposit (080) surviving in patches was noted to the north-west side. This layer was 0.05m in depth and overlay a brown-yellow sandy levelling deposit (081), upon which the flagstones [002] were probably laid. In the centre, a very compact white-yellow lime mortar (082) with frequent slate and random red sandstone fragments was observed, lying over a sandy gravel deposit (086) (Plate 50). Through the main entrance of the building a stone surface [068] extended against the flagstones [002] to the east and continuing 4.37m to the west. A linear recess was visible between the flagstones [002] abutting the south-east wall in line with a slot in the wall as mentioned above (Plate 51). A small section of a concrete and stone flooring [075] measuring 0.95m x 1.0m was visible in the doorway. Outside of the fumigation house, three flagstones [078] were exposed ca. 1.70m north-west of the entrance. This suggests a possible surface in this location of which only 0.6m x 0.5m x 0.08m has survived.
- 5.3.6 A brick and mortar plinth [008] and a glazed rectangular drain [009] abutted the north-east elevation. The plinth [008] which appeared to be overlying [002] survived two courses in height and measured 0.70m x 0.71m x 0.20m. The drain [009] measured 0.66m x 0.45m x 0.18m with a square opening in the base leading to a downpipe.
- 5.3.7 The final excavations saw the reduction of the large platform in the south corner. This exposed a drainage feature within it with a stone slabbed base (Plates 52 & 53).

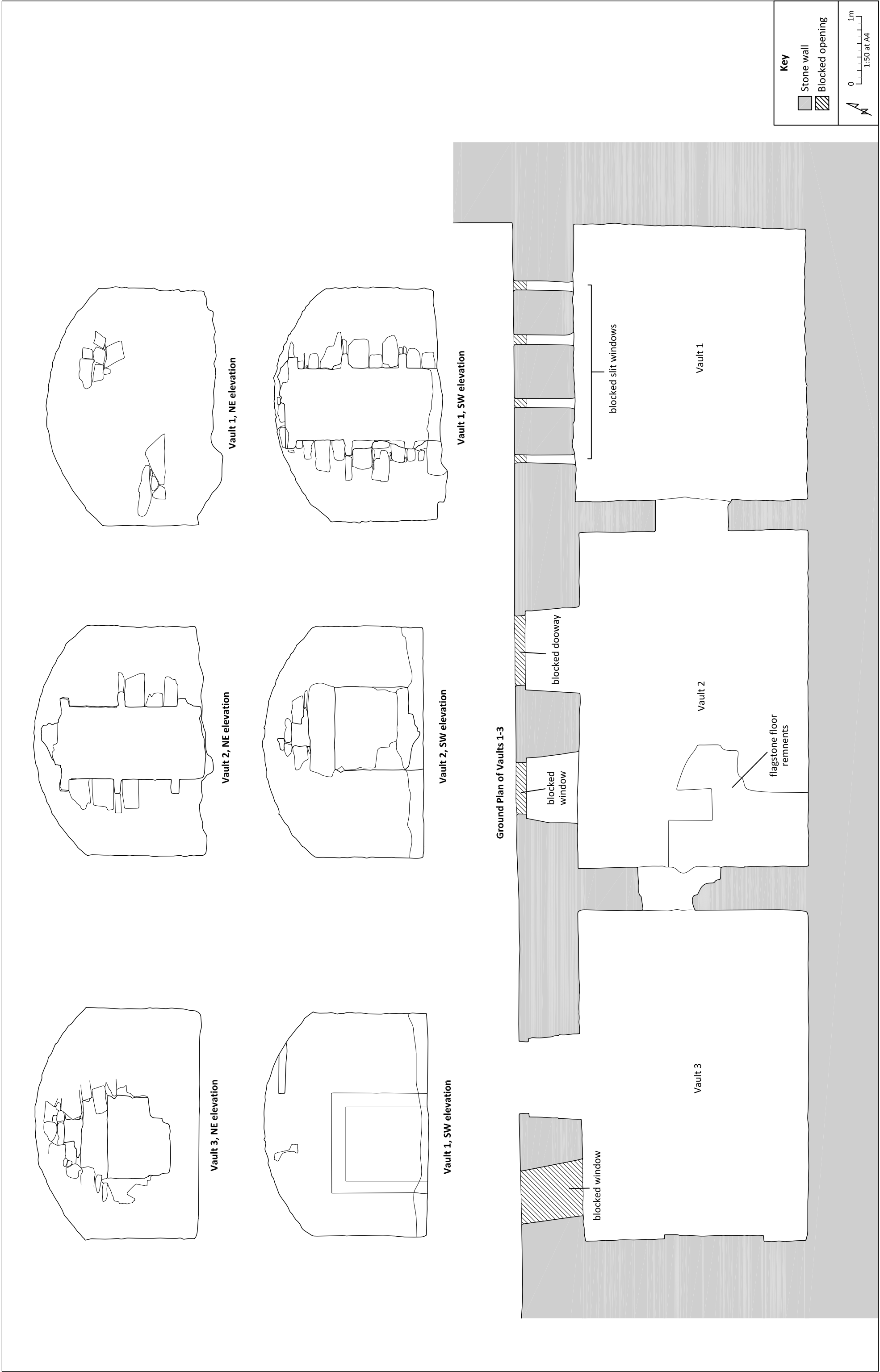
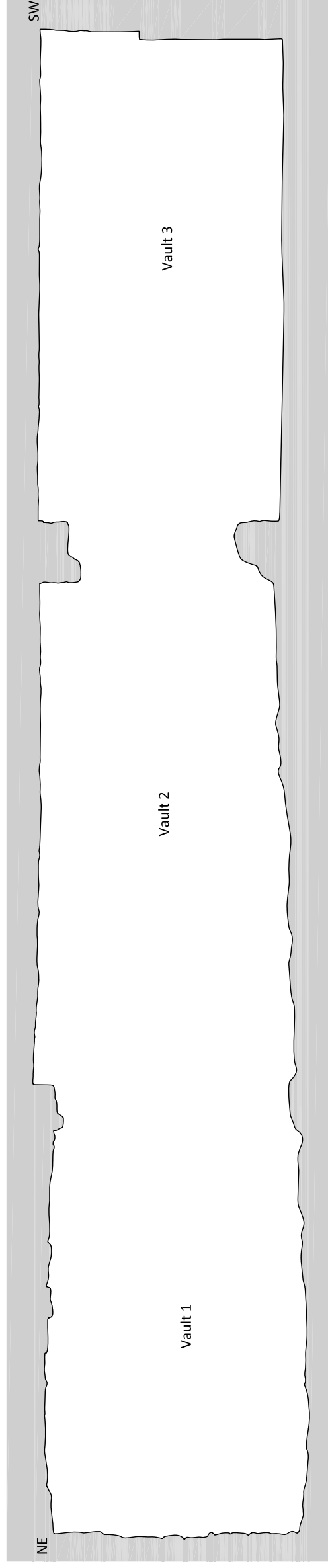
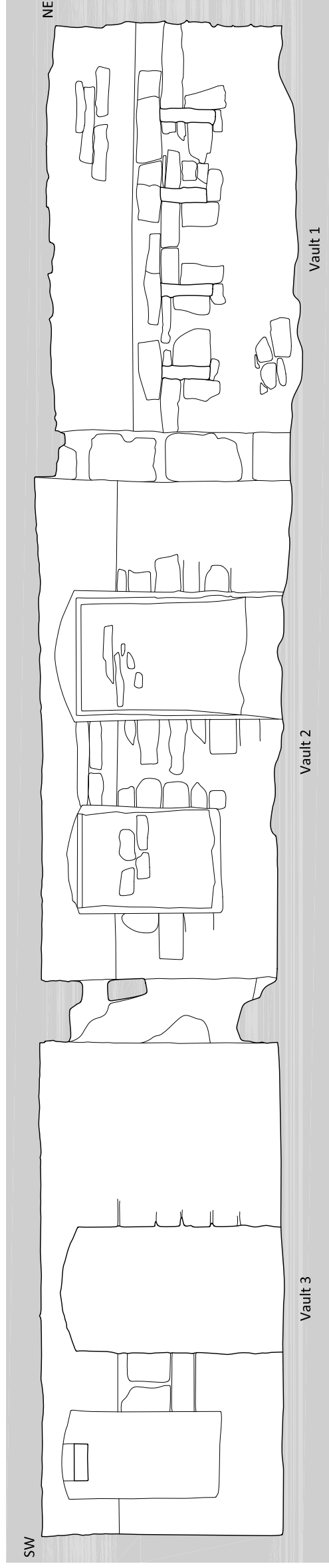


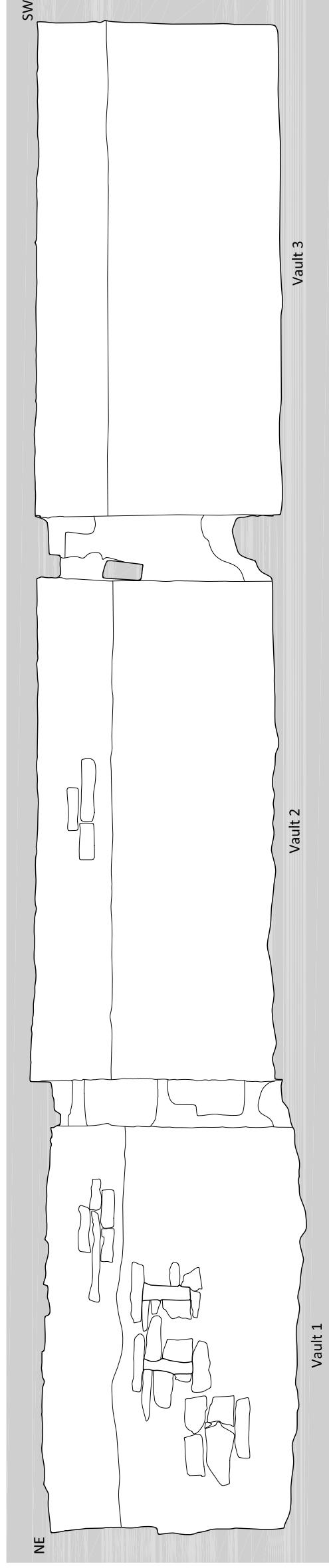
Figure 11: Internal Short Elevations and Plan



