

# Phoenix Park Magazine Fort Assessment of loose stone



GIACOMETTI & BARRY

21/07/2020

AP2010

15E0540

archaeology plan  
HERITAGE SOLUTIONS

**SITE NAME**

Magazine Fort, Phoenix Park, Dublin 8

**CLIENT**

Office of Public Works, Jonathan Swift Street, Trim, Co. Meath

**RMP**

DU0018-0719; also RPS 6896

**PLANNING**

N/a

**LICENCE**

15E0540

**PROJECT REF**

AP2010

**REPORT AUTHORS**

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**DATE**

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**ABBREVIATIONS USED**

DoHLGH	Dept. of Housing, Local Government & Heritage
NMI	National Museum of Ireland
NMS	National Monuments Service
OS	Ordnance Survey
RMP	Record of Monuments and Places
RPS	Record of Protected Structures
NIAH	National Inventory of Architectural Heritage
LAP	Local Area Plan

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Exterior ravelin gate, from Ray cullen 2006 (Flickr), showing former external railings and railing plinths

# Introduction

## Aims and methodology

The aim of this project was to assess the loose fragments of masonry distributed throughout the Magazine Fort to establish whether some or all derived from the fort, and in particular whether any or all of the fragments belonged to the demolished Duke of Dorset gate. The gate was partially demolished in the c. 1980s to allow large vehicles to enter the fort.

There is a considerable amount of material in storage and in piles around the fort complex. The material was mapped and inventoried by each pile of stone or pallet. A visual inspection

of the outermost elements of each pallet and pile was made. Stone was generally not moved as it was not safe to do so without mechanical help. The limited amount of space in Building C (Cooperage & Wagon Shed) meant that stone would have to be placed from one pallet to another. Therefore, while the elements found are listed below, the list is not exhaustive and is instead an indication of the material available.

There were a small number of pallets cling-wrapped with A4 sheets of paper noting a location and number. This suggests that an inventory was carried out at some point in the past. The nomenclature was not clear (for ex-

Duke of Dorset gate today



ample “Back Yard”) and the A4 sheets were loose, some found on the floor. Where possible the old number is noted in the inventory below.

Most of the granite in storage may not be related to the gate but is rather from demolition of, modification to, and failing of architectural elements from elsewhere in the fort. Where it was possible to establish where the masonry was from, the inventory lists the location. For example, “step”, “parapet”, “railing”, “cavalier step”.

The interpretation of the material in the store may continue to evolve as more work is done on the fort and more archive sources are traced. For example, a set of pillars of bollards made little sense initially and were presumed to originate from outside the Fort but were later interpreted using an excerpt from the 1861 map reprinted in McCullen, 2015.

## Background

The Phoenix Park Magazine Fort is an impressive mid-18th century fortification situated in the south of the Phoenix Park, near the Islandbridge Gate, in Dublin 8.

In 1734 Lord Lieutenant Sackville, Duke of Dorset ordered the construction of a powder magazine in the Phoenix Park and an initial sum of £2,300 was made available for the project. Part of the impetus for the construction of the fort was the need for safe store for gunpowder. The Powder Tower in Dublin Castle had almost exploded during a fire at the castle in 1684, after which it was moved to a flanker at the Royal Hospital of Kilmainham (McParland 2001, 140). The relocation of the powder magazine to the Phoenix Park reduced the risk of large-scale damage in the event of an accident, while keeping the valuable stores in easy reach of Dublin Castle and the Royal Barracks (ibid, 4), and other nearby military institutions near the Phoenix Park.

The site selected for the fort was a hill with commanding views south across the Liffey valley, and across the river to the Dublin Mountains, and called Thomas’ Hill on the first-edition 6-inch map (OS 1837). Thomas’ Hill

was the site of an early seventeenth-century house built by Sir Edward Fisher c. 1611 (Litton-Falkiner 1901, 470). Fisher’s dwelling was set in substantial grounds and included 300 acres of land and 60 acres of woodland, known as Kilmainham Wood. His holding became Crown property in 1618, and from at least 1619 the house was known as ‘the Phenix’. The Phoenix House became the principal residence of the Chief Governors of Ireland until 1665, and its occupants included the Earls of Strafford, Henry Cromwell, and the Duke of Ormond (Ibid, 470-1). The house was augmented by its owners, including the addition of stables, an additional wing, and a chapel (Ball 1901, 182). Ormond’s most significant achievement was the development of the landscape around the house. He purchased lands contiguous to Phoenix demesne enlarging the holding to above 2000 acres and commenced the construction of a stone wall emparking the lands for deer (Litton-Falkiner 1901, 476).

By 1734, when the Lord Lieutenant decided to build the Magazine Fort, the viceregal residence had long ago moved to Chapelizod (in 1665) and the Phoenix House had been demoted to a residence for the Lord Lieutenant’s staff. In 1719, for example, it was occupied by an official with the title ‘Gentleman of the Horse’ (ibid, 473). The house was completely demolished during the construction of the fort, and the building was supposedly used as a quarry for stone (Litton-Falkiner 1900-2, 473; McCullen 2015, 4), but there is no evidence of any stone or brick of the Phoenix House being re-used anywhere in the Magazine Fort (Giacometti 2015, Gleeson 2017).

The Magazine Fort was designed by Irish Ordnance military engineer John Corneille (Casey 2005, 306). Construction was started in 1734 and completed in 1736 (McParland 2001, 140). Corneille’s design was for a bastioned fort, a form whose origins lay in early modern Europe. The development of artillery from the 1400s had a profound impact on military architecture. Defences came to include thick earthen ramparts to absorb the shock of gun fire and wide platforms with space to mount cannon (Barrass 2011, 2). Bastioned forts first appeared in the first quarter of the sixteenth century in the north of Italy, and they remained a mainstay of

military architecture into the nineteenth century (Kerrigan 1995).

The fort is quadrilateral in plan with demi-bastions on each corner. Its ramparts are thick stone-faced earth and rubble banks, and it is surrounded by a flat-bottomed dry ditch. The main gate to the fort had a date inscription of 1736 on the keystone and a Latin inscription above stating it was constructed during the reign of George III by Lord Lieutenant Lionel Sackville, Duke of Dorset (the gate was dismantled in c. 1980 and these fragments are stored in the cooperage/wagon shed).

In addition to the ramparts, the earliest building at the site were the powder magazines. These have large brick vaults and incorporate complex ventilation systems within their thick brick walls. Two of the magazines are original to the fort, and the first documentation of powder and shot supplied to the fort dates to 1738 (Kerrigan 1995, 136, cited in Arnold 2008, 7). Gunpowder was produced locally during the 18th century, for example at the Kilmatead Powder Mills in Clondalkin (SDLLS 2013). The magazine building was expanded in 1758, when the Duke of Bedford (Lord Lieutenant) requested the construction of an infill between the two original valued magazines (McCullen 2015, 4) designed by Thomas Eyre, Surveyor General. The Magazine Store design and engineering are heavily influenced by the 17th century work of Sebastien le Prêtre de Vauban, Chief Engineer to King Louis XIV of France (McParland 2001, 140; Gleeson 2017, 72-4).

