Phoenix Park Magazine Fort
Testing in formal garden

GIACOMETTI & BARRY | 15/10/2020 | AP2010 | 15E0540

archaeology plan
HERITAGE SOLUTIONS

SITE NAME

Formal Gardens, 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

15th October 2020

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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Section 1 Introduction

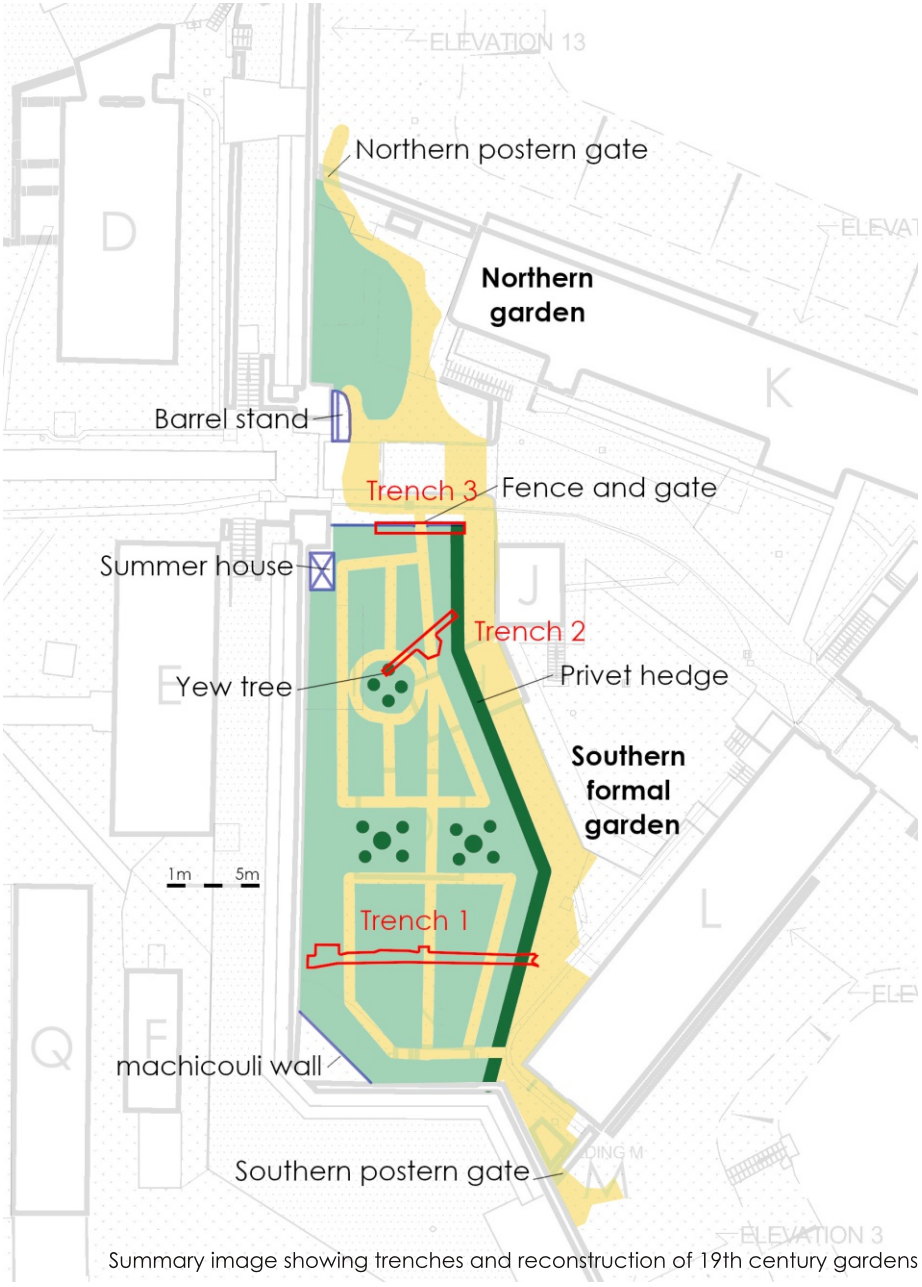
Report Summary

In advance of a planning application to develop the Phoenix Park Magazine Fort as a public amenity, test trenches were excavated to ascertain where traces of the formal garden survive.