Section through NE-SW centre line of vaults 1-3



NW elevation of Vaults 1-3



SE elevation of Vaults 1-3



Figure 12: Internal Long Elevations and Section

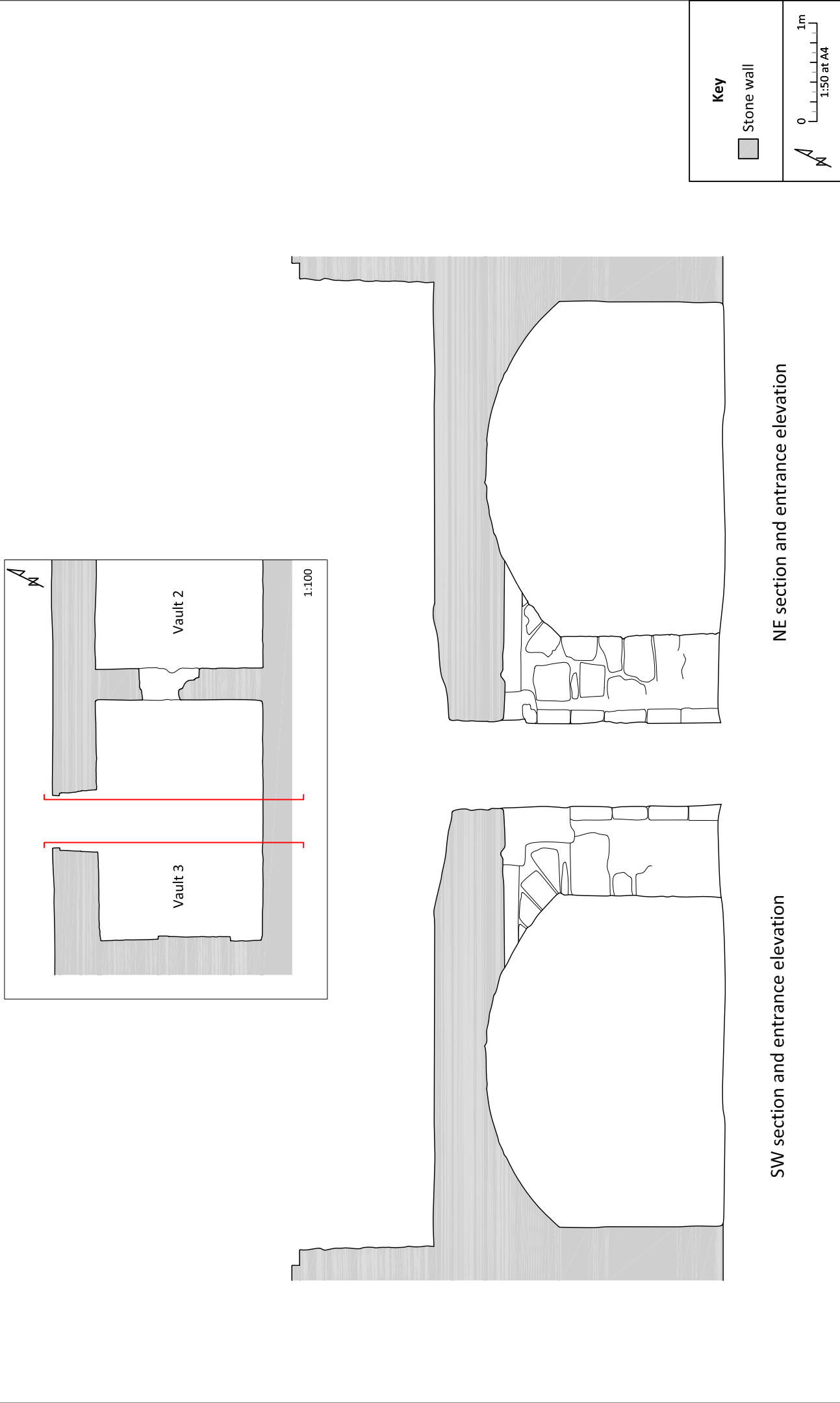


Figure 13: Entrance elevations and sections through Vault 3



Plate 1: Vault 1, general view of the north-east wall from the south-west



Plate 2: Vault 1, general view of the vaulted roof from the north-east



Plate 3: Vault 1, general view of the slit windows in the north-west wall from the south



Plate 4: Vault, detail of the two north-eastermost slit windows in the north-west wall, from the south-east



Plate 5: Vault 1, general view of the slit windows in the south-east wall from the north



Plate 6: Vault 1, general view of the south-west wall showing doorway to Vault 2, from the north-east



Plate 7: Vault 2, general view of the north-east wall showing the doorway to Vault 1 from the south-west



Plate 8: Vault 2, general view of the north-west wall from the south



Plate 9: Vault 2, detail of the north-easternmost blocked doorway in the north-west wall, from the south-east



Plate 10: Vault 2, general view of the south-east wall from the north



Plate 11: Vault 2, general view of the south-west wall showing the doorway to Vault 1, from the north-east



Plate 12: Vault 2, general view of the stone-flagged floor from the north-east



Plate 13: Vault 2, detail of the stone-flagged floor in the south corner from the north-east



Plate 14: Vault 3, general view of the north-east wall showing the doorway to Vault 2, from the south-west



Plate 15: Vault 3, general view of the south-west wall from the north-east



Plate 16: Vault 3, detail of the blocked fireplace in the south-west wall, from the north-east



Plate 17: Vault 3, general view of the north-west wall from the south



Plate 18: Vault 3, detail of south-west soffit of central doorway in the north-west wall, from the east



Plate 19: Vault 3, general view of the north corner from the south



Plate 20: Vault 3, detail of the blocked doorway to the south-west side of the north-west wall from the south-east



Plate 21: Vault 3, general view of the south-east wall from the north

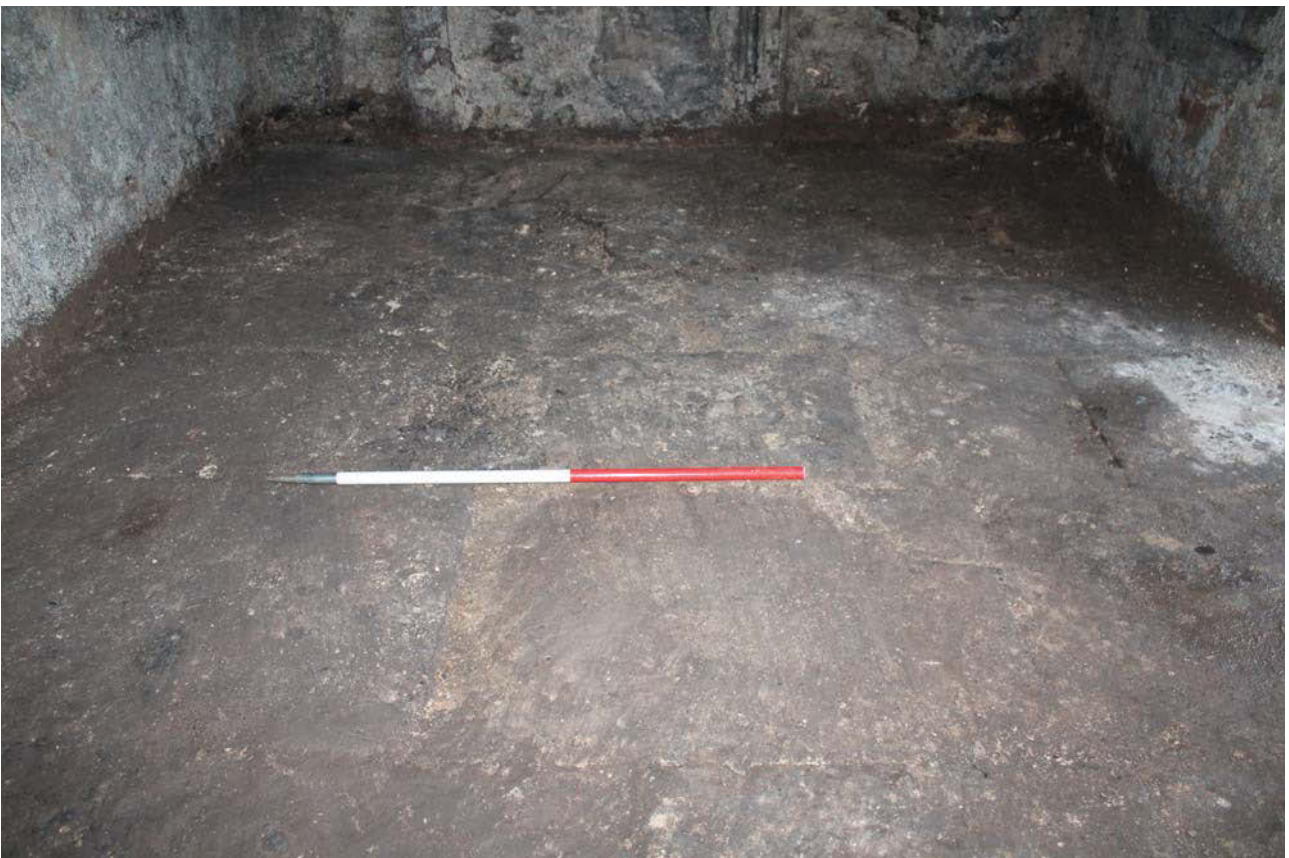


Plate 22: Vault 3, general view of stone-flagged floor from the north-east



Plate 23: The Hospital building, south-east elevation, detail of the slit windows to the north-east side, from the north-west