One of the earliest depictions of the fort is on Roque's 1756 map of Dublin. The map shows the original rampart line with circular towers protruding from each corner. The fort is surrounded by a ditch which is crossed by a causeway leading to its east gate. Four buildings are depicted in the interior: the two magazines enclosed by a boundary wall, and two other structures either side of the entrance near the east wall. Brown's map of the Phoenix Park (1789) shows the magazine buildings and the drawbridge accessing the fort.

The fort was surveyed in 1793 by George Armitage. The survey shows the original ramparts with five internal buildings: (i) the magazines,

(ii) an ammunition magazine, (iii) officers' rooms, (iv) a guard room and (v) a sentry box. The survey shows a howitzer gun protecting the entrance, which is accessed by a drawbridge over the ditch. It depicts ramps accessing the ramparts at the NE, SE, and SW bastions, and watchtowers at the corner of each bastion.

An extensive programme of renovation took place at the fort between 1793 and 1801 perhaps reflecting the threat imposed by the French Revolutionary Wars. During this phase, the ramparts were widened at the bastions to accommodate gun emplacements and four corner cavaliers, the parapet was raised, and a stepped parapet walkway was added (Giacometti 2015). These alterations considerably altered the fort and greatly improved its defensive nature.

Possibly as part of these works, a ravelin or barrack block was added in 1801 to the east of the fort. The addition was designed by Francis Johnston (Casey 2005, 305), and comprised buildings arranged in a V-shape that housed quarters for sergeants, officers, and soldiers, as well as offices, a guard room and a cookhouse (Arnold 2008, 10). The fort continued to develop in a piecemeal fashion throughout the 19th century. During this period additions include a cooperage, cooperage stores, a wagon shed, a blast wall, an engine house, and stores (Arnold 2008, 8). Dated plans housed in the Military Archives provide 19th century dates for the construction of a new wagon shed (1875), a shifting room (1877), and an exam room/laboratory (1878) (*ibid*, 9). Another phase of building occurred at the turn of the 20th century with the addition of an ablution rooms, toilets, a women's wash-house and a coal store (*ibid*, 9, 11, 13). Circa 1903 plans were drawn up for the conversion of the cavaliers for use at guncotton stores. The fort was handed over to the Irish Army in December 1922 (McCullen 2015, 13). Other 20th century additions to the fort include the replacement of the NW cavalier with a concrete cordite store, the construction of a mass concrete sentry box, and an iron reception shed/bakery c.1921 (Arnold 2008, 7, 10).

The Magazine Fort was raided twice during the 20th century. On Easter Monday 1916 a failed attempt was made to blow up the fort, acting as

a signal for the Rising. Another raid on the fort took place on 23 December 1939, when the IRA attacked with the aim of capturing munitions. The raid was initially successful but most of the stolen arms were recovered in the days following (McCullen 2015, 13). The fort was managed by the Irish Defence Forces until 1988, at which point the Commissioners of Public Works took over ownership (Gleeson 2017, 6).

## Previous research on the fort

Unpublished reports and surveys of the Magazine Fort include a statement of significance prepared by Paul Arnold Architects in 2008, a comprehensive topographical survey by BPM Surveys Ltd in April 2008, a historical report on the fort by John McCullen in 2015, a detailed archaeological assessment and survey of three of the fort bastions by Giacometti and Campbell in 2016, and a thesis on the Magazine Stores and their conservation with an emphasis on brick by Pauline Gleeson in 2017.

Two unlicensed programmes of metal detection have been carried out near the fort. One of these in 1984 (NMI Topographical File IA/136/84) uncovered a cache of military equipment near the fort that included 18th century musket balls, an 18th century Scottish lead token, 19th century military uniform buttons, an eyelet-type fastener, a bone spoon and a horse-harness ring. It appears these were taken from the backfill of a pipeline being archaeologically-monitored by Margaret Gowan (NMI Files). The second is documented by McCullen (2015, 7) and relates to the discovery of a cannon now in Collins Barracks (no Topo file ref). There is no other record of the investigation and according to Lar Joye in the NMI the cannon in question originated from a ship rather than a fort (pers. com. 2016).

Archaeological testing was carried out at two locations in the rampart in 2010 (Johnston, unlicensed) which found relatively little of interest. A second programme of archaeological testing was carried out in 2015 in three locations of the rampart and identified three phases of rampart construction (Giacometti 2015, License 15E0540). A subsequent programme of archae-

ological monitoring (Giacometti 2016 & in prep, License 15E0540) uncovered further detail about the three phases of construction in the north-western demibastion, and documented military artefacts found in the Magazine Stores.

## Archaeological significance

The Phoenix Park magazine fort is a Recorded Monument (RMP DU0018-0719) and Protected Structure (RPS 6896). The 2008 Statement of Significance notes that it is one of the major surviving magazine forts in the country and, on the basis of its architectural, historical and technical aspects, assigns the fort complex a 'National' rating (Arnold 2008, 1-15), further noting that the fort's highly recognisable form makes it one of the Phoenix Park's most important landmarks (ibid).

From an archaeological point of view, however, the fort forms a key element of the wider archaeological landscape of the Phoenix Park (RMP DU018-007---), which includes the 17th century deer park and the site of the 17th century Phoenix House (RMP DU018-0713), as well as numerous other archaeological monuments such as the nearby abandoned star fort ('Wharton's Folley'). It is also set within the wider historic military quarter of west Dublin which includes military and institutional buildings both within and outside the Phoenix Park including the Royal Hospital Kilmainham, Royal Infirmary, Collins Barracks, Ordnance Stores, etc. This setting enhances the archaeological significance of both the Magazine Fort and the Phoenix Park, and consideration should be given to the archaeology and landscaping of the areas surrounding the fort in future plans for the Phoenix Park.

Another key factor of national archaeological importance is the role the fort played in Irish independence, from symbol of the British military presence in Ireland to site of Nationalist struggle at key moments in history. In 1882 the Invincibles (Fenians) assassinated the British secretary Lord Frederick Cavendish nearby; in 1916 the Magazine Fort was captured by rebels and failed to explode properly to signal the beginning of the Easter Rising; in 1939 the IRA stole a huge quantity of arms in the Christmas

Raid; and in 1939-46 massive bread ovens still visible in the fort supposedly baked for soldiers during the Emergency, but may have also had a more sinister role related to the manufacture of phosphorous weapons (Myles pers.com. 2016). Thus, the physical survival of the 18th century fort into modern times, as well as the 20th century modifications, graffiti and bullet holes, form part of the fort's national archaeological importance. Great care must therefore be taken in any future programme of conservation not to erase these 20th century interventions in a misguided attempt to return the fort to an earlier-looking aesthetic.