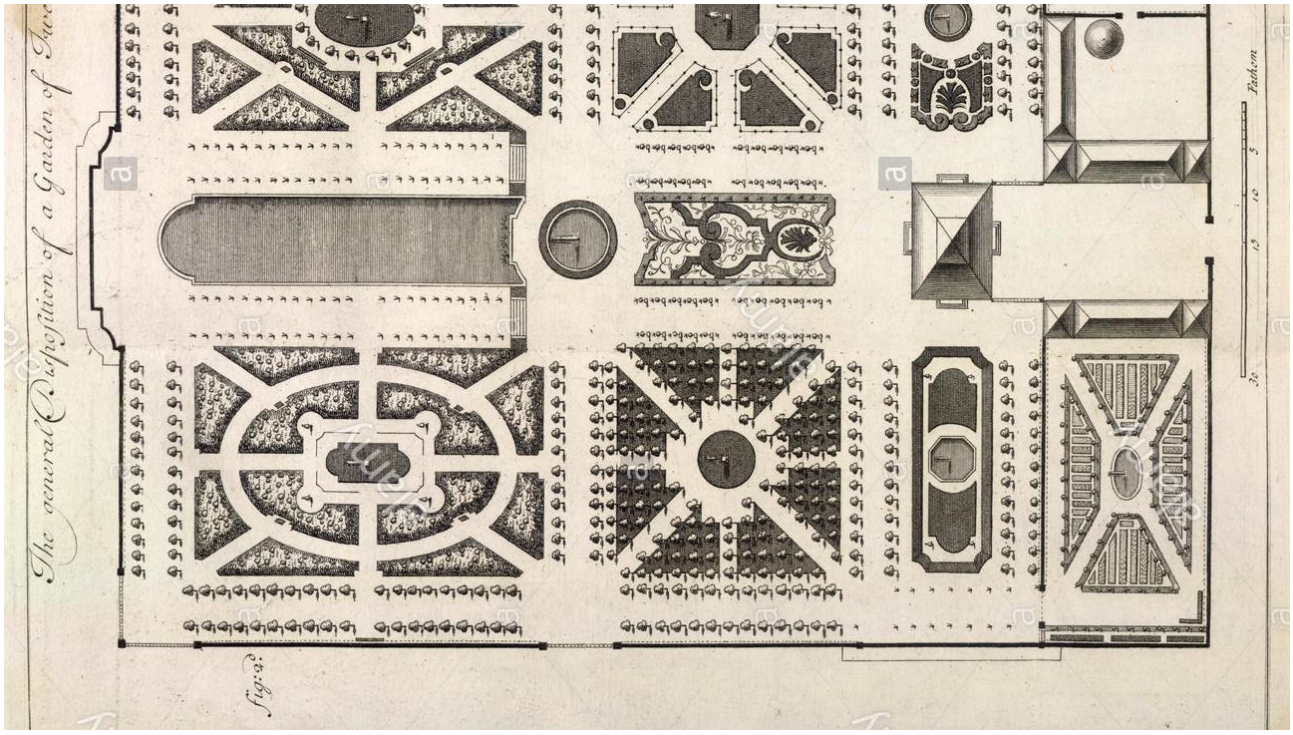
Three test-trenches were excavated by hand from 28/09/2020 to 30/09/2020. The test trenches revealed the presence of imported garden soils and traces of garden paths. A large quantity of 19th century clay pipe within the garden soils indicate that the space was likely used as a recreational area where soldiers were permitted to smoke, unlike the rest of the fort where smoking was prohibited by Magazine Regulations.

The results of the archaeological trenches are combined with historical and cartographic evidence to reconstruct the formal gardens of the magazine fort. These gardens were laid out between 1902 and 1959 in the lower area of the ravelin, and were utilised until the beginning of the 20th century.

This report also includes the results of five small test-pits were excavated through concrete surfaces in the fort to assess their thickness and what lies beneath them.



Summary image showing trenches and reconstruction of 19th century gardens



Plan of a garden', from John James 1712 'The theory and practice of gardening...', plate 4a

Garden archaeology

There have been few targeted excavations of gardens in Ireland and the study of garden archaeology is limited. That said, such excavations are becoming more frequent as post-medieval archaeology is increasingly valued. When Coilín Ó Drisceoil excavated the garden at 63 Merrion Square in 2010, it was the eleventh such excavation in the Republic of Ireland or Northern Ireland.

One of the first garden test-excavations took place in 1991 at the walled garden at the Royal Hospital Kilmainham in Dublin (E000155), which reconstructed the path and flowerbed layout. Another significant test-excavation was in 2005, again to reconstruct the path and flowerbed layout at the walled garden at Ashtown Phoenix Park Visitors Centre (Halpin & Doyle 05E0307). Another was at the Rothe Family Garden at 18-21 High Street Kilkenny (Ó Drisceoil 07E0910 & Ó Drisceoil 2008), and excavations have also taken place in gardens at Hoblorn Street, Sligo (Henry 05E0344, Charlemont Demesne, Marino, Dublin (Myles E3453), Barryscourt Castle (Pollock 2004), and as part of a project to reconstruct the paths, gardens and follies at Castletown House (Saunderson 07E0200; McConway & McMullen 11E0273; McQuade 11E0273; Hayden 15E0070). In Northern Ireland garden archaeology has taken place at St Patrick's Church Armoy (Nelis, Queen's University Belfast AE/05/50, Tully Castle, Fermanagh (Bowen, Queen's University Belfast, AE/09/82), Antrim Castle Gardens (Conway & Reeves-Smith 1999) and Castle Gardens, Lisburne (Ó Baoill 2005-6). In the UK the Council for British Archaeology have produced a research report (Brown 1991) and a Practical Handbook for Garden Archaeology (Currie 2005). In the main, these texts are dominated by large country estate gardens, often related to the famous 18th century landscape architect Capability Brown.

Gardens in military complexes are even more rarely subject to archaeological investigation. The only other recorded archaeological work on a military garden in Ireland is at Clancy Barracks in Dublin. Testing in 2007 in advance of the Clancy Barracks residential development revealed 'cultivated brown silty clay' with crushed marine shell and brick which Myles (2007, 17-18) suggested might be related to the gardens mapped in the 19th century. Subsequent excavations confirmed the presence of garden soils (McQuade 2009).

Section 2 Testing Programme

Introduction

Three test-trenches were hand-excavated to the top of any archaeological deposits in order to address the gardens. The locations of the trenches were selected as areas of least possible disturbance, however it was noted that Trench 2 in particular was likely to be in disturbed ground.

Test Trench 1 was placed in what was hoped to be the least disturbed area. It was located as far south of the men's hut as possible, in order to avoid the earlier men's hut structure which had lain further south. It was as far north as possible of the women's wash hut and the mâchicouli, as it was established during the investigation of surfaces (2020) that there was likely to be dumped material at the mâchicouli and that some form of structure had been demolished close to the wash hut.