Plate 24: The Hospital building, south-east elevation, detail of the central blocked doorways from the north-west



Plate 25: The Hospital building, south-east elevation, detail of blocked doorways to the south-west side, from the north-west



Plate 26: The Hospital building, north-west elevation, general view from the east



Plate 27: The Hospital building, north-west elevation from the south



Plate 28: The Hospital building, north-east elevation, general view from the south-west



Plate 29: The Hospital building, north-east elevation, general view of the south-east side from the south-west



Plate 30: The Hospital building, general post-excavation view from the west



Plate 31: The Hospital building, general post-excavation view from the south-west



Plate 32: The Hospital building, general view of the internal brick partition [020], from the north-east



Plate 33: The Hospital building, detail of the internal brick partition [019] from the north-east



Plate 34: The Hospital building, general view of flagstone surface [052]



Plate 35: The Hospital building, detail of [084] and [087]

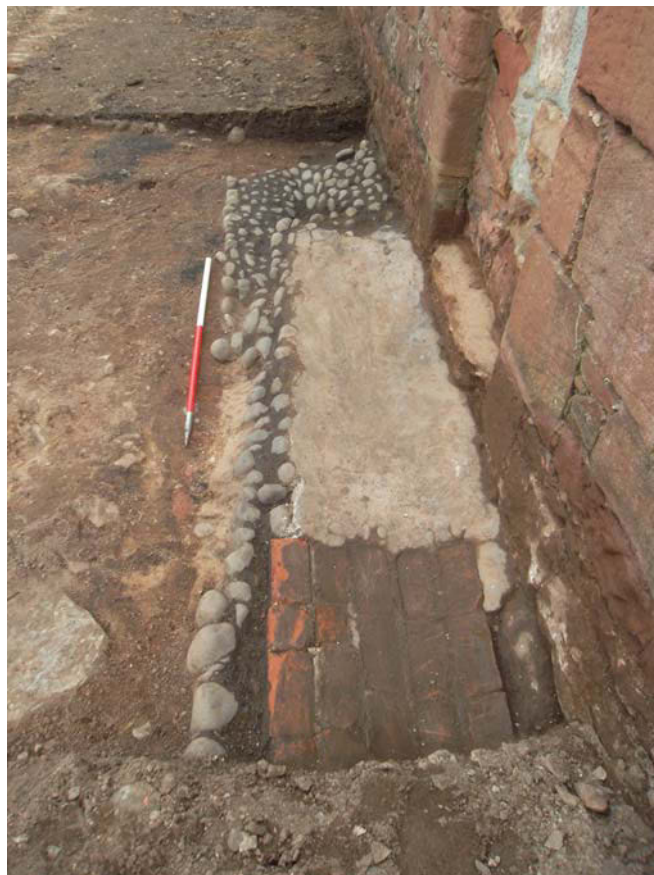


Plate 36: The Hospital building, general view of feature [018]



Plate 37: The Fumigation House, general view from the south



Plate 38: The Fumigation House, north-west elevation, detail of the far north-easternmost bay from the south-east



Plate 39: The Fumigation House, north-west elevation, general view to the south-west side from the south-east



Plate 40: The Fumigation House, north-west elevation, detail of small drainage feature from the south-east



Plate 41: The Fumigation House, north-west elevation, detail of the bay to the south-west side, from the south-east



Plate 42: The Fumigation House, general view of the north corner from the south



Plate 43: The Fumigation House, general view from the SEE



Plate 44: The Fumigation House, general view of the south corner from the NEE



Plate 45: The Fumigation House, south-east elevation, general view from the north



Plate 46: The Fumigation House, south-east elevation, detail of the blocked feature to the north-east side, from the north-west



Plate 47: The Fumigation House, general view from the south-west



Plate 48: The Fumigation House, general view of the north-east wall from the south-west



Plate 49: The Fumigation House,, general view of Fumigation House after excavation from the south-west



Plate 50: The Fumigation House, detail of deposit (086)



Plate 51: The Fumigation House, detail of linear recess [006]



Plate 52: The Fumigation House, general view of excavated platform in the west corner exposing drain feature, from the east



Plate 53: The Fumigation House, detail of the drain feature exposed after the excavation of the platform in the west corner, from the north-east

6 RESULTS: ARCHAEOLOGICAL WATCHING BRIEF

6.1 Introduction

6.1.1 In addition to the investigations of the vaults, former barrack (and later) hospital building and the fumigation house, the watching brief uncovered features during ground-breaking works to the north-east, north-west and in front of the main entrance to the battery (Figure 2a).

6.2 The North and North-East Area

6.2.1 An original pathway [041], aligned north-east/south-west, was uncovered consisting of irregular-shaped sandstones was observed through a number of test pits excavated over the roof of the vaults (Figure 16). A later flagstone surface survived along the south-east elevation and probably covered the area over the vaults. Along the outer curved northern wall of the Battery, ten floor surfaces ([045], [046], [051], [052], [053], [054], [055], [056], [065] and [066]) survived in varying conditions, each made up of rectangular flagstones of varying sizes between 1.3m and 0.7m in length and 0.6m to 0.8m in width. These surfaces were part of the original function of the site as a battery and would have formed part of the original platforms for the six emplacements. A number of flagstones were damaged or missing, although the locations and extent could be identified with [053], [054], [055] and [056] measuring 4.2m to 4.3m in length. A drain base [063] was identified against the exterior wall to the east. Surface [045] was formed of seven large flagstones measuring 3.4m x 1.32m. Surface [046] measured 2.3m x 1m and was formed by five flagstones and was truncated in its east side by a pipe. Surface [047] consisted of two flagstones (measuring 1.45m x 0.7m and 0.8m x 0.7m respectively) forming a wall foundation orientated north-east/south-west, which was part of a later structure (possibly the infirmary), which overlay both surfaces [045] and [046]. To the north of this, two additional walls were also uncovered, possibly related to the use of the building as a hospital.

6.2.2 A NNW/SSE aligned red sandstone wall [048] was located to the centre of the north-east side of the battery and extended for 2.7m. A second wall [049] continued on the same alignment for 4.8m with a north-east/south-west return which extended for a further 7.3m before being truncated by a deposit of concrete around a lead pipe, 1m from the south-west end of the wall. Both walls were constructed of irregular-shaped red sandstone blocks bonded with lime mortar; the initial 6.3m of wall [049] was also constructed of large flagstones, possibly foundations stones for the now removed main construction of the wall. Abutting the northern corner of wall [049] there were also three flagstones creating a surface [051], measuring 2.0m x 1.3m.

6.3 The North-West Area

6.3.1 A series of interior walls, all aligned north-west/south-east and possibly contemporary with the construction of the original battery were exposed in the north-west corner - [058], [059], [060] and [062]. They survived as irregular sections of large red sandstones blocks and lime concrete mortar with only one course exposed and remnants of a mortared surface [061] exposed between [058] and [059]. Both walls and this surface were overlain by a charcoal deposit (064), possibly relating to the fire of 1937, although slag was also found and therefore could also indicate metal-working activity in the north-west corner of the site.

6.4 The Main Entrance

6.4.1 Perpendicular to the central north-west elevation of the battery, a wall [077] constructed of red sandstone and one course in height was exposed. It continued 5.2m to the north-west and probably also continued a little further to the south-east, although this area was not excavated. During the reduction of the main entrance ramp, the remains of a red sandstone wall [079] measuring 3.5m x 0.4m x 0.3m were uncovered. Constructed of irregular blocks, of which only two courses remain, the north-west/south-east aligned wall was exposed below a deposit of made ground. Very little remains of the original surface for the ramp other than a small patch of yellow-white lime mortar and tarmac [083], measuring 1.6m x 1m, which was located to the north of [079].

6.4.2 During the excavation of a service trench to the south of the main entrance, an L-shaped, red sandstone wall bonded with lime mortar [085] was exposed, which may have been one of the original walls of the battery. A

second east/west aligned red sandstone wall [087] was exposed directly to the south extending beyond both sides of the service trench, with a modern made ground between (089)

- 6.4.3 During the ground reduction of the area to the south-west of the external south-west elevation of the battery, the sandstone foundations of an external building were exposed, 2.4m south-east of the entrance. The foundation of this exterior building extended 2.5m from the south-west elevation of the battery. Both frogged and unfrogged bricks were observed within the construction.