Gleeson (2017, 18) sets out the factors that make the Phoenix Park magazine fort a national

- if not international - archaeological monument: 'the rarity of the monument, its setting within the internationally important Phoenix Park, its wider connection to military infrastructure of Dublin in the same period, its early use of brick in wide spanning structures, its design associated with Corneille, Eyre, Johnson and de Vauban and its role on Easter Sunday 1916'. Similar forts in other countries have become UNESCO World Heritage Sites, and at the very least the Phoenix Park Magazine Fort should be treated as both a National Monument within the meaning of the National Monuments Acts 1930-2014, as well as a critical component of a wider archaeological landscape of national significance that encompasses the Phoenix Park as a whole.



Photograph from 1974 showing bride in front of Duke of Dorset gate, courtesy of Mr. Cunningham, caretaker. From D. Byrne



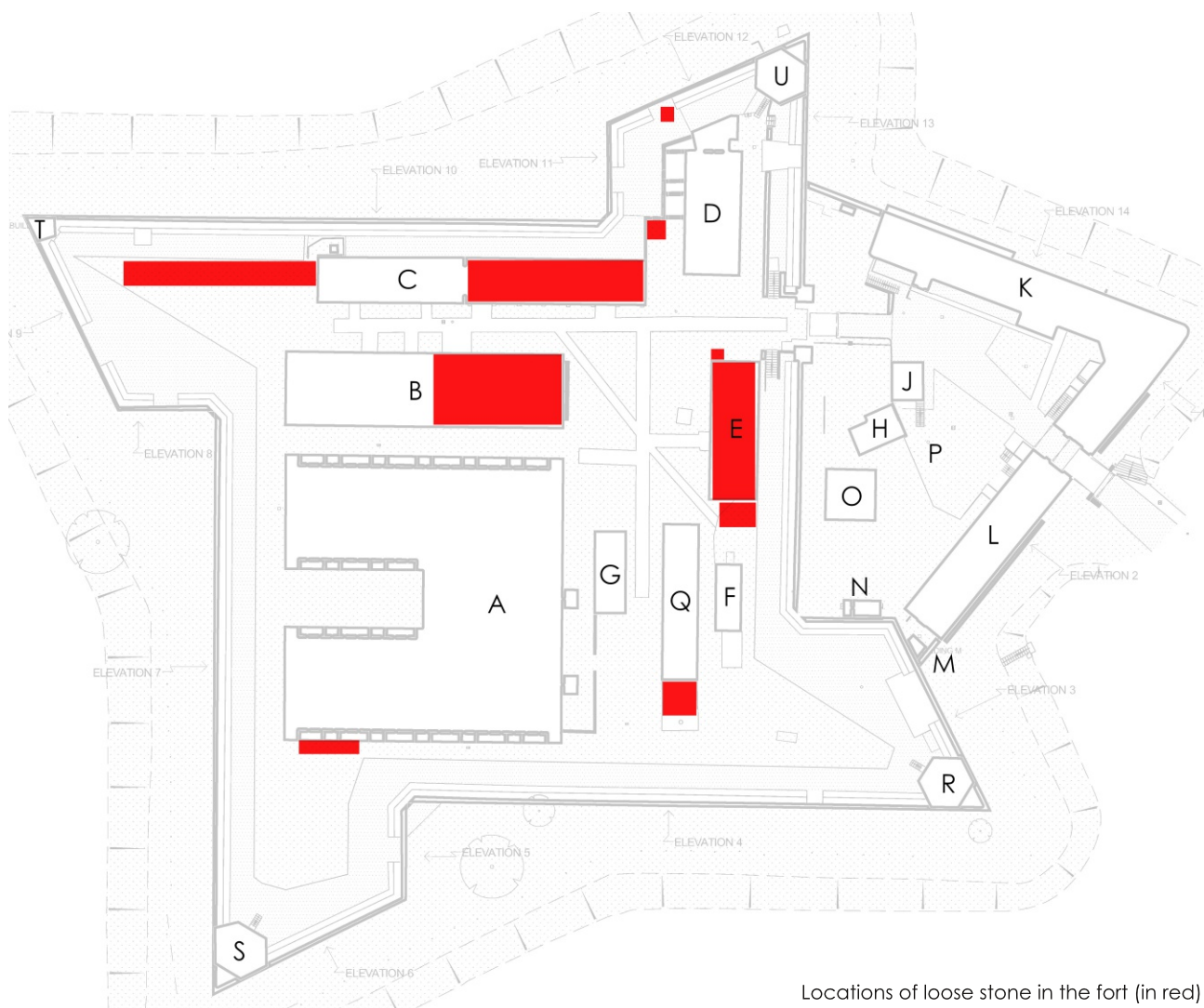
# Inventory of loose stone

The pallets have been inventoried as follows:

- G: Granite
- L: Limestone/ Calp limestone
- RC: Ceramic ridge tiles (roof capping)
- S: Slate
- GR: Iron railings set into granite
- Gate: Duke of Dorset gate elements
- PG: Possible gate elements
- M: Mixed (usually brick/rubble mortared to limestone or granite elements)

Pallets and piles were noted in the following locations:

- Building C (Wagon Shed, East side)
- Building C (West of)
- Building E (Wagon Shed, South side)
- Building E (South of)
- Building B (Bakery/Reception Shed)
- Magazine A (South of)
- Traverse (South of)
- Coal Shed west of Building D
- Building E (North of)
- Area D Cannon Emplacement



Locations of loose stone in the fort (in red)



 Slate	 Railings/roof fixtures with Granite
 Granite	 Gate and possible gate elements
 Calp limestone	 Mixed pallets usually including brick

## Building C- Wagon Shed

Pallets in Building C were numbered from 1 to 45, starting at the eastern end dividing wall and south facing entrance. At the entrance a single granite stone is possibly from the gate.

- Pallets 1-4, 5, 7, 9, 10, 13 and 16 contain roof slates. Pallet 11 (RCS) contains ceramic ridge tiles and slates.
- Pallet 8 (G): granite with flat and dressed pieces, could be pavers.
- Pallet 14 (GR): granite railing bases and one rectangular piece with a cut-out at one end, possibly capping a drain.
- Pallet 15 (M): a mix of rubble, brick and granite
- Pallet 17 (GR/PG): granite railing bases and possible gate slabs
- Pallet 18 (GATE): (formerly 18) dedication stone in 2 fragments reading EXTRUCTA IMPER ANTE GEORGIO SECVNDO ; REGIS LOCVM TENENTE LIONELLO SACKVILLE ; DVCE DORSETIAE. Possible reverse of same; triangular stone similar to one at east entrance; chain or wreath across a yellow limestone keystone (possibly not from the Fort or is the reverse keystone); date key stone MDCCXXXVI