Test trench 2 sought to locate the central feature or yew tree associated with the garden. Disturbance was expected due to the construction of the Ablution Room (Building H) and the concrete structure (Building V).

Test trench 3 was designed to locate the northern limits of the garden paths and fences/walls and gates that separated the garden from the bridge stores in 1901.

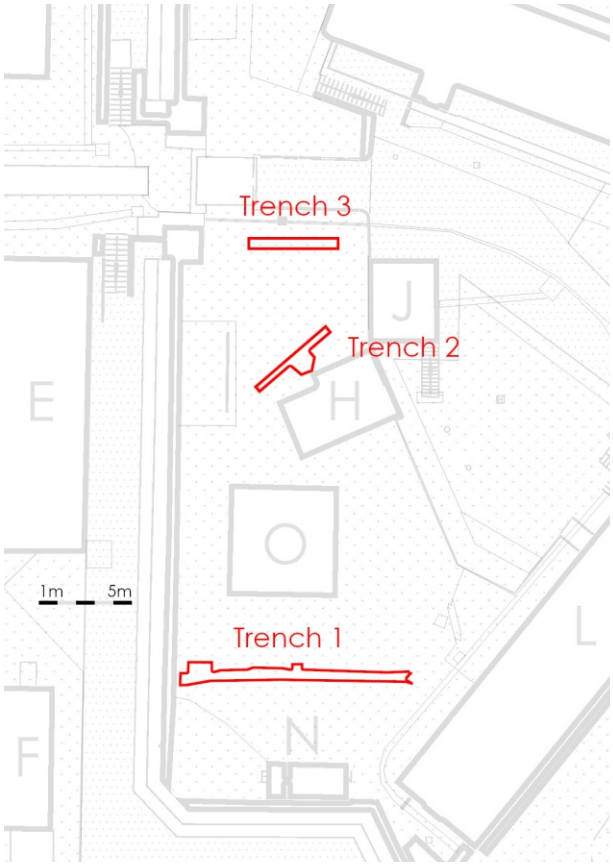
Trench 1

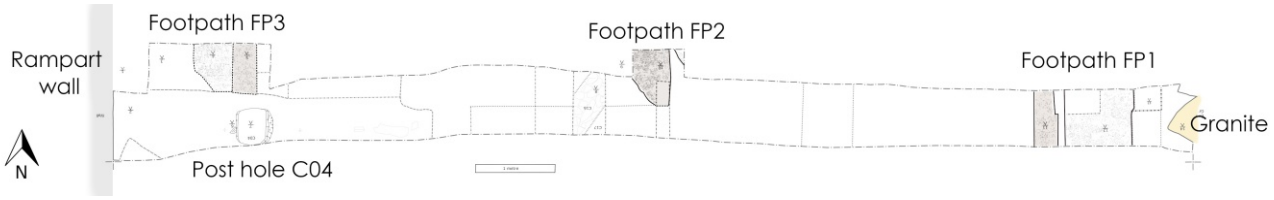
Trench 1 was situated north of Building N (Women's Wash Hut) and south of Building O (Men's Shed). The trench was 13.5m long and was 800–1450mm wide, orientated east to west. It contained evidence for at least two gravel footpaths. The trench was generally excavated to the top of the footpaths, however a large central sondage was placed west of footpath 2 and excavated to natural subsoil. A 19th-20th century post pit was excavated to its base, and appeared to be cut into garden soils and redeposited clay.

The uppermost layer of overburden in trench 1 comprised grass, sod and topsoil (C01), 50 to 100mm in thickness. The overburden was shallower to the east near Building L. It contained finds such as glass, metal including bullets, ceramics and animal bone.

Below this layer was a dark grey to black garden soil and at least two footpaths with visible phasing. The easternmost footpath, FP1, had been re-surfaced at least twice (FP1 A&B; C08, C07).

Locations of trenches 1-3





Post-excavation plan of test-trench 1 showing key features

A sondage was placed through the most damaged area of FP1 (sondage 1), which revealed an earlier footpath (C08), which had degraded eastwards into the grass or planting plot. It appears an effort was made to either stabilise it with lime or crushed limestone (C20), which today is used as a self-binding gravel. A later version of the path (C07) was laid more to the east. This later path and the bed to the east of it were cut by a ditch (C22) for a plastic pipe that runs along the eastern boundary of the garden to the water tank, where it is visible running vertically up the wall to the higher level of the ravelin.

The second footpath, FP2 (C10), had evidence of similar maintenance. A thin layer of gravel was overlaid with lime or crushed limestone (C20), followed by another thin layer of gravel. A later version of the path (C9) may also lie to the east of FP2 but this could not be confirmed. The possible later path may reflect the addition of Building N to the garden area, as it would more closely align with that doorway, however Building N has its own path running E–W along the outside of the building, with shallow steps reflecting the increasing incline to the west. The second footpath (C10) was cut by a trench (C14) running E–W that contained the degraded remains of a wire, probably an electrical cable. It was approximately 250mm deep and 250mm (min.) wide with a darkened central linear slot 70mm wide containing metal and wire fragments. This trench ran for approximately 3m within the test-trench.

Traces of a third path may be present in the western most end of the test trench, however, this area was heavily disturbed. Demolition material (C02), possibly from the structure to the west of Building N and containing brick, slate and mortar, appeared along the southern edge of the test-trench. From the western end of the trench (at the rampart wall) a concentration of yellow and grey mottled clay (C18), which is likely to represent redeposited natural subsoil, lay directly below the topsoil. A square-cut posthole (C04, C05) was cut through this redeposited clay and the garden fill beneath it, and it contained bricks and cobbles used to support a post or pole. The clay was 50mm thick at this point.