Figure 14: Hospital post-excavation plan



Figure 15: Fumigation House, post-excavation plan

7 DISCUSSION

- 7.1 Lamer Island Battery is an unusual example of a privately-funded local coastal defensive measure and, whilst there is no evidence of any earlier battery on the site, it certainly would have provided a flat surface for the mounting of guns, as was done by Fall in his 1781 attack. The previous defensive for the town was the nearby Dunbar Castle, although this had fallen into disrepair long before the late 18th century.
- 7.2 The central building to the Battery, which we can see today surviving as a sunken set of walls, was the hospital building that was constructed in the early 1870s. The building appears in the 1895 Ordnance Survey map along the same alignment and length as the remains we see today. However, looking at the earlier 1854 Ordnance Survey map, there does appear to have been a smaller building in its position prior to this and slightly smaller to the north-east side. The vaults, however, appears to have always been in this position – seen on both the 1854 map and the later 1896 map - and probably served as a magazine store, the subterranean nature of the building ideal from a health and safety point of view. The 1872 hospital building appears to have been constructed to the immediate north-west of the vaults/magazine store and it was probable that, at this time, the doorways, which consisted of two doorways to two of the chambers on the north-west elevation, were blocked with stone. This would have provided additional support to the two-storey hospital building, although we cannot rule out the possibility that one doorway was left open to allow access to the vaults as storage or other accommodation for staff, as it would have been illogical to waste space on the already small site, unless a structural or health and safety issue prevented it. The 1899 plan (see Figure 8) shows that the area above the vaults was used for a bedroom and adjacent washroom to the south side and a small kitchen to the north with a stove installed to the south-east wall – the chimney relating to the stove can be seen in the 1914 photograph (see Figure 9b).
- 7.3 The small room to the south corner of the battery has been described as the Fumigation House, associated with the hospital from the late 19th century onwards. However, a building in this position is seen in both the 1854 and 1895 Ordnance Survey maps, so this structure could well date to the earliest phase of occupation of the battery in the late 18th century. The foundations of a smaller building were exposed outside the Battery abutting the south-west exterior elevation. This building is visible of a sketch plan of 1899 and is indicated as cottages.
- 7.4 At least six Gun Emplacements were identified which relate to the initial use of the building as a Battery. It is almost certain that there were more than six gun emplacements; however remains for these are sporadic. The walls which were located aligned north-west/south-east of the battery – [048] and [049] – suggest that there was a building in this location. As this building is not represented on the later Ordnance Survey mapping for the hospital phase of building, it can only be assumed that this building was associated with the battery phase.

8 CONCLUSIONS

- 8.1 Lamer Island Battery was a civic construction built originally as a defence against privateers in 1781, which was later commandeered as a military defence during the Anglo-French Wars from 1795. Having never fired a single shot, the battery fell into disuse until it was recommissioned to act as a hospital site in 1872, first as a hospital for infectious diseases, then as a war hospital and finally – from 1919 onwards – as a cottage hospital. From the late 1930s onwards, however, the site fell yet again into disuse, the exterior walls of the bastions standing firm, although the interior buildings now completely ruinous. The programme of archaeology works undertaken both in 2007 as part of the CMP, and the later excavations and historic building survey of 2016 - 2017, has gone some way to understanding the remains of this important and prominent structure in Dunbar harbour in advance of its rejuvenation into a visitor centre and experience.

9 REFERENCES

9.1 Bibliographical References

ALGAO 2013 *Historic Building Recording Guidance for Curators, Consultants and Contractors*. http://www.eastlothian.gov.uk/downloads/file/8779/historic_building_recording_guidance_for_curators_consultants_and_contractors_2013.

AOC Archaeology 2007a, *Lamer Island, Dunbar, East Lothian: Conservation Plan*.

AOC Archaeology 2007b, *Lamer Island, Dunbar, East Lothian: Archaeological Evaluation Data Structure Report*. Unpublished AOC Project Design.

AOC Archaeology 2016, *Lamer Island, Dunbar, East Lothian: Archaeological Watching Brief Written Scheme of Investigation* Unpublished AOC Project Design.

Graham, A 1968 'The Old harbours of Dunbar', in *Proc Soc Antiq Scot*, Volume 99, (1966-7), pp 173-90

Miller, J 1859 *The History of Dunbar from the Earliest Records to the Present Time*. Dunbar, p 241

Publicity Dept Town House Dunbar 1964 *The Story of Dunbar: Its History and Traditions*.

Pugh, R J 2003 *Swords, Loaves & Fishes: A History of Dunbar*. Belfast University Press

Scottish Government 2014 *Scottish Planning Policy*, 2014

Scottish Government 2011 *Planning And Archaeology 2/2011*

9.2 Cartographic References

1799	William Forrest	<i>Map of Haddingtonshire</i>
1830	John Wood	<i>Plan of Dunbar from Actual Survey</i>
1854	Ordnance Survey	<i>Haddingtonshire Sheet 6</i>
1895	Ordnance Survey	<i>Haddingtonshire Sheet VII.NW</i>
1948	Ordnance Survey	<i>Haddingtonshire Sheet VII.NW</i>

APPENDIX 1: PHOTOGRAPHIC REGISTER (HISTORIC BUILDING RECORDING)

Black & White Print & Colour Digital Film # 1

Frame	Area	Description	Taken From	Date
1	Hospital	Detail of cobbled surface in front of door to the S side of the SE wall	NW	06/10/2016
2	Hospital	Detail of cobbled surface in front of door to the S side of the SE wall	NE	06/10/2016
3	Hospital	General view	SW	06/10/2016
4	Hospital	Detail of drain cover [021]	SW	06/10/2016
5	Hospital	General view	W	06/10/2016
6	Hospital	General view from the spoil heap	SW	06/10/2016
7	Hospital	General view of the S end of the NW wall	SE	06/10/2016
8	Hospital	General view of the NW wall	S	06/10/2016
9	Hospital	Detail of the far NE end of the NW wall	SE	06/10/2016
10	Hospital	General view of the NW wall	E	06/10/2016
11	Hospital	General view of the NE wall	SW	06/10/2016
12	Hospital	General view of the NW & NE walls	SSW	06/10/2016
13	Hospital	Detail of slit windows to the N end of the SE wall	NW	06/10/2016
14	Hospital	Detail of blocked doorways in the centre of the SE elevation	NW	06/10/2016
15	Hospital	Detail of the blocked doorway in the S end of the SE wall	NW	06/10/2016
16	Fumigation House	Detail of feature [008] in the NE wall	SW	06/10/2016
17	Fumigation House	Detail of excavated features against the NW wall	SW	06/10/2016
18	Fumigation House	General view	W	06/10/2016
19	Fumigation House	General view	S	06/10/2016
20	Fumigation House	General view	E	06/10/2016
21	Fumigation House	General view of S corner	N	06/10/2016
22 – 23	Fumigation House	Detail of blocked feature in the E side of the SE wall	NW	06/10/2016
24	Fumigation House	General view of the SE wall	N	06/10/2016
25	Fumigation House	Detail of the features to the N side of the NW wall	SE	06/10/2016
26	Fumigation House	Detail of the features to the S side of the NW wall	SE	06/10/2016
27	Fumigation House	General view	S	06/10/2016
28 – 29	Fumigation House	Detail of drain feature in the NW wall (W side)	SE	06/10/2016
30 – 31	Fumigation House	General view of the NE wall	SW	06/10/2016
32	Fumigation House	Detail of the far W side of the NW wall	SE	06/10/2016
33	Fumigation House	General view of the W corner	E	06/10/2016
34 – 35	Fumigation House	General view of the SW wall	NE	06/10/2016
36	-	Registration	-	06/10/2016

APPENDIX 2: PHOTOGRAPHIC REGISTER (ARCHAEOLOGICAL WATCHING BRIEF)

Digital Photographic Record

<i>Ref</i>	<i>Area</i>	<i>Description</i>	<i>Taken From</i>	<i>Date</i>
001-002	-	Pre-ex shots	W	13/09/2016
003-006	-	Working shots	W	13/09/2016
007-010	-	Post-ex shots	W	13/09/2016
011-012	Vault 01	West wall	E	13/09/2016
013-014	Vault 01	North wall	S	13/09/2016
015	Vault 01	East wall	W	13/09/2016
016-017	Vault 01	Roof	S	13/09/2016
018-09	Vault 01	Floor	S	13/09/2016
020	Vault 02	East wall	W	13/09/2016
021-022	Area A	Gulley feature [018]	N	13/09/2016
023-024	Area A	Gulley feature [018]	S	13/09/2016
025-029	Area B	General view	N	13/09/2016
030	Area B	Plinth and sink/drain [008]/[009]	S	13/09/2016
031	Area B	General shot [015]	E	13/09/2016
032	Area B	[002] and [003]	E	13/09/2016
033	Area B	South west corner of [002]	N	13/09/2016
034	Area B	Detail of [006]	W	13/09/2016
035	Area B	Paving north-east corner of [002]	SW	13/09/2016
036	Area B	Detail of [015]	E	13/09/2016
037	Area B	General shot [014] and [016]	N	13/09/2016
038-039	Area B	Post-ex detail of [003]	E	13/09/2016
040-041	Area B	Post-ex detail of [006]	S	13/09/2016
042	Area B	Post-ex detail of [004]	W	13/09/2016
043-044	Area B	Detail of [008] and [009]	S	13/09/2016
045-048	Area A	Post-ex general view of area A	N	13/09/2016
049-050	Area A	Post-ex general view of [019]	N	13/09/2016
051-052	Area A	Post-ex general view of [021]	N	13/09/2016
053-054	Area A	Post-ex general view of [020]	N	13/09/2016
055-056	Area A	Post-ex detail of [021]	S	13/09/2016
057-058	Area A	Culvert feature in NW corner	N	13/09/2016
059-060	Area A	Post-ex	W	13/09/2016
061-064	B	General view of area B	N	13/09/2016
065-066	B	Detail of [029]	E	04/10/2016
067-068	B	General view of [029]	N	04/10/2016
069-070	B	General view of [029]	S	04/10/2016
071-072	B	Detail of NE corner view of [029]	S	04/10/2016
073-074	B	Detail of SE corner view of [029]	N	04/10/2016
075-076	B	Accessing the vaults	SW	13/09/2016
077	Vault 2	East wall in Vault 2	W	13/09/2016
078	Vault 2	South wall in Vault 2	N	13/09/2016
079-081	Vault 2	West wall in Vault 2	E	13/09/2016
082-083	Vault 2	North wall in Vault 2	S	13/09/2016
084-085	Vault 2	Floor of Vault 2	S	13/09/2016
086-087	Vault 1	North wall of Vault 1	S	13/09/2016
088-089	Vault 1	West wall of Vault 1	E	13/09/2016
090-091	Vault 1	South wall of Vault 1	N	13/09/2016
092-093	Area A	Removing the initial overburden in Area A	S	20/06/2016
094-095	Area A	After removal of initial overburden in Area A	S	20/09/2016
096-097	Area B	Removing the overburden in area B	S	21/09/2016
098-099	Area B	Removing flower bed in area B	W	21/09/2016
100		Vault door before demolition	W	15/11/2016
101		Vault door before demolition	W	15/11/2016
102		Test pit 1	W	15/11/2016