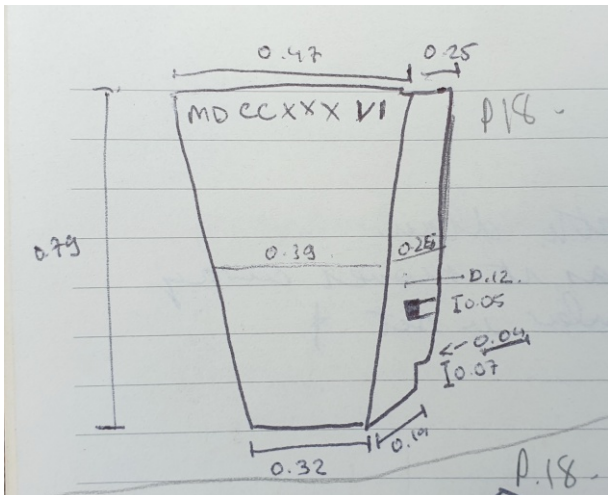
Above: Building C pallet key



Above: right side of gate dedication stone, pallet 18



Below: left side of gate dedication stone, pallet 18



Left: sketch of dated keystone, pallet 18

Below: dated keystone, pallet 18





Pillar, possibly from gate, pallet 24



Yellow granite with ridges, pallet 26



Possible cavalier step, pallet 29

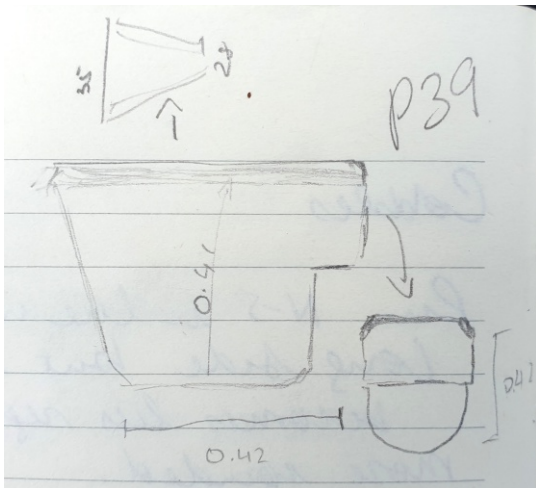


Comparative example of in situ cavalier step

- Pallet 19: Vase/urn fountain stone
- Pallet 20 (G): Railing bases and flag stones with very white (marble-like) elements
- Pallet 21 (PG): (Formerly 21) Very white pieces, lumps of granite smoothly worn - possible road surface under gate or drainage
- Pallet 22 (PG/L): Straight sides, some dressed granite, some limestone
- Pallet 23 (PG): (Formerly 23) Possible arch pieces, white granite and one limestone piece
- Pallet 24 (M): brick, mortar with granite resembling octagonal pillars and flatter pieces. The pillars may originate from the front and rear of the gateway from the ravelin into the Fort
- Pallet 25 (PG/L): One piece of granite - flat flagstone under limestone boulders - may be the reverse of the gate
- Pallet 26 (PG): Possible gate arch piece, one rectangular block with ridges in yellow granite, 0.6 long, 0.2 wide
- Pallet 27 (PG/M): Granite attached to brick with a lip. Block of granite - possible gate sides. 1 angular piece of highly polished white granite (marble looking). One long flat granite block with sloped side.
- Pallets 28 (G): three stacked pallets with long flat elements. One or two with sloped edges. One piece for covering a drain. Large lumps of blue mortar. Some pieces appear to match - possible paving.
- Pallet 29 (G): Mostly long pieces, possible kerbs/surfaces/drain ends. One yellow block which may be related to pallet 26 (0.20m wide). One large rectangular block 0.6 x 0.3 x 0.3m. One piece with a lip and metal inserts - may be basal step in cavalier, and possibly included a notch of a drain.
- Pallet 30 (PG) (Old number 20): One large arched piece, quite rough, maybe a bench or part of the reverse gate arch - might be damaged. One long straighter piece 0.3 x 0.3 x 1.4m - may be related to same above in pallet 29. One large limestone flag. Otherwise flatter pieces with blue mortar.
- Pallet 31 (G): Large boulders, one dressed face, some are likely walling, some long rectangular pieces with mortar. One block with lead insert, does not look like the cavalier steps but probably was set into the ground for a railing somewhere. One chamfered yellow

limestone fragment.

- Pallet 32 (L/G): Mostly limestone with one rounded edge, flat granite stone, ivy attached which looks like part of a decorative string course but may be a ledge or surface as the wide upper area is smooth. One other flat granite block.
- Pallet 33 (GATE): Springer voussoir (north or right side) resting on ground by the main door. String course blocks with oval edge. One yellow limestone block similar to keystone  $0.3 \times 0.19 \times 0.11$ . Drain cover piece, limestone hearting. One granite drilled with hole. One large triangular piece.
- Pallet 34 (G): Mix of flat surface pieces and boulders with blue mortar, some squared or rectangular.
- Pallet 35 (G): Large boulders and long rectangular pieces.
- Pallet 37 (L): Limestone with white mortar.
- Pallet 38 (L): One large triangular piece, looks like cement. Replacement or reverse top?
- Pallet 39 (GATE): Central flat square in arch  $0.63$ , string course of arch under keystone.
- Pallet 42 (GATE): Large flat triangular pieces, possibly from top of arch. Rounding edging/string course possibly from base of arch or capping. Fragments of rounded pieces, possibly from arches but seem too large - egg shaped - may be string course from parapet wall. Peck dressed on rear.
- Pallet 43 (G): One large  $1.4 \times 0.2 \times 0.2$  long face; one large triangular piece, large long narrow ledge - possibly a step; dressed on two long sides. One fragment of yellow limestone with mason's lines - may have been an arch piece.



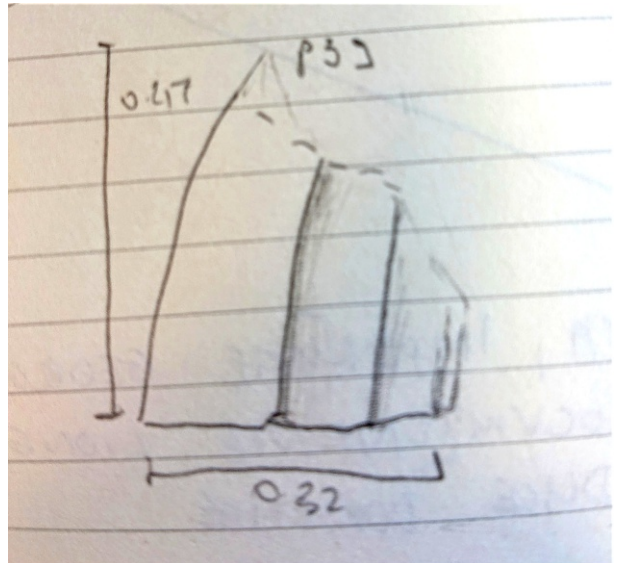
Possible parapet wall string course, pallet 42



Granite with lead insert, pallet 31



Gate springer voussoir, pallet 33



Sketch of gate springer voussoir, pallet 33

- Pallet 44 (GATE): One block dressed calp limestone - rectangular -  $0.7 \times 0.3$ ; two blocks granite rectangular; one flat roughly dressed granite - rampart wall cap; two long roughly L-shaped sides of gateposts. Dressed at long and short edge/base.
- Pallet 45 (GATE): Two large L-shaped granite blocks from gate post sides - one is more elephant shaped; mortared at sides. All "feet" are  $0.30$  long,  $0.2$  wide, length running into  $0.5 - 0.7$ .