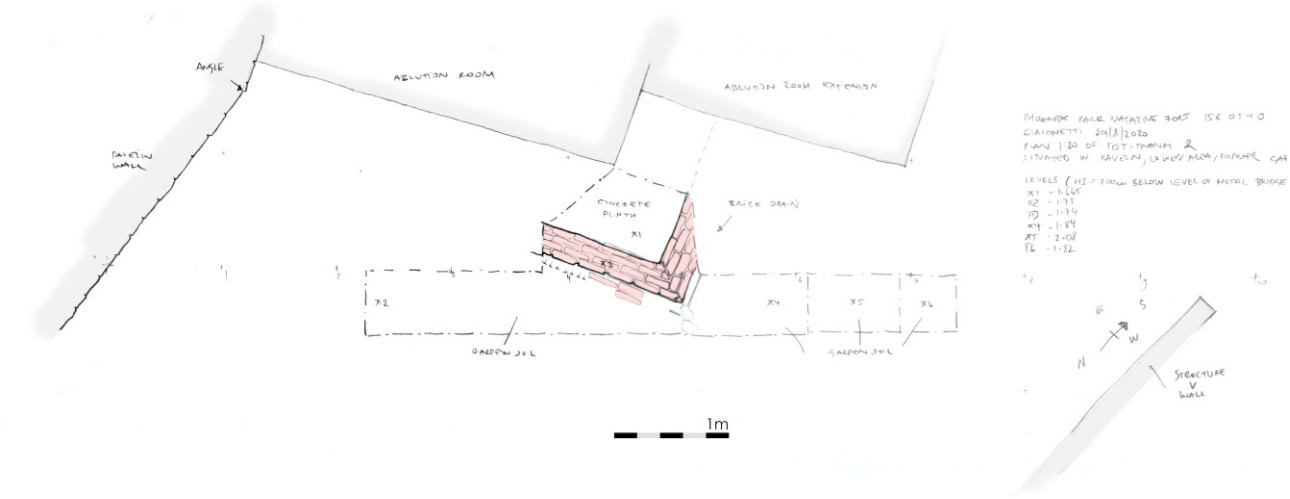
The clay (C18) did not extend northwards beyond the line of the trench, so the trench was

Trench 1 facing west

View of footpath 1 (FP1) facing south

extended to the north in an attempt to find the third path. Two compact surfaces (C11 & C12), one of which contained evidence of lime/crushed limestone, were noted. Given the level of disturbance, at least one of these surfaces may be unrelated to the garden. It would therefore be necessary to extend the excavated area to determine the nature of the surfaces. To the west of the extension to the trench, cutting through a third compact surface (C19), was a shallow pit filled with metal, ceramic and glass (C06). This included a stoneware bottle and a glass bottle of "Cartons HP Sauce" which dates to between 1895 and 1903 - no later than 1910. The cream glazed stone ware bottle with pouring lip is stamped with either "Doulton & [Co. Ltd] Lambeth or "Doulton & [Watts] Lambeth. The bottle likely dates to the mid-19th century. Doulton did not receive a royal warrant until 1902.

Between footpaths FP1 and FP2 and in parts to FP3, the layer under topsoil was an imported dark silty garden soil, C13. Its depth was not tested between FP1 and FP2. A sondage (sondage 2) of 400mm length (750mm width) was placed immediately west of FP2. Topsoil was 100mm deep, garden soil was 200-250mm deep, under which was a mottled grey and yellow clay with medium angular pebbles and a small purple-brown silty feature in the southwest corner of the sondage which was not identified. The mottled clay was backfill over a NE–SW running stone drain, which may have run from the mâchicouli to join the drainage near the water-tank. The top of the drain was 720mm deep. Closer to the possible FP3, the aforementioned post-hole was approximately 450mm deep, 400–450mm E–W and 450mm N–S. The packing material was composed of 5 bricks, one split in half, (likely Dolphins Barn) and 10 cobbles. Degraded brick fragments were found



Post-excavation plan of test-trench 2

throughout the fill. The post-hole was cut into garden material. The bottom of the post hole was not removed.

Trench 2

Trench 2 was situated directly north of Building H (ablution room). It measured 5.2m long, 0.5m

Brick surface drain around ablution room, 1901, in test-trench 2

Overview of test-trench 3, facing northwest

to 0.6m wide, and 415mm in maximum depth, and was oriented northeast-southwest.

The uppermost layer, overburden, comprised grass, sod and organic topsoil 100m in thickness. This contained 20th century finds such as glass, plastic, etc.

Below this a brick surface gutter was found surrounding the concrete plinth of Building H. The gutter measured 200mm in width and was formed from four carefully-laid rows of yellow brick. The right-angle of the drain was formed by carefully-cut bricks indicating good quality workmanship. The drain was bedded into concrete and the dense clay layer below.