103		Test pit 1 extended	W	15/11/2016
104		Test pit 2	W	15/11/2016
105		Test pit 3	W	15/11/2016
106		Test pit 3	W	15/11/2016
107		Location area of the 3 test pits	NE	15/11/2016
108		Room 1 flagstone floor	W	17/11/2016
109		Room 1 flagstone floor	S	17/11/2016
110		Room 1 flagstone floor	N	17/11/2016
111		Room 2	S	17/11/2016
112		Room 2	N	17/11/2016
113		Room 3	N	17/11/2016
114		Wall revealed by stripping [048] and [049]	SW	17/11/2016
115		Wall revealed by stripping [048] and [049]	W	17/11/2016
116		Vault roof area after stripping	N	24/11/2016
117		Vault roof area after stripping	N	24/11/2016
118		Vault roof area after stripping	S	24/11/2016
119		Area of structure (infirmary)	NW	24/11/2016
120		Stripped area of service trench	NW	24/11/2016
121-122		[045] overlaid by [047]	NE/S	25/11/2016
123		[046] under [047]	SW	25/11/2016
124		Wall [048]	SE	25/11/2016
125		Wall [049] – NNW-SSE alignment	SE	25/11/2016
126		Wall [049] – NE-SW alignment	SW	25/11/2016
127		Flagstone surface [051] abutting [049]	SW	25/11/2016
128		Flagstone surface [051]	SE	25/11/2016
129		Flagstone surface [052]	SE	25/11/2016
130		Flagstone surface [052]	NE	25/11/2016
131-132		Flagstone surface [054]	NE	25/11/2016
133-135		Flagstone surface [053]	NE/W	28/11/2016
136-138		Flagstone surface [055] and [056]	NE/E/SW	28/11/2016
139		Registration shot	SW/N/NE	28/11/2016
140-141		NW corner of castle with wall [058]		01/12/2016
142		Wall [058]	SE	01/12/2016
143		Wall [058]	SW	01/12/2016
144		Wall [059]	NE	01/12/2016
145		Walls [059] and [060]	SE	01/12/2016
146		Wall [059]	SE	01/12/2016
147		Wall [059]	SW	01/12/2016
148		Wall [060]	NE	01/12/2016
149		Wall [060]	SE	01/12/2016
150		Wall [060]	SW	01/12/2016
151		Wall [058]	NE	01/12/2016
152		Wall [059]	SE	01/12/2016
153		Slot of possible stone surface abutting E of [059]	SE	01/12/2016
154		Wall [060]	SE	01/12/2016
155		General shot of NW corner with walls [058] – [060]	NE	01/12/2016
156		General shot of NW corner with walls [058] – [060]	SW	01/12/2016
157-159		Slot at point where [060] and external wall meet showing that [060] abuts exterior wall	SE, NE and above	01/12/2016
160-161		Shot of drain [063]	NW	01/12/2016
162		Shot of drain [063]	SW	01/12/2016
163		Wall [062]	SE	01/12/2016

164	Wall [062]	SW	01/12/2016
165	Wall A – NW facing side	NW	01/12/2016
166-167	Wall A – SE facing side	SE, SW	01/12/2016
168	Entrance of infirmary	SE	01/12/2016
169	General shot from entrance	SE	01/12/2016
170-171	N corner of infirmary	S	01/12/2016
172	NE wall of infirmary	SW	01/12/2016
173	Drain abutting NE wall	SW	01/12/2016
174-175	E corner of infirmary	W	01/12/2016
176-177	SE wall of infirmary	NW	01/12/2016
178-179	S corner of infirmary	N, NE	01/12/2016
180	Foundation	NW	01/12/2016
181	Corner of structure in S corner of infirmary	N	01/12/2016
182	SW wall of infirmary	NE	01/12/2016
183	W corner of infirmary	E	01/12/2016
184	General shot	S	01/12/2016
185	NW wall of infirmary with vault	SE	01/12/2016
186	Surface in infirmary with angular stones	NE	01/12/2016
186-188	SW corner of infirmary and outer wall	SW	01/12/2016
189	NW wall of infirmary (NW facing side)	NW	01/12/2016
190	Detail shot of [076]	SSW	08/12/2016
191	General shot of [076]	SSW	08/12/2016
192	Detail shot of [077]	SW	08/12/2016
193	General shot of [077]	NW	08/12/2016
194	Detail shot of [077] and wall A	E	08/12/2016
195	Slot showing relation between [077] and wall A	S	08/12/2016
196	Watching brief daybook shot		12/12/2016
197	Excavation of service trench	N	12/12/2016
198	Service trench excavated		13/12/2016
199	North facing side of service trench section shot	N	13/12/2016
200	Small ground reduction in access ramp outside of fort		13/12/2016
201	Wall [079]	S	14/12/2016
202	Wall [079]	NW	14/12/2016
203	Wall [079]	SE	14/12/2016
204	Flagstone surface [078]	S	14/12/2016
205	Test pit 4	NE	14/12/2016
206	Test pit 5	NE	14/12/2016
207	Test pit 6	NE	14/12/2016
208-210	Surface [082]	NE	15/12/2016
211	Surface [082]	W	15/12/2016
212	Surface [082]	NE	15/12/2016
213-214	Surface [082]	W	15/12/2016
215	Surface [082]	NW	15/12/2016
216-217	Working slot	E	15/12/2016
218-220	Surface [083]	NW/W/SE	15/12/2016
221-223	Surface [083]	NW/SW/SW	16/12/2016
224-226	Deposits [080], [081] and [082]	NW/ NE/SW	16/12/2016
227	Working shot of service trench leading to the entrance	NE	16/12/2016
228	Service trench with [084] and [085]	N	16/12/2016
229-230	Working shot of service trench	NE	16/12/2016
231-232	Structure [084]	S	16/12/2016
233	[084] and [085], east facing section	E	16/12/2016
234	[084] and [085] in trench	N	16/12/2016
235	[084]	E	16/12/2016
236	East end of [084] and [085], east facing section	E	16/12/2016
237	East end of [084] and [085] west facing section	W	16/12/2016
238	Detail shot of [084]		16/12/2016

239		Wall [079]	SE	16/12/2016
240		Wall [079] NE facing section	E	16/12/2016
241		Showing [079], [084], [085] and [087]	SW	16/12/2016
242		Detail photo of [084] and [087]		16/12/2016
243		View of [079] NW	NW	19/12/2016
244		NE facing section of [079]	SW	19/12/2016
245		NW corner of [079] leading to the main entrance	SW	19/12/2016
246-247		NW corner of [079] leading to the main entrance		19/12/2016
248-250		Detail photo of [084] and [087]	NW	19/12/2016
251		Service trench outside of fort	S	19/12/2016
252		Service trench outside of fort	N	19/12/2016
253		NW facing section of service trench	SE	19/12/2016
254-257		Surface [082] SW area of infirmary with [080] and [081]	VAR	19/12/2016
258-259		Pre-ex view of trench excavation	VAR	13/01/2017
260		Part of trench excavated to depth	S	13/01/2017
261		Trench in North corner complete	NE	13/01/2017
262		Slab to be removed	E	13/01/2017
263-274		General shot	Var	07/02/2017
275-277		General shot	Var	08/02/2017
278-292		General shot	Var	20/01/2017
293-296		Detail view of flue in SE corner	N	21/02/2017
297		Detail view of flue in SE corner	NW	21/02/2017
298-299		Detail view of flue in SE corner	N	21/02/2017
300		Detail view of flue in SE corner	NW	21/02/2017
301-302		Detail view of flue in SE corner	N	21/02/2017
303-305		Detail view of flue in SE corner	NW	21/02/2017
306-312		Detail view of flue in SE corner	N	21/02/2017
213-324		Detail view of flue in SE corner	N	24/02/2017
325-328		Detail view of flue in SE corner	NW	24/02/2017
329-330		Detail view of flue in SE corner	N	24/02/2017
331-332		Detail view of flue in SE corner	NW	24/02/2017
333-334		Detail view of flue in SE corner	N	24/02/2017