Gate arch fragments on Pallet COOP19



Gate arch fragments on Pallet COOP20

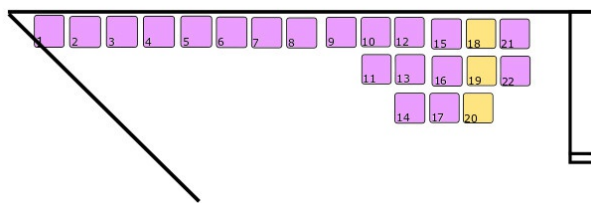
## West of Building C Cooperage

There are 22 pallets of stone immediately west of the Cooperage, in the shade of the west-east running rampart wall. The pallets are numbered from the west, in rows running north to south. Pallets COOP1-17 and COOP21 and COOP22 are calp limestone. Pallet COOP18-20 contains pieces of the Duke of Dorset Gate.

- Pallet COOP18: a chamfered piece - probably a voussoir and other elements
- Pallet COOP19: the right or south left arch with flat pieces. The arch has been pointed with white lime mortar and repointed with blue mortar following the insertion of a wire. This wire is unlikely to be related to the light fixture on the photo as it is on the other side obscured by the bride. The blue mortar may then be dated to the C20th by the insertion of this wire.
- Pallet COOP20: the right or south string line of the arch which matches the arch piece on COOP19

## Building E Wagon Shed

There are 34 pallets numbered here from north to south in lines running west to east. There are nine pallets of limestone facing riser stones (unlabelled) and 27 pallets of granite rampart walkway pavers from Area A (the southeast demi-bastion) placed here in 2016 by Lissadell. The paint is somewhat faded but the stone numbers are written on the pallets. Each granite pallet carries up to five stones and are labelled as follows:



	Slate		Railings/roof fixtures with Granite
	Granite		Gate and possible gate elements
	Calp limestone		Mixed pallets usually including brick

Key for COOP pallets

AT1-53	Area A Upper step of walkway - 53 granite paving stones
AB1-47	Area A Lower step of walkway - 47 granite paving stones
SP1 1-6	Area A Sentry platform - 6 granite paving stones
N/a	Area A parapet wall/retaining wall cap - 1 granite paving stone

The granite walkway stones were numbered on the underside using a white water-based paint using the following system: Area - Top/Bottom - Stone Number (from SE-NW) 1-57 (Area A) or 1-20 (Area C). For example stone AT1 is

Area A, top row, stone 1 at east. AB10 is the tenth stone on the bottom row from the east. Stone CT3 is the third stone on the top row from the south in Area C. Damaged slabs were recorded as above, and when lifted were wrapped in shrink wrap so that all the fragments of the slab could be stored together. Once the granite paving slabs of the walkway were lifted and stored, the retaining limestone risers from the face of the walkway were removed. It was not possible to number each facing stone individually, therefore they were stored in rubble bags according to their position within the walkway. E.g. retaining stones for granite slabs 1-10 were in a bag marked 1-10A or 1-10C and stored close to the respective slabs. The sentry platform of six granite pavers is numbered SP1 1-6.

## Building B Bakery

There are 27 pallets numbered from the south-west corner in lines running south to north. There are three pallets of limestone facing riser stones (unlabelled) and 24 pallets of granite rampart walkway pavers from Area C (the northwest demi-bastion) placed here in 2016 by Lissadell. The mortars are grey. The paint is somewhat faded but the stone numbers are written on the pallets. Each granite pallet carries up to five stones and are labelled as follows:

- CT1-20 Area C Upper step of walkway  
20 granite paving stones
- CB1-18 Area C Lower step of walkway  
18 granite paving stones
- CC1 1-20 Area C Cannon emplacement  
(south) 20 granite paving stones

Key to pallets in Buildings A, B, E and south of Q





Pile of loose granite south of Building E Wagon shed



Pallets south of Magazine Store Building A

- CC2 1-53 a-i Area C Cannon emplacement (west) 62 granite paving stones
- SP2 1-8 Area C Small platform 8 granite paving stones

See Building E above for the numbering system used for the granite rampart walkways and limestone risers. The cannon emplacements were numbered CC1 1-20 (Area C cannon emplacement 1, to south, stones 1-20) and CC2 1-53 and kerbs A-I (for cannon emplacement 2 to the west). Arrows were sprayed on the underside of the stones pointing away from the wall to indicate direction which the stones were laid. The sentry platform of eight granite pavers is numbered SP2 1-8.

### South of Building E Wagon Shed

Outside the wagon shed to the south is a pile of large pieces of granite. Some large blocks may be related to the gate. Some are surface drains and are 0.25 to 0.35 deep. The large size suggests that they were inserted into areas of heavy traffic. Blue mortar is noted on some of the stones. Very occasional limestone elements. Some railings are present.

### South of Magazine Store A

There are three pallets at the southwestern corner of Magazine area near two of the arches. These stones are likely to originate from Area B.

- Pallet MAGA1: is mixed rubble
- Pallet MAGA2: granite with blue cement, some ridging/lipping like Area D
- Pallet MAGA3: calp limestone
- Pallet MAGA4: calp limestone

### Cobble piles

There are three piles of cobbles located at different areas around the fort. The largest is directly south of the traverse or blast wall, comprising two skip bags of cobbles on pallets. A large round cast iron manhole cover, possibly from one of the wells nearby (more likely southeast) rests on its end with the piles. It has

two hand hoops and has a diameter of 0.7m. The hoops resemble those used to cover the earlier grates. The cobbles here may be from the surrounding area. Another pile is in the coal vault in Area D. The original location of the cobbles is uncertain but perhaps they are from surfaces now dominated by concrete.

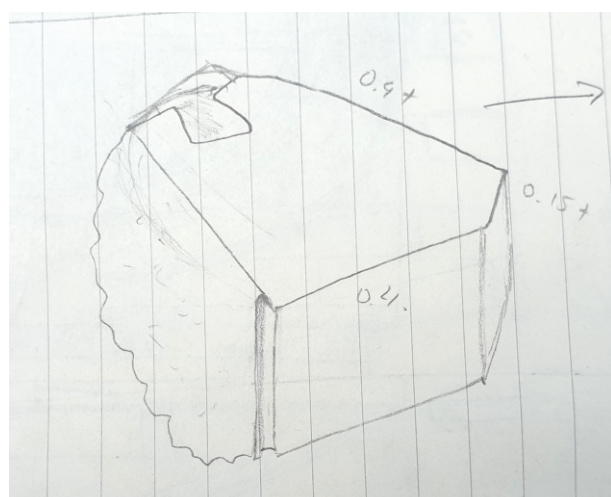
A much smaller pile is against the northern wall of the Wagon Shed, Building E. Cobbles appear to have been used to straighten and raise the line of the wall around Magazine A leading to Building G.