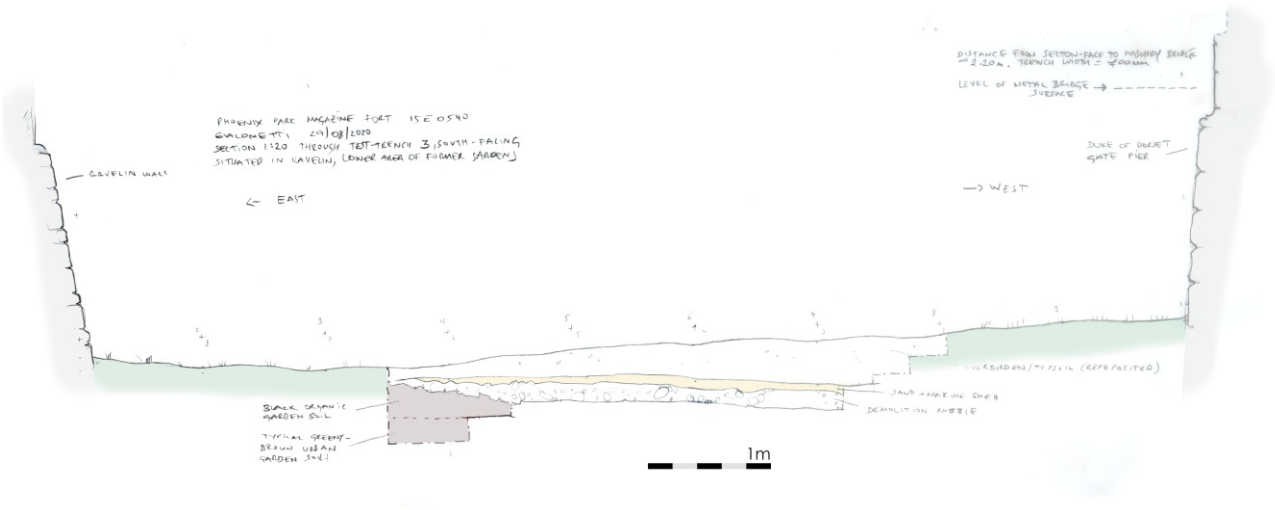
Contemporary with this was a thin (50mm) layer of dense clay mixed with topsoil containing frequent brick, mortar and cement building rubble, 100mm in thickness. This contained 20th century artefacts, and sealed the rest of the trench outside the drain.

Below this was a thick layer of black organic loose peaty soil. This measured 200mm minimum in thickness, becoming less black and more greenish-brown nearer the base. This contained 19th century artefacts including clay pipe. Natural subsoil was not identified in the trench.

The Plan for new ablution room (AN11 9293-006) dated to 1901 shows the 'concrete footpath' and 'brick surface channel', both of which were identified in the test-trench. The plan also shows the line of the 'privet hedge' just east of the trench and a 'yew tree' to the southwest. This plan demonstrates that the garden soil identified in test-trench 2 pre-dates 1901.

Trench 3

Trench 3 was situated south of the bridge into the main part of the fort. It measured 4.7m in length, 700mm in width and up to 700mm in



North-facing profile through test-trench 3

depth, and was oriented east-west. The trench was positioned 1.5m from the bridge, 2m from the Duke of Dorset gate pier to the west, and 2.4m from the ravelin wall to the east.

The uppermost layer, overburden, comprised grass, sod and organic topsoil 100-400mm in depth. This contained 20th century finds such as glass, plastic, etc. It was very loose, and was thickest to the west where the ground visibly rose. This was probably upcast from the excavation of foundations for a 20th century building, such as building J or V.

This overlay a distinct layer of sand with inclusions of marine shell 100mm in thickness. The layer was level across the trench. It contained no artefacts. The sand was probably dumped here during the manufacture of cement for a 20th century building such as building J or V.

Below this was a layer of demolition rubble, including stones of all sizes, brick fragments and mortar. This measured c. 150mm in thickness.
This sealed a level layer of black organic loose peaty soil. The layer was noticeably level along the trench, unlike any of the overlying layers which sloped down towards the west, and it contained very few stones. This measured 400mm minimum in thickness, becoming less black and more greenish-brown nearer the base. This contained 19th century artefacts including clay pipe. Natural subsoil was not identified in the trench.

Opening-up works for concrete

Five small test-pits were excavated through concrete surfaces in the fort to assess their thickness and what lies beneath them. These were numbered CTP1-5.

CTP1

Located just north of the driveway through the ravelin, outside building K, abutting cobbles in the widened concrete turning area. 1m by 1m size, 120mm deep. Rough concrete slab 100mm thick. Underlying soil is a mixed greenish-brown clay with frequent inclusions of red brick demolition rubble, mortar, cinders, and small stones.

CTP2

Located on the left side of the concrete driveway through the ravelin, east of building J. 1m by 1m area, 300mm deep. Rough concrete slab 150mm thick, noticeably thicker than CTP1 concrete. Below this was a layer of packed small angular stones and hardcore 150mm thick acting as the foundation for the concrete driveway. Underlying soil is a mixed greenish-brown clay with frequent inclusions of red brick demolition rubble, mortar, cinders, and small stones.

CTP3

Located on the left side of the concrete driveway through the ravelin near the bridge into the main fort, north of building J. 0.5m by 0.5m area, 300mm deep. Rough concrete slab 100mm thick. Underlying soil is a mixed greenish-brown clay with frequent inclusions of red brick demolition rubble, mortar, cinders, and small stones.