APPENDIX 3: ARCHAEOLOGICAL WATCHING BRIEF CONTEXT REGISTER

Context No	Area	Description
001	B	Overburden with walled area/room Deposit of mid greyish brown loam containing building debris – red brick, tile fragments, stone mortar and modern debris of glass sherds. Fills entire walled area/room c. 10.3m x 6m, maximum depth c.1m
002	B	Flooring of room/walled area B Rectangular cut paving slabs, between, maximum thickness of 0.07m. Limestone. Surviving <i>in situ</i> mainly on the outer edges of the room to the NE, SE and S 0.4m x 0.3m and 0.9m x 0.7m
003	B	Possible post hole Square cut posthole cut into paving slab in west corner of walled area. 0.13m x 0.14m x 0.06m
004	B	Possible posthole Semi-circular cut through paving slab [002] adjacent to SE wall. 0.26m x 0.18m x 0.07m
005	B	Possible entrance to internal storage area Area void of paving slab at possible entrance to internal storage area. 0.6m x 0.15m
006	B	Internal partition wall Linear recess between two paving slabs. Lined at base only with slate on top of rough cut red sandstone blocks. Probably continues towards [007] but truncated by concrete (010). Possibly associated with semi-circular recess [007] on opposite wall. ca. 0.16m x 1.6m x 0.09m
007	B	Possible former internal partition Semi-circular recess in outer wall opposite [006]. 0.30m x 0.18-0.20m
008	B	Bricks and mortar plinth Red brick and mortar constructed plinth also contains rubble pieces of brick, limestone and sandstone fragments in construction. 2 courses high surviving. Abuts outer sandstone wall. White greyish white lime mortar. 0.70m x 0.71m x 0.20m
009	B	Sink/Drain Glazed rectangular sink/drain mortared into floor and abutting outer sandstone wall. Central square opening in base leading to downpipe. Bricks visible through opening as supporting/levelling sink. 0.66m x 0.45m x 0.18m
010	B	Concrete flooring Light grey concrete layer. Levelled to same height as paving slab layer (002) so possibly a later floor repair. Overlies possible partitions [006]/[007]. Pillar/postholes [011] and [012] set into concrete. 8.5m x 3.0m
011	B	Pillar support or posthole for supporting upper floor beams. Circular recess c.0.35m in diameter set into concrete floor layer (010). Has a rectangular further recess within it. Former post impression. Max depth 0.03m
012	B	Pillar support/Post hole Circular recess approximately 0.35m in diameter set into concrete floor layer (010) Max depth 0.03m
013	B	Paved floor layer Irregular shaped surviving area containing angular shaped flat stones set as a floor layer. Central area set at same level as paving and concrete but slopes downwards towards northern end and finishes below the level of the paving.
014	B	Deposit over and around paved floor layer [013] Dark brownish grey silty sand containing occasional red brick/tile fragments and small pebbles and stones. Maximum extent same as [013]
015	B	Clinker compacted levelling layer Dark greyish black compacted layer, possibly clinker/ash layer put down for levelling for floor [013]

016	B	Levelling floor layer Light yellow sand, soft/friable. Main exposure in area is c.1.5m x 1m between paving and cement at SW end of internal area. Some patched visible/extant in paving areas.
017	B	Drilled hole Small hole drilled through paving slab, seems hollow beneath. Diameter 0.05m
018	A	Cobble lined step/threshold to vault doorway/entrance Approximately rectangular area of set cobbles abutting a sandstone wall. Cobbles overlain with a mortar surface and a brick set area in vicinity of the entrance to a vaulted area. Mortar and bricks have a worn concave groove showing tread/wear. c. 3.60m x 0.9m x 0.18m
019	A	Internal brick wall/partition wall, parallel to [020] Red brick constructed wall, internal partition. Bricks 0.24m x 0.12m x 0.08m aligned approximately NNE-SSW. Surviving one course high only. Abutting outer sandstone wall, mortar used to join it onto wall. Extends for 3.90m perpendicular to sandstone wall, then missing section for 3.30m, then surviving wall again for 1.80m
020	A	Internal brick partition wall, parallel to [019] Red brick constructed wall surviving one course high except for one single brick at NNE adjoining end. Mortar bonded. Mortar line running down centre of wall, indicated former course of brick. Wall ends at area of outcropping bedrock.
021	A	Slate lined gully Initially thought to be a paving topped culvert or drain. Slab lifted and slate/shale lined gully beneath it. Curvilinear arrangement of limestone paving slabs. c. 0.5-0.7m in width. Extends from SSW end of area towards NNE terminating at brick wall [020]. Areas of packing cobbles seen along its perimeter in places.
022	A	Cut of pit Possibly soak away pit truncating drain culvert [021]. Approximately oval shape in plan, not fully excavated. Steep, almost vertical sides coming down onto sandstone bedrock irregular base. 1.80m x 1.30m x 0.5m
023		Fill of possible soak away pit [022] Mid greyish brown friable sandy silt, occasional small sub-angular pebbles. Some charcoal and sandstone fragments.
024	A	Cut of linear feature Linear in plan, steep vertical sides, narrowly cut, down onto bedrock base. Aligned NW-SE. Possibly truncated by (soak away) pit cut [022] but could be contemporary with it. 1.10m x 0.5m x 0.55m
025	A	Upper fill of [024] Mid reddish brown friable silty sand containing numerous small-medium red sandstone and stone fragments. 1.10m x 0.5m x 0.3m
026	A	Lower fill of [024] Mid greyish brown loam/sandy silt. Containing numerous sandstone fragments and patches of lime mortar and charcoal fragments. 1.10m x 0.5m x 0.25m
027	A	Cobble and mudstone/shale topped shallow gully Curvilinear gully, cobble and shale/mudstone constructed. Curves around area of outcropping bedrock.
028	B	Mortared block of red sandstone. A layer of mortared block of red sandstone, creating a very hard surface.
029	B	A built, faced hole filled with an upper rubble fill and a layer sandy/clay deposit. This feature coincides with a possible archway in the east facing face of the western wall of Area B. This feature measures c. 1m x 0.90m. Bottom not reached during excavation.
030	B	Rubble A layer of building rubble and general debris including fragments of 19 th and 20 th century pottery, animal bone (bird and sheep) and a dark brown soil. Layer is c.0.8m-0.90m deep
031	B	Fill of [029] A layer of light grey brown clay sand noted towards the bottom of feature [029]. This layer was unexcavated.
032	Vault 1	Layer

		0.02m – 0.05m layer of thick grey mud with 20 th century tin cans and glass inclusions in room 1.
033	Vault 1	Layer 0.02m thick layer of tar which covered c.50% of room 1. Small pieces of glass and wood in the tar. The tar was produced and used for lobster pots and nets.
034	Vault 1	Original floor surface Context in a floor comprising cut flagstones of various sizes. This layer was not broken through so no measurements for thickness were obtained. The floor is flush with the walls. Context is probably the original surface.
035	Vault 2	Modern burnt layer 0.02m – 0.03m thick layer of compacted burnt sand which covered the whole of vault 2. Almost all removed except for an area around the southern doorway. Glass and modern pot finds.
036	Vault 2	Surface Context was a 0.02m – 0.04m thick layer of brown compacted sand and stone. The layer formed an uneven surface which gently sloped down to vault 3. It was broken in several places which allowed for observation underneath. Sand (037) was observed in 3 places underneath [036] and loose brown sand and stone (038) observed in 2 places. No relationship between (037) and (038) recorded. Glass and pot finds.
037	Vault 2	Farmed part of a foundation layer for [036] Loose soft white and brown sand located underneath [036] in room 2 vaults.
038	Vault 2	Foundation layer for [036] Loose brown sand with frequent irregular stone and small slate inclusions in room 2 vault. Occasional 19 th and 20 th century glass and pot finds.
039	Vault 3	Floor surface. Black compact very uneven surface comprising of black burnt sand and frequent stones and block of various dimensions. No thickness recorded. Covers the whole of vault 3. Modern glass, pots and tins.
040	Test Pit 1	Topsoil Topsoil found across the vaults and recorded in test pits 1, 2 and 3 which were excavated to find the top of the vaults.
041	Test Pit 1	Surface Remain of the original pathway which ran across the top of the vaults. A layer of yellow sand and flat irregular shaped sandstones. The side of the sandstone varied between 0.10m x 0.10m – 0.2m x 0.4m
042	Test Pit 1	Layer deposited to cover the vault roof and make a foundation layer for the pathway (041) Red brown sandy loam which was found under [041]. It had occasional stoned and nod finds. 0.1m thick.
043	Test Pit 3	Possible remains of surface Thin layer of sand (0.03m) recorded in the NE corner of Test Pit 3. It is possibly the same material as (041) however it did not cover the whole test pit and not flat red sandstones were recorded within it.
044	Test Pit 3	Same as (042) Brown sandy loam very similar to (042)
045		Flagstone floor Form part of the original surface of a gun emplacement. Comprises of 7 large flagstones. The deposit measures 3.4m long x 1.32m wide. One flagstone extends under the brown sandy loam. The size of the flagstones measure between 1.25m x 0.7m and 0.7m x 0.8m. The flagstones are in good condition. [045] was laid at the same time as [046].
046		Flagstone floor Original surface for a gun emplacement, same as [045]. Comprises of the remains of 5 flagstones. It measures 2.3m long by 1m wide. It is truncated on its east side by a pipe and clearly goes under [047]. The flagstone measures 1.3m x 0.6m. Bonded with lime mortar in its north side.
047		Part of a wall foundation? Comprises of 2 large thick NE-SW aligned flagstones. These overlay [045] and [046]. Although they are not connected they appear to be part of the same structure. The NE stone measures 1.45m x 0.7m and appears broken at its NE end. The SW stone measures at least 0.8m x 0.7m and is shattered cut its SW end.
048		Wall NNW-SSE aligned wall constructed with irregular shaped red sandstone blocks bonded with lime mortar. Same alignment as [049]. 2.7m x 0.5m
049		Wall L-shaped wall. Aligned NNW-SSE for 4.8m and then turns SW-NE for 7.3m before it is truncated by