### Northern Cannon Emplacement

One large cut granite block sits on the northern cannon emplacement of the northern demi-bastion. This is a large piece of granite with three smooth faces. The piece is part of the cannon opening - the uppermost block on the left-hand side. Viewed from the outside of the fort, this side has clearly been rebuilt. During or after this time, the block was dislodged and not replaced, perhaps owing to its considerable weight. The piece reveals how the granite was originally tied into the brick parapet wall. This north facing emplacement is one three in this demi-bastion. It opens wide on both sides, as does its later, east-facing companion, while the west facing opening is straight against the northern curtain wall of the Fort. Another large granite block of unknown origin, rests in the base of the glacis in this area.



Cobbles south of blast wall Building Q



Sketch of cannon emplacement stone



Cannon emplacement stone in northern rampart



# Discussion

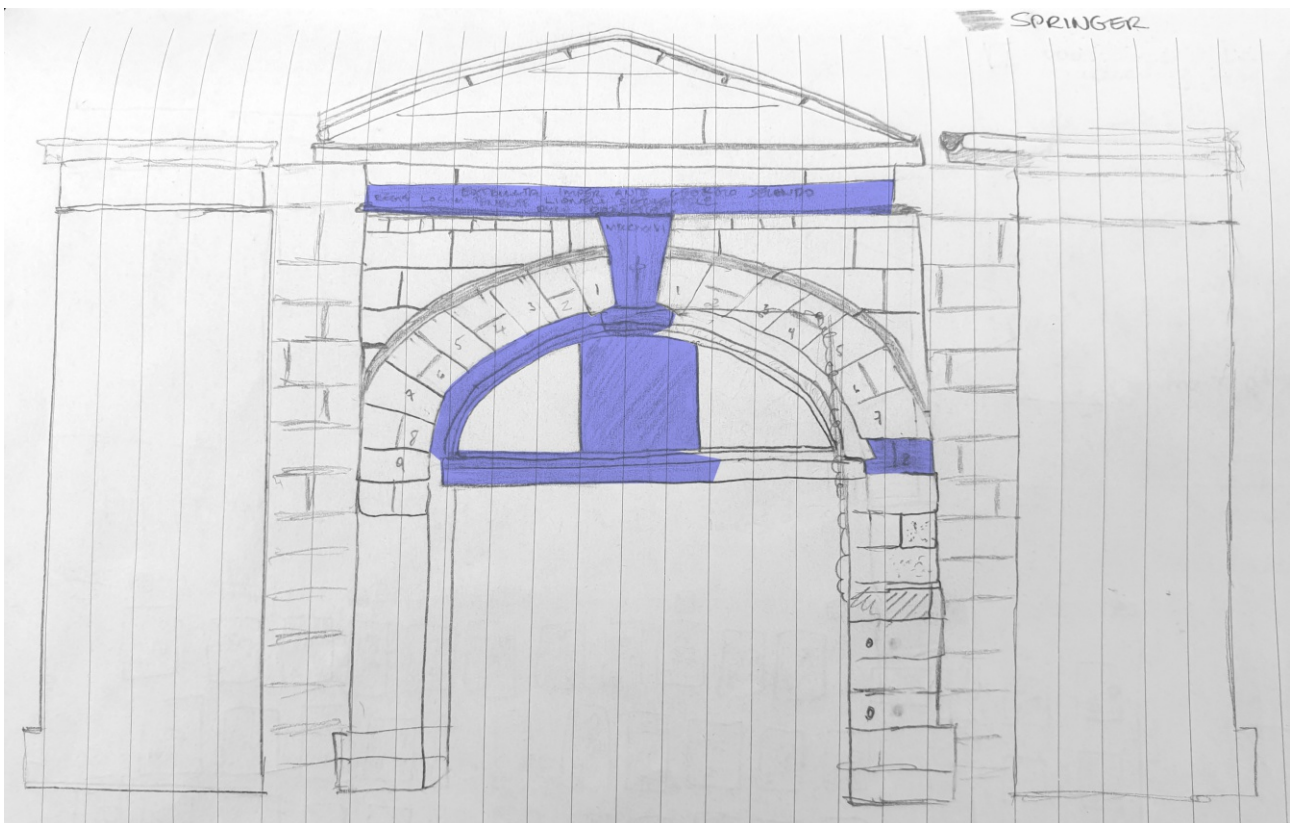
## The Duke of Dorset Gate

The hunt for the Duke of Dorset Gate has proved more fruitful than first imagined. Despite the current storage facility permitting only a visual inspection of the outermost pallet contents, efforts were evidently made to retain the gate pieces. A photograph which dating to October 1974 shows the arch as being intact. This provided a visual basis for the search.

A large number of pallets from both Building B and west of the Cooperage contained elements that could positively be identified as being part

of the gateway, and a number of key pieces (see sketch below) were identified. Other granite pallets contain elements of the gate columns. The large amount of calp limestone in Building B was not inspected as thoroughly but likely forms the hearting and possibly the rear of the gate. Overall, all or most of the original demolished gate is present in the fort.

While it was a relief to locate the dedication stone (in two pieces), it belied the scale of the gate. The discovery of the right springer voussoir on the floor of Building B was, however, the real keystone to putting the gate back to-



Sketch of gate arch showing stones identified



Photographic reconstruction of dedication stone (actually in two pieces)



gether.

The gate inscription reads in Latin: EXTRVCTA IMPER ANTE GEORGIO SECVNDO ; REGIS LOCVM TENENTE LIONELLO SACKVILLE ; DVCE DORSETIAE. An approximate translation using 'Google Translate' reads “Erected during the reign of George the Second, by the King’s Lord Lieutenant Lionel Sackville, Duke of Dorset”.



Notch in dated keystone

The date keystone carved from a white stone reads: ‘MDCCXXXVI’ (1736). On its visible side is a notch possibly for supporting material in the arch.

The stone with the laurels or chains from the same pallet, is of yellow limestone. Its form initially suggests a keystone, but the decoration continues around the “top” of the stone, surrounding a hole for an attachment of some sort. There are elements of yellow limestone noted in various pallets in Building B. In some cases, they give the impression of voussoirs but are too small for the front of the Duke of Dorset Gate.

Brick and terracotta are seen in the hearting of the gate. It is possible that pallets marked “M” are elements of the hearting.



Stone with laurels or chains



Cast-iron gadrooned urn on railing in ravelin



## Vase

The vase or urn pieces which sit on Pallet 19 are mysterious. The paper attached to the pallet, (“NO. 18 STORE SHED, VASE ARCH CAPPING FRONT YARD”), suggests that it relates to the Duke of Dorset Gate, however no evidence has been found to support this and it is not visible in the 1974 photograph or earlier drawings. Stylistically, its softly-rounded leaves or gadrooned style are not dissimilar to the decorative capped urns in the railings in the ravelin. The most complete example is in the northern railings over the steps leading to the basement level of Building K. Further examples are likely to have been around the upper level of the southern side of the ravelin and surrounding the garden.