CTP4

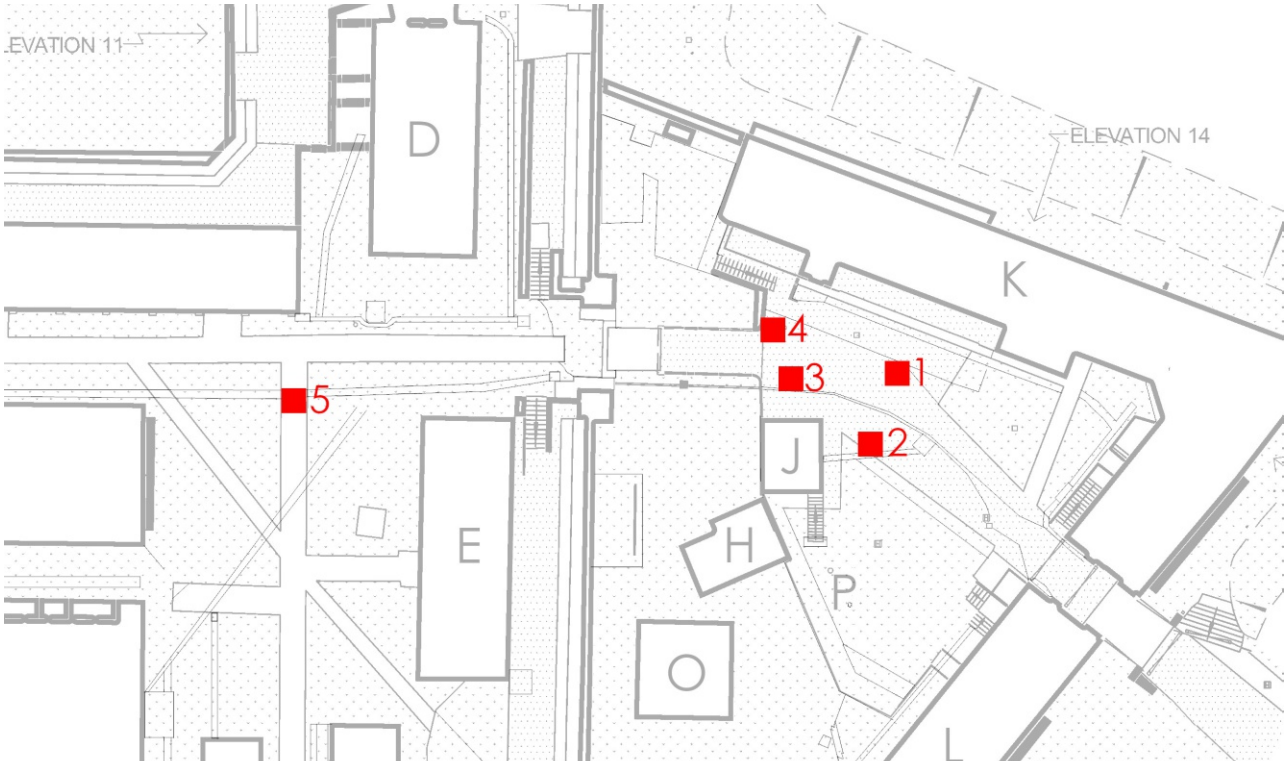
Located on the right side of the concrete driveway through the ravelin abutting the granite paving stones of the bridge into the main fort, north of building J. 0.5m by 0.5m area, 300mm deep. Rough concrete slab 100mm thick. Underlying soil is a mixed greenish-brown clay with frequent inclusions of red brick demolition rubble, mortar, cinders, and small stones.

CTP5

Located in main fort 1.5m along concrete path that turns south from the main east-west concrete path. 1m by 1m area, 200mm deep. Rough concrete slab 120mm thick. Underlying soil is a loose black material with very frequent inclusions of small stones and gravel and cinders, and less frequent red brick fragments, animal bone and mortar. This material is noticeably different from the clay below the concrete in the ravelin.

Excavation of concrete test pit 1

Locations of concrete test pits



Finds from the Test Trenches

Glass

32 fragments of glass from the test-trenches included utility bottle glass (wine bottles, sauce bottles and mineral water bottles), phial glass, vessel glass (a stemmed glass bowl) and window glass. All of the glass dated to the 19th and 20th centuries. All of the glass vessels were incomplete except for a small ink bottle with a shear top (1800-1920) and a complete Carton's HP Sauce bottle (1895-1910).

One glass bead was found embedded in the surface of FP1B. Its external diameter was 9.34mm and it is cracked in one area. This may have been formed part of a necklace, bracelet or set of rosary beads. Its presence may be related to traffic coming from the washhouse.

Pottery

66 sherds of pottery from the test-trenches included 19th and 20th century refined whitewares, English-made utility stonewares, black-glazed earthenware storage vessels, and unglazed earthenwares. The pottery is typical of 19th and early 20th century domestic wares and did not contain any distinguishing military characteristics. All of the overburden, topsoil and disturbed layers contained later types of pottery that were in use into the 20th century, whereas the pottery from the garden soil layers contained 19th century pottery only. One pot sherd appeared to come from a small terracotta plant pot (thimble or thumb size, in Currie 1993, 243) but not enough remained of the base to be certain.

Tile

Two fragments of tiles, two terracotta and one green-glazed tile were found and one sherd of sanitary ware or a large clay pipe (one such pipe is present at the women's wash hut).
Slate tiles with nail holes, and one asbestos tile, were found throughout the trenches.