		concrete and a lead pipe with a gap of 0.8m before continuing for a further 1m. The wall is formed by 2 elements, first along its NNS-SSE axis, this comprises of large flagstones. Second along its NE-SW axis. The initial 1.5m comprises of flagstones, complete and broken. The remaining wall is comprised of irregular shaped red sandstone blocks bonded by lime mortar, similar to [048]
050		Topsoil
051		Flagstone surface 3 flagstones abutting the corner of [049]. The surface measures 2m x 1.3m. The largest flagstone measures 1.3m x 0.75m
052		Flagstone surface – gun emplacement 6 Flagstones. The deposit measures 1.7m wide x 3.05m long. [052] abuts the battery wall. Three of the flagstones are degraded and show signs of damage.
053		Flagstone surface – gun emplacement 14 flagstones aligned NE-SW. The flagstones are various sizes but generally rectangular in shape. A number of flagstones have been damaged along the edge of [053] and at least one in the SW corner is missing. 4.3m long x 4-2.5m wide
054		Flagstone surface – gun emplacement 22 flagstones aligned NNE-SSW. The stones are various sizes but generally rectangular and in good condition. Only one is damaged and one at the NW corner is missing. 4.2m long x 3.6-2.7m wide
055		Flagstone surface – gun emplacement 6 flagstones aligned N-S. The stones are various sizes but generally rectangular and in good condition. Same as [056] but the central flagstones have been removed. 4.2m long x 1.2m wide
056		Flagstone surface – gun emplacement 5 flagstones aligned N-S. The stones are various sizes but generally rectangular in shape. Their condition is variable with several exhibiting signs of decay. One stone, the second one from the south is missing. 4.3m long x 1.4m wide
057		Flagstone floor Remains of a flagstone floor uncovered in room 2 (vaults). It lays directly under (036). Approximately 2.5m of floor was uncovered at c.2.5m one flagstone was found to slope down at 45° angle and continued beyond the loc under (038) and (036). The flagstones used were exactly the same as [034] in room 1.
058		Interior wall Small irregular NW-SE aligned interior wall abutting main exterior wall A in NW corner of castle. It is comprised of large red sandstone blocks (some which appear broken, which suggests much later re-used) and smaller stones where the wall thins at 2m, it has a lime concrete mortar. 3m x 0.4m, only on coursing exposed.
059		Interior wall Small, NW-SE aligned interior wall abutting main exterior wall A at NW of castle. It is comprised of large red sandstone blocks and smaller broken one and has a lime concrete bonding. At least 2.7m long as full extent not exposed and 0.4m
060		Interior wall Small NW-SE aligned interior wall abutting main exterior wall A at NW of castle. It is comprised of large red sandstones blocks and smaller broken pieces and has lime concrete bonding. 4m long x 0.45m wide
061		Mortar Surface
062		Interior wall Small NW-SE aligned interior wall abutting main wall A at NW of castle. It is comprised of large red sandstone blocks as well as smaller broken pieces and has a lime concrete bonding. At least 4m long and 0.45m wide.
063		Drain Drain base at top of structure against curved wall at east 0.65m x 0.45m
064		Burnt deposit Black charcoal rich sandy silt deposit in NW corner overlying walls [058] and [059]. Possibly remains after fire? Slag was also found and related deposits so could be linked to metal working/foundry activity within the castle.
065		Gun emplacement flooring

		Flooring of area abutting NW exterior wall of castle. It comprises of concrete slabs of 0.5m-1.2m long, 0.6-0.7m wide and 0.1m deep, as well as an abutment where it meets the wall.
066		Gun emplacement flooring Flooring of area abutting NW exterior wall of castle. It comprises of concrete slabs of 0.5m-1.2m long, 0.6-0.7m wide and 0.1m deep, as well as an abutment where it meets the wall.
067	B	Stone block and drain 2 courses stone and mortar block 90.73m x 0.73m x 0.18m) to NW of concrete drain (0.62m x 0.42m x 0.20m) abutting NW-SE interior wall. Drain does not appear to touch wall. Drain is not set above [070] but concrete block is. (duplicate of [008] and [009])
068	B	Stone surface Stone surface, extends 2.45m x 4.37m from entrance of fumigation area against concrete slabs and running E-W parallel to inner E-W wall stones 0.10-0.20m and 0.02-0.03m thick
069	B	Concrete slabs Concrete slabs in SW corner of structure in W corner of fumigation area. 6 slabs (1.90m x 1.40m x 0.06m). A 0.12m x 0.12m square cut into centre slab. Similar to [070] but not connected. (Duplicate of [002])
070	B	Concrete slabs – paving area Concrete slab along the inner wall of the fumigation area, along NW-SE wall and NE-SW wall. Rectangular cut slabs. (Duplication of [002])
071	B	Interior structure Stone and mortar interior structure abutting outer wall in S corner of fumigation area. 6-7 courses remaining. 2.45m x 1.55m x 1.90m
072	B	Partition Linear recess between slabs and cut into wall in line with similar cut on opposite wall. Ground 1.15m x 0.15m and along wall 1.65m x 0.20m. Cut is visible along length of outer wall. (Duplicate of [007] and [006])
073	B	Interior wall Red sandstone and lime mortar NE-SE facing interior wall, 0.85m wide, 10-12 courses high, 0.93m entrance with recess which appears to be opposite/in line with [072]
074		Vault Rectangular cut into ground below [073] and within fumigation area. Stone walls, 4 courses, 0.67m deep
075		Concrete and red sandstone flooring at entrance Concrete and stone flooring at entrance of fumigation area. 0.95m x 1.0m
076		NW-SE interior wall NW-SE red sandstone wall, coarse about 0.35m x 0.40m x 0.10m. 1 course exposed, abutting NE-SW interior wall – NE-SW return mostly under red/brown sand, extent cannot be determined. Limestone mortar. NW-SE wall – 2.43m NE-SW wall – 1.0m exposed
077		SE-NW interior wall SE-NW wall perpendicular to Wall A extending to NW and in line with SE-NW wall on ramp. Red sandstones and limestone/cement mortar abutted by wall A. Extends past wall A but only 1 course exposed.
078		Flagstone surface Uncovered during ground reduction in front of the infirmary. It comprises of 3 flagstones and together they measure 0.6m x 0.5m x 0.08. [078] lies directly over sand and below a deposit of made ground. Possibly the remains of a larger surface which has since been robbed.
079		Wall NE-SW aligned L-shaped wall which extends under the main entrance ramp and the small access ramp running along the western wall. The observable remain of the wall measure at least 3.5m long, 0.4m wide and 0.3m high. The wall was under a deposit of made ground. [079] is constructed of irregular blocks of red sandstones bonded by lime mortar. 2 courses are visible.
080		Foundation deposit on which the flagstones [002] were laid The remains of a white lime mortar surface observed and recorded in the SW area of the infirmary. It was observed continuing directly under the flagstones and overlying a compact brown yellow sandy deposit (081). 0.05m thick

081		<p>Deposit</p> <p>Compact brown yellow sandy deposit which was observed and recorded in the SW-W area of the infirmary. It was approximately 0.05m thick and possibly may have extended across the entire floor. It may have been deposited in order to create a level surface for the mortar (080) and the flagstones to be laid.</p>
082		<p>Original floor surface</p> <p>The original floor surface of the infirmary. It was essentially comprised of very compact white-yellow lime mortar. Along the S-SE area of [082], two lines of red sandstone bricks were integrated into the surface and between these lines were observed occasional large flagstones included within the surface. Throughout [082] frequent slate and random red sandstone blocks were observed.</p>
083		<p>Possibly the remains of the original surface for the ramp.</p> <p>Uncovered during the reduction of the ground level for the ramp. It was a small surface consisting of compact yellow white lime mortar with small patches of tarmac which were overlaying and cemented on top of it.</p>
084		<p>Original wall</p> <p>Corner of NE-SW aligned wall, very likely the same as [079]. It is constructed of two courses of irregular shaped blocks and bonded with lime mortar. Appears to be connected to wall [087]. The wall extends NE. 0.18m x 0.40m x 0.50m</p>
085		<p>Original wall</p> <p>Appears to be the remains of an L-shaped wall which extended beyond the NW side of the trench. Constructed of red sandstone, bonded with lime mortar. Damaged during excavation of service trench. 0.2m x 0.3m x 0.26m</p>
086		<p>Foundation layer deposited to allow the construction of [082]</p> <p>Sandy gravel deposit observed under surface [082] in the areas where it has been damaged.</p>
087		<p>E-W wall</p> <p>E-W aligned wall, extends beyond both sides of service trench. Constructed of red sandstone, irregular shaped blocks, bonded with lime mortar. 2 courses visible. Same alignment and same date as [085]. 0.2m x 0.6m x 0.4m</p>
088		<p>Deposit</p> <p>Deposit of made ground found within this area of the fort. Due to the nature of the site, its extent is unclear, but measures at least 0.2m thick. [088] was recorded in section drawings 4 and 5 and an approximate extent was recorded in plan drawing 3.</p>
089		<p>Modern Layer</p> <p>Deposit of made ground. It appears to be a modern 20th century deposit as a plastic straw was found in the deposit between [085] and [087]. Unfortunately due to the nature of the site, it is not clear how far this extends across the site.</p>
090		<p>Rubble from [085]</p> <p>Small layer of demolition rubble from [085]. It extends NE from [085] and comprises of red sandstone and crumbled lime mortar. Only observed on the NW side of the service trench.</p>
091		<p>Re-deposited natural</p> <p>Layer of re-deposited natural observed in the NW side of test trench. It also overlies the remains of wall [085]. Comprises of broken red sandstones.</p>
092		<p>Deposit</p> <p>Layer of black burnt cinder found lying over the remains of wall [079] 1.4m long x 0.1m thick</p>
093		<p>Rubble deposit</p> <p>Rubble deposit observed lying over wall [079]. It comprises of red sandstones and lime mortar, the same construction material as [079]</p>
094		<p>Rubble deposit</p> <p>Located between walls [084] and [087]. It comprises of yellow lime mortar with red sandstones, the same building material as both walls.</p>