A formal garden was set out in the fort following the construction of the ravelin in the early 1800s. It is possible that the vase is part of the garden or perhaps it sat beneath one of the pumps. The layout of the formal garden shows three circular features that appear to be defined by privet hedges. The northernmost is the largest and is coloured in white instead of yellow in the 1861 map, suggesting it was made of a different material. Perhaps the urn was built to rest here rather than as part of the gateway. It may even have been part of a fountain.

Images from the abandoned Ireland website (of unknown date, but which predate the filling of Building C show that building as empty, but for the urn, two base stones, the voussoirs or key-stone with the chain or foliage and some slate. This further supports the idea that the urn was not part of the gateway. That stated, it may be that the more decorative nature of those pieces prompted more careful storage.

Gadrooned capping of pillars and gates are visible around the Phoenix Park. The Parkgate street entrance, which dates to the same time as the ravelin has smaller gadrooned pillar caps. No other comparative examples as large as the gadrooned urn from the fort have been identified in the fort.

Vase or urn from pallet 19

## Railings

Several pallets contained railing bases and steps. Three distinct types of railing bases are evident in the ravelin. The most decorative (at the entrance steps to Building L) is likely to be original. A second, similar but later style is seen around the later lightwell of Building L. The latest style appears around the repeatedly-reconfigured southern end of Building K and is plain. The iron railings themselves appear to be consistent throughout, though the later styles do not have the cast-iron urn corner pieces. This may indicate reuse or replacement of some or all of the railings.

The stylistic differences between the railings outside of Building L and Building K should be taken into account when reinstating the railings.



Railings from the ravelin

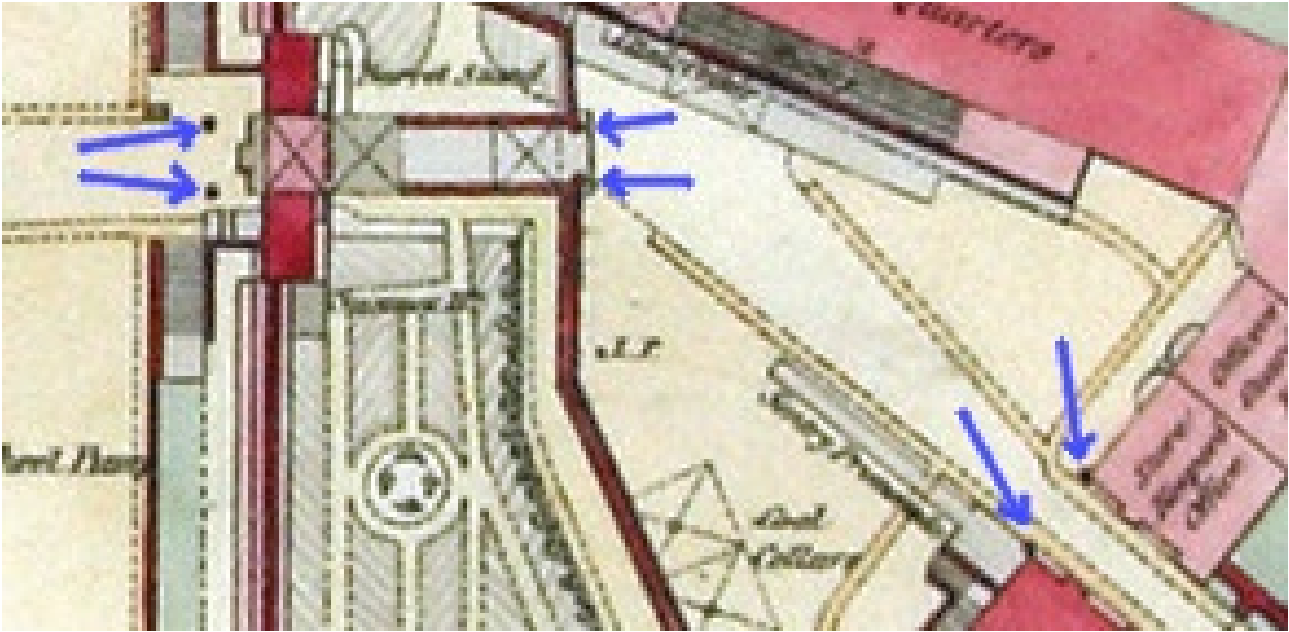
## Pillars

Pallet 24 (formerly 23) contained several octagonally-shaped blocks of granite, with wider bases and round iron inserts and straight rectangular blocks. These may be pillars that greeted visitors on their approach from the main gate through to the Duke of Dorset Gate. There are three sets of round red circles in the 1861 map:

one set is at the corners of Building K and L, one set is at the corners of the walls either side of the drawbridge, and one set is just after one passes through the arched gateway, in line with the steps either side. These may depict bollards or pillars to keep horses and carts lined up safely to cross the drawbridge and to protect the vulnerable corners of the buildings.



Numerous railings in the ravelin have been removed and could be replaced using the original stone and metal