Clay pipe

24 clay pipe fragments were recovered from the test-trenches. This compares to two fragments recovered from the rest of the magazine fort during archaeological work in 2015-16. There is clearly much more clay pipe in the garden than

Glass 'shear-top' ink phial 1800-1920

Glass sauce bottle 1895-1910

Stoneware jar 1850-1950

Ceramic pharmaceutical or ointment jars, 1850-1950

Clay pipe bowl, 1850-1950

Clay pipe stem, 1830-1870

anywhere else in the fort. Most of the clay pipe derived from garden soil contexts. One bowl fragment had pronounced line and dot decorations, with a leaf at the seam. The upright shape of the pipe bowl suggests late 18th to mid-19th century date. Two other fragments formed a pipe stem decorated with an incised cord where it would have met the bowl. On one side of the stem, "J. McLoughlin 16" was imprinted and "Dublin" was printed on the other side. McLoughlin (Norton 1994) were a family of pipe makers in Dublin, with James, Jane, J., as well as Robert, Philip, Patrick and Catherine manufacturing pipes. All but J. McLoughlin were concentrated around Francis Street, while J. McLoughlin was found at Poole Street. Jane McLoughlin operated between 1839 and 1856; James McLoughlin operated between 1832 and 1861; and J. McLoughlin was in operation between 1859 and 1861. These dates tie in with the 19th century date for the construction and use of the formal garden.

Metal

A dump of material at the rampart wall, just under topsoil, contained several metal objects of 19th to 20th century date including two possible brackets which resembled boot scrapers, a fragment of an iron cup or ball which may have been part of a railing decoration; a circular tin similar to hair oil or shoe polish tins; a heavy rectangular metal box 107mm x 79.52mm x 25.57mm and a number of nails. Two small metal tubes which resemble sink furniture (5.89mm dia) were found along with a possible handle of a shaving razor (4.27mm diameter).

Closer to the southeast, a spike with three arms with rivet holes was found in the topsoil this was possibly a spike for palisade/fence post. In the later E–W drain, one large iron peg was a possible garden peg 10"/250mm, tall 32mm diameter head. It may have been used to set out plots/beds.

Other metal finds included a metal brace or bracket, one lead handle, one coiled spring, approx. 20 nails and a possible knife.

Bullets

Four metal bullets or bullet casings were found, mostly close to the rampart wall in the northw-

Metal toothpaste tube, 20th century

est of TT1. One was fired with a 16.59mm diameter cap. One was intact with a 13.5mm diameter cap; 9.2–12.47mm diameter cylinder; 56.5mm length. Marked "Kynoch" - this may have been assembled in a gun-cap factory in Birmingham, with cordite from the Kynoch munitions factory in Arklow which was open from 1895 to 1918. Cordite, a mixture of gun-cotton and nitro-glycerine, was stored in the NW Cavalier 3. One bullet was a cap with a 13.5mm diameter cap; 12.31mm cylinder; 19.3mm length Marked "D…" this may also be a Kynoch "drill cartridge". The last bullet was a large metal cartridge 19.19mm diameter; 44.56mm length; similar material to the bullet but may not be related.

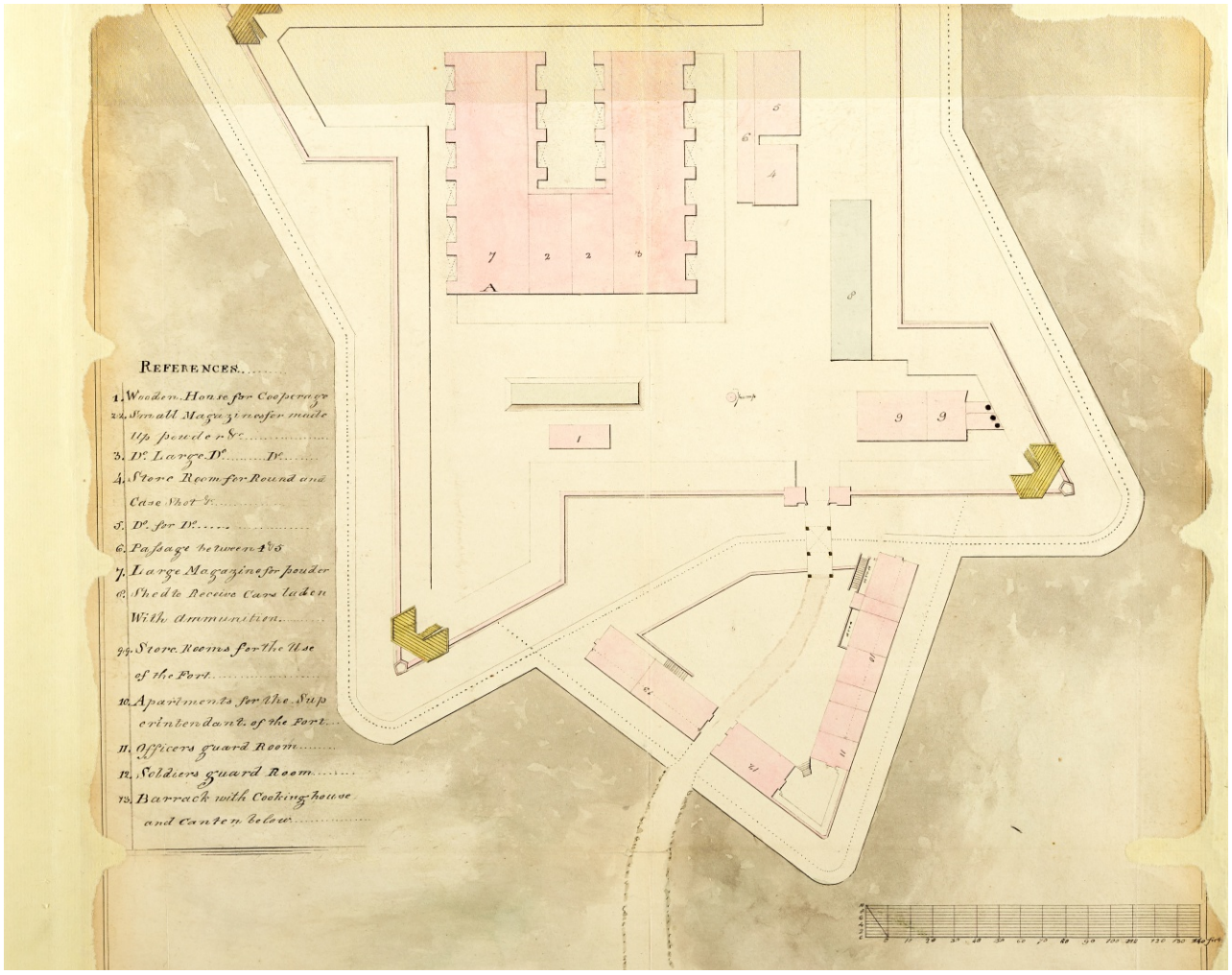
Glass bead, 19th or 20th century

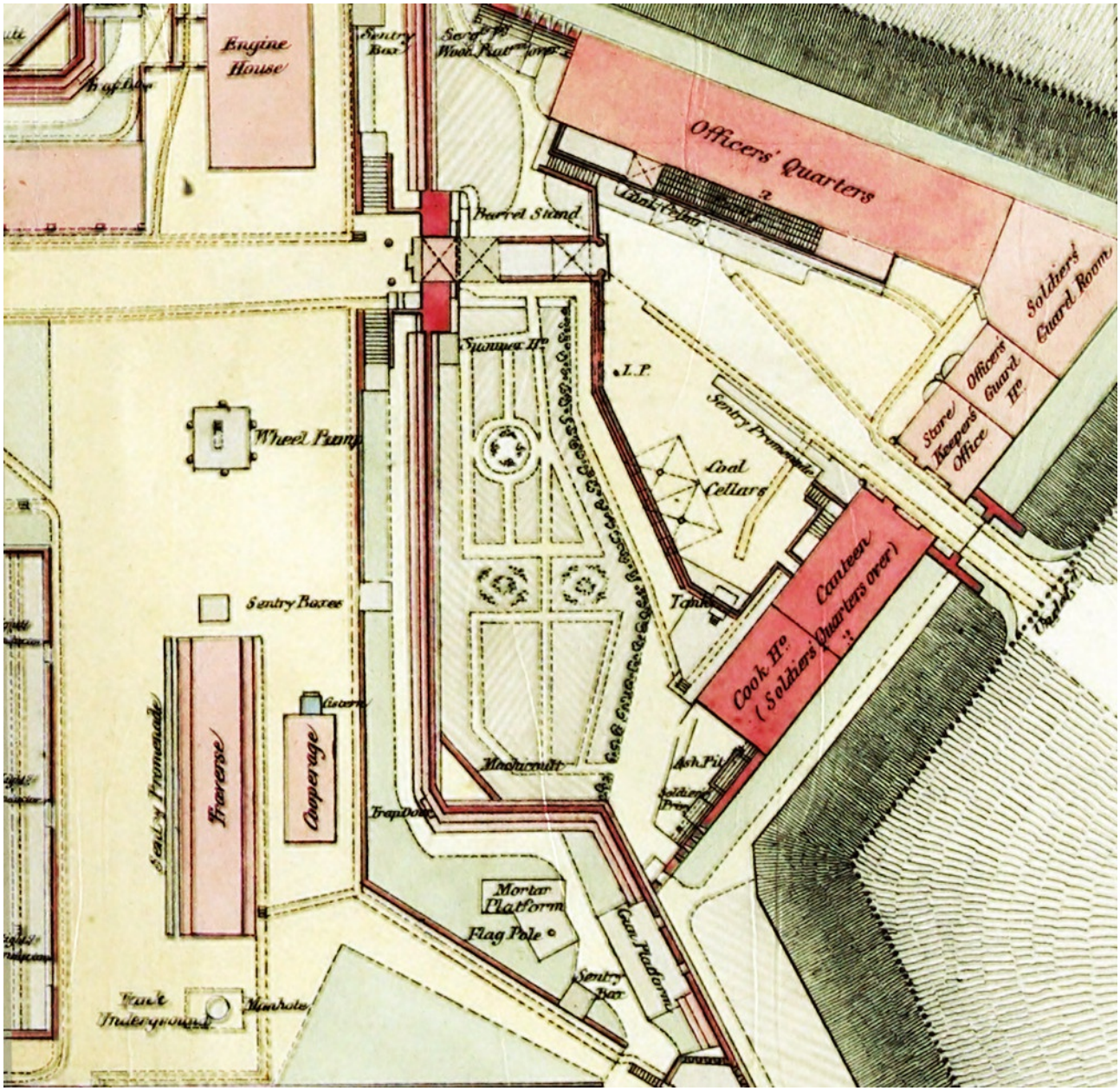
Section 3 Discussion

The garden was not part of the initial construction of the Johnston Ravelin in 1801. An 1806 plan shows that the ravelin remained almost separated from the fort by the glacis, the bridge and palisade fences within the glacis. The ravelin took advantage of a mound that was in place in the Armitage 1793 plan which could have been natural or artificial. The location of the future garden remained a dry moat, and may have held a defensive palisade. A metal spike from test-trench 1 may represent part of this palisade.
The ravelin was later fully enclosed sometime between 1806 and 1859, with postern gates located in the north and south new ravelin walls. It is probably that the formal gardens were laid out at this time, as their layout respects accesses to the postern gates.

Two gardens are depicted on the 1859-1861 survey: a formal garden south of the bridge into

1806 plan of 'No 3 Magazine Phenix Park' (UK National Archives MPHH 1/682/2), showing that the garden was not established during the inital construction of the Johnston Ravelin