APPENDIX 4: ARCHAEOLOGICAL WATCHING BRIEF DRAWING REGISTER

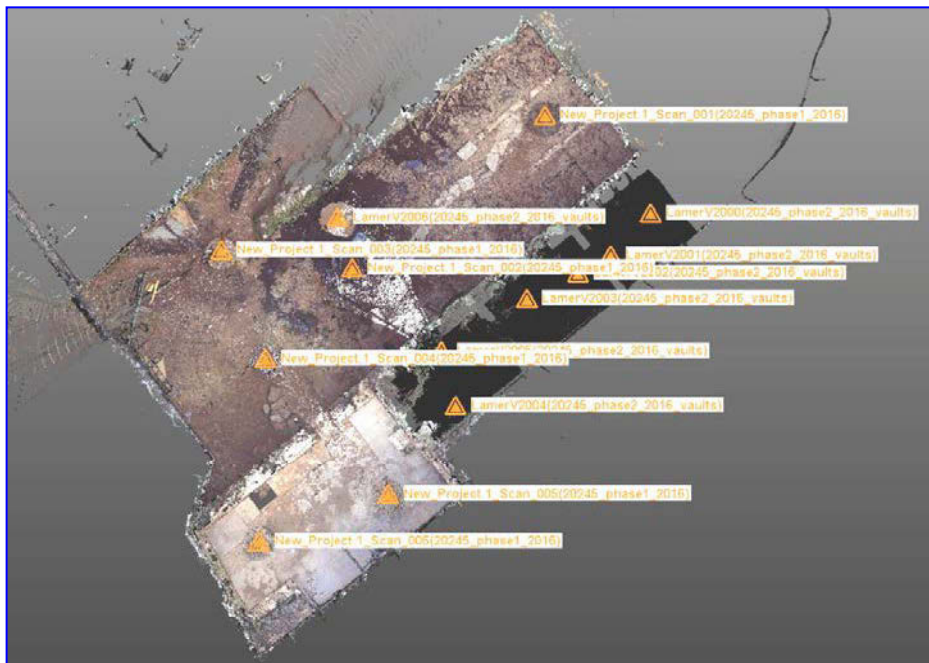
<i>Drawing No</i>	<i>Description</i>	<i>Scale</i>	<i>Date</i>
001	Plan of area showing [058] - [062] and [064] - [066]	1:100	02/12/2016
002	Plan of infirmary showing location of [082], [081] and [080]	1:50	15/12/2016
003	Plan showing location of wall [079], [084] and [085]	1:50	16/12/2016
004	Section SE facing [084], [085] and [087]	1:10	19/12/2016
005	Section NE facing [079]	1:10	19/12/2016
006	Plan showing [082] with deposits [080] and [081] removed	1:50	19/12/2016

APPENDIX 5: HISTORIC BUILDING RECORDING MEASURED SURVEY RECORD

The measured survey of the Lamer Island Battery Cellars was undertaken using a Faro Focus 3D laser scanner. The Focus 3D scanner is a phase comparison system, capable of full dome scanning at ranges of ca. 0.5m to 50m and at resolutions of up to 92 lines per degree. Scanning was undertaken at the battery using resolutions as recorded below yielding a typical point-cloud resolution of between 6.136mm at 10m from the instrument. Overlapping stations mean that some of the site is scanned at a greater resolution. The survey was controlled using spherical targets, located using a Trimble S6 total station with site control provided by a Trimble R6 GPS using the “vrs now” service. Extra detail was surveyed using the total station in the field.

The laser scan data was registered in Trimble Realworks v.10.0. The site drawings were produced using Rhino 4.0 and AutoCAD LT 2009. Orthoimages were created using Pointools View Pro v1.8.

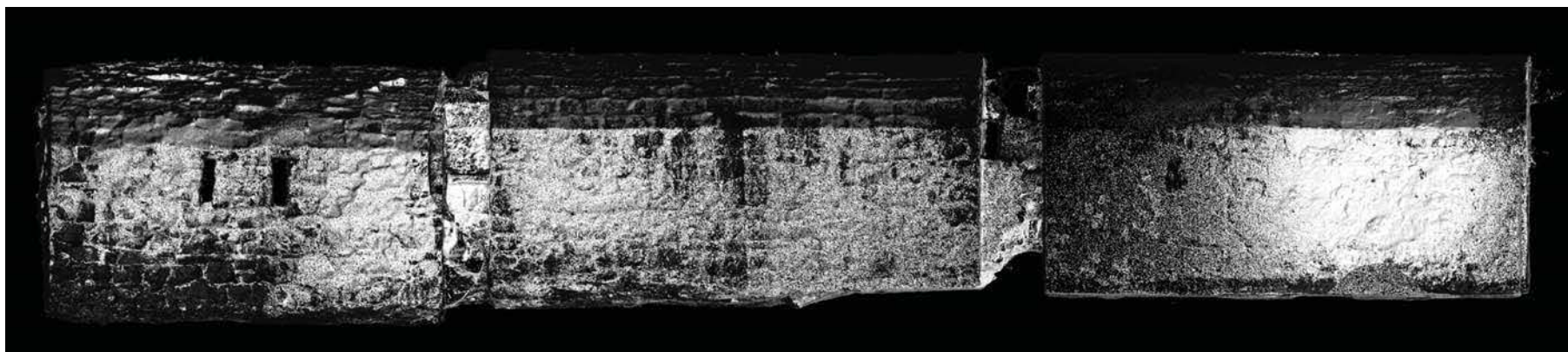
STN number	Number of Points	Resolution	Quality
Phase 1:			
New_Project.1_Scan_001	23,623,036	1/4	4x
New_Project.1_Scan_002	21,832,772	1/4	4x
New_Project.1_Scan_003	20,543,837	1/4	4x
New_Project.1_Scan_004	21,670,532	1/4	4x
New_Project.1_Scan_005	25,831,272	1/4	4x
New_Project.1_Scan_006	26,467,707	1/4	4x
Phase 2:			
LamerV2000	43,551,913	1/4	4x
LamerV2001	43,580,876	1/4	4x
LamerV2002	43,533,307	1/4	4x
LamerV2003	43,502,396	1/4	4x
LamerV2004	43,409,989	1/4	4x
LamerV2005	42,657,555	1/4	4x
LamerV2006	20,295,220	1/4	4x



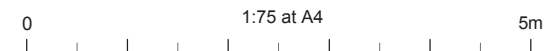
Key plan showing the location of laser scan survey stations



Ortho-image of the north-west vault Interior elevation, using intensity values and lighting



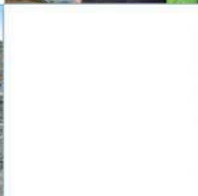
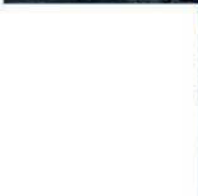
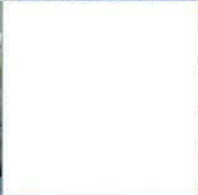
Ortho-image of the south-east vault interior elevation, using intensity values and lighting



Ortho-images of the vault interiors

APPENDIX 6: DISCOVERY & EXCAVATION IN SCOTLAND (DES) REPORT

LOCAL AUTHORITY:	East Lothian Council
PROJECT TITLE/SITE NAME	Lamer Island Battery, Dunbar
PROJECT CODE:	AOC 20245
PARISH:	Dunbar
NAME OF CONTRIBUTOR:	Diana Sproat & Anne-Aymonne Marot
NAME OF ORGANISATION:	AOC Archaeology Group
TYPE(S) OF PROJECT:	Archaeological Watching Brief; Historic Building Recording
NMRS NO(S)	NT67NE 53
SITE/MONUMENT TYPE(S):	18 th Century Battery; Isolation Hospital
SIGNIFICANT FINDS:	N/A
NGR:	NT 68113 79358
START DATE (this season)	13 th September 2016
END DATE (this season)	24 th February 2017
PREVIOUS WORK	None
MAIN (NARRATIVE) DESCRIPTION:	<p>AOC Archaeology Group was commissioned by the Dunbar Harbour Trust to undertake an archaeological watching brief on the excavation of the former medieval battery of Lamer Island in Dunbar East Lothian, prior to and during consolidation works on the site. The work follows on from a Conservation Plan undertaken by AOC in 2007 and a test pit survey undertaken in June 2016 which discovered a series of wall foundations, flagstone floors and formation levels together with some 18th and 19th century pottery sherds. An element of historic building recording was also undertaken of the exposed vaults, which was discovered after the removal of blocking of the main entrance to it to the south-east side of the battery. The excavations also uncovered the base of the previously obscured walls to the centre of the battery as well as the small room to the south corner. The former battery was re-used in the later 19th century as a hospital, which consisted of the main two-storey block to the south-east of the structure with its associated vaults (a former magazine store) also re-used, together with a large building to the south corner which was used as a fumigation house for the hospital. The excavations exposed a number of original features and the original floor levels of all three of the structures. Excavations to the north of the site identified remnants of walls most probably related to the Hospital building as well as six gun emplacements in good condition. The excavations to the main entrance to the exterior south-west side of the battery entrance identified the foundation of a small structure, probably cottages for the hospital.</p>
PROPOSED FUTURE WORK:	None.
CAPTION(S) FOR ILLUSTRS:	None
SPONSOR OR FUNDING BODY:	Dunbar Harbour Trust
ADDRESS OF MAIN CONTRIBUTOR:	AOC Archaeology Group, Edgefield Industrial Estate, Loanhead. Midlothian EH20 9SY
EMAIL ADDRESS:	admin@aocarchaeology.com
ARCHIVE LOCATION:	Archive to be deposited in NMRS



AOC Archaeology Group, Edgefield Industrial Estate, Edgefield Road, Loanhead EH20 9SY
tel: 0131 440 3593 | fax: 0131 440 3422 | e-mail: admin@aocarchaeology.com

www.aocarchaeology.com