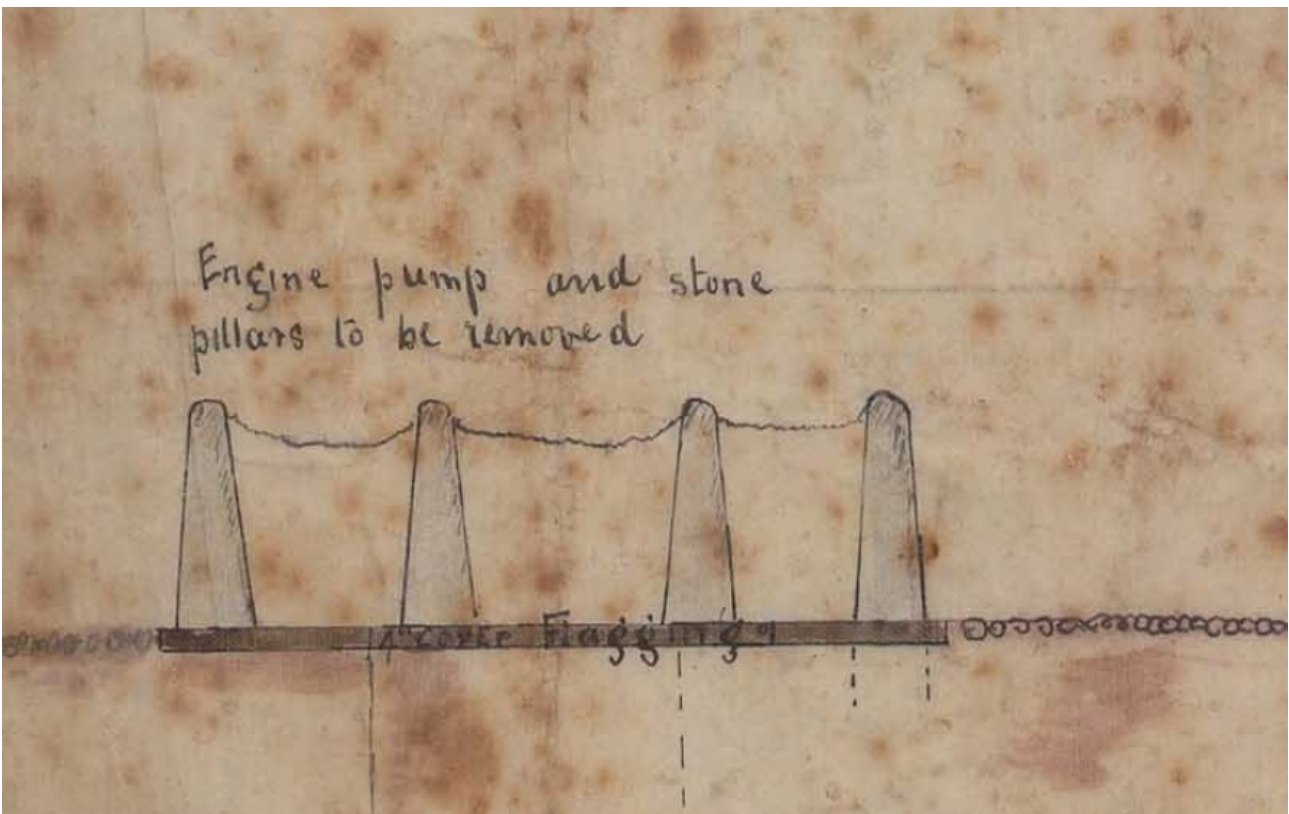


Pillars or bollards depicted on 1859-61 survey

A less likely possibility is that the pillars on pallet 24 are bollards surrounding the now-covered well west of Building E. A plan entitled “Proposed additional cart shed” dated 27/07/1875 (AN119293-005) shows stone pillars with metal

caps and chains that are to be removed along with an engine pump. The pillars depicted are tall oblong shapes with slightly flared bases (similar to O’Connell’s type 346, 1975, 38) which do not match those found in the shed.

“Proposed additional cart shed” dated 27/07/1875 (AN119293-005), showing pillars to be removed



## A note on mortar

Some elements in the stone collection were noted to have been joined with different mortars. Pauline Gleeson (2017) provides a sequence for the types of mortars used in the fabric of the Magazines. A similar conceptual device might be used to separate the elements stored in the shed. A number of pallets have notes on “blue mortar/cement”. This seems to be a later fixture, a blue cementitious dash is used to cover the inside of the Magazines in the 20th century and a blue cementitious mortar was used for repairs to the ramparts (Gleeson, 2017, 34, 48).

This pattern is replicated in the gateway arch. The early mortar visible in the arch is a coarse lime mixture. Pallet COOP20 contains the base stone (along the springer line) and what might be described as a lower intrados stone and the two pieces were originally joined with the white lime mortar. This seems to have been dug out to insert a cable and repointed with blue cementitious mortar.

Blue cementitious mortar used to repoint gate arch stone COOP20 overlying earlier coarse white lime mortar



C18th coarse white lime mortar in the original gate pillars

C20th Blue cementitious mortar used in rampart repairs



# Recommendations

A large amount of stone rests in storage awaiting re-use. In particular, there are three pallets of granite railings bases that should be reinstated around the ravelin, taking care to match the bases to those still standing as there are difference between Buildings L and K reflecting construction phases in the ravelin. The pallets may also contain railing bases from the entrance to the Fort, railings along the drawbridge entrance, and possible railings controlling access from the garden to under the drawbridge. Reinstating these railings and bases around the building lightwells would make the ravelin safer for the general public.

In terms of the Duke of Dorset gateway, all or most of the demolished arch and pillars are present, and this could be reinstated. It should be noted that the sides of the gate have false breaks carved into the granite, similar to the voussoirs in the arch (every second one, see the springer voussoirs as an example). It is possible that some blocks in the photographs are one rather than two, but this was probably confined to the less visible sides.

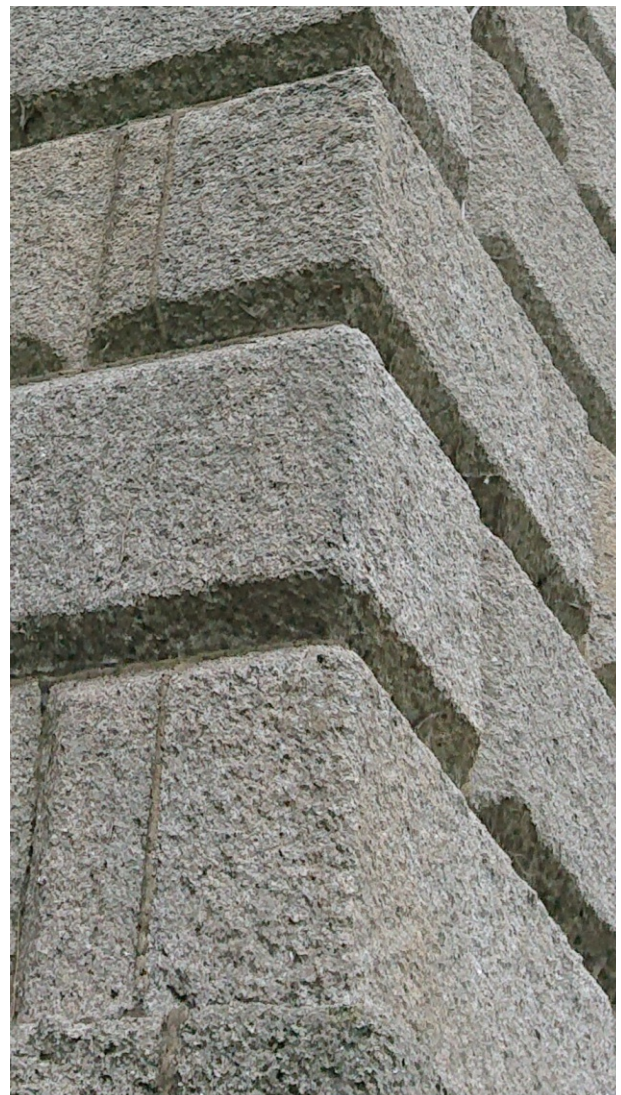
Elements of the gate on Pallets COOP 18 to 20 should be moved into a sheltered area until reconstruction is ready to commence. Space will need to be set aside to lay out the elements of the pallets for picking the stone and ascertaining if all the decorative fragments of the gate are present.

A large pile south of Building E (Wagon Shed) would require the use of a mechanical lift to get a clearer idea of the individual pieces present. However, from a cursory inspection these elements appear to be surface materials - possibly related to the entrance to the fort.

In conclusion, this study has identified the original location within the Magazine Fort of much of the loose stone currently stored in

various scattered locations throughout the complex. Where possible, the loose stone stored in the fort should be reused in its original location, in particular the Duke of Dorset gate, the Areas A and C rampart stone, and the ravelin railing bases. Loose cobbles could also be re-laid in missing areas that were previously cobbled in the ravelin. The remaining loose stone and other building material should be consolidated for future re-use.

False breaks in gate pillar stones, adding challenge to gate reconstruction



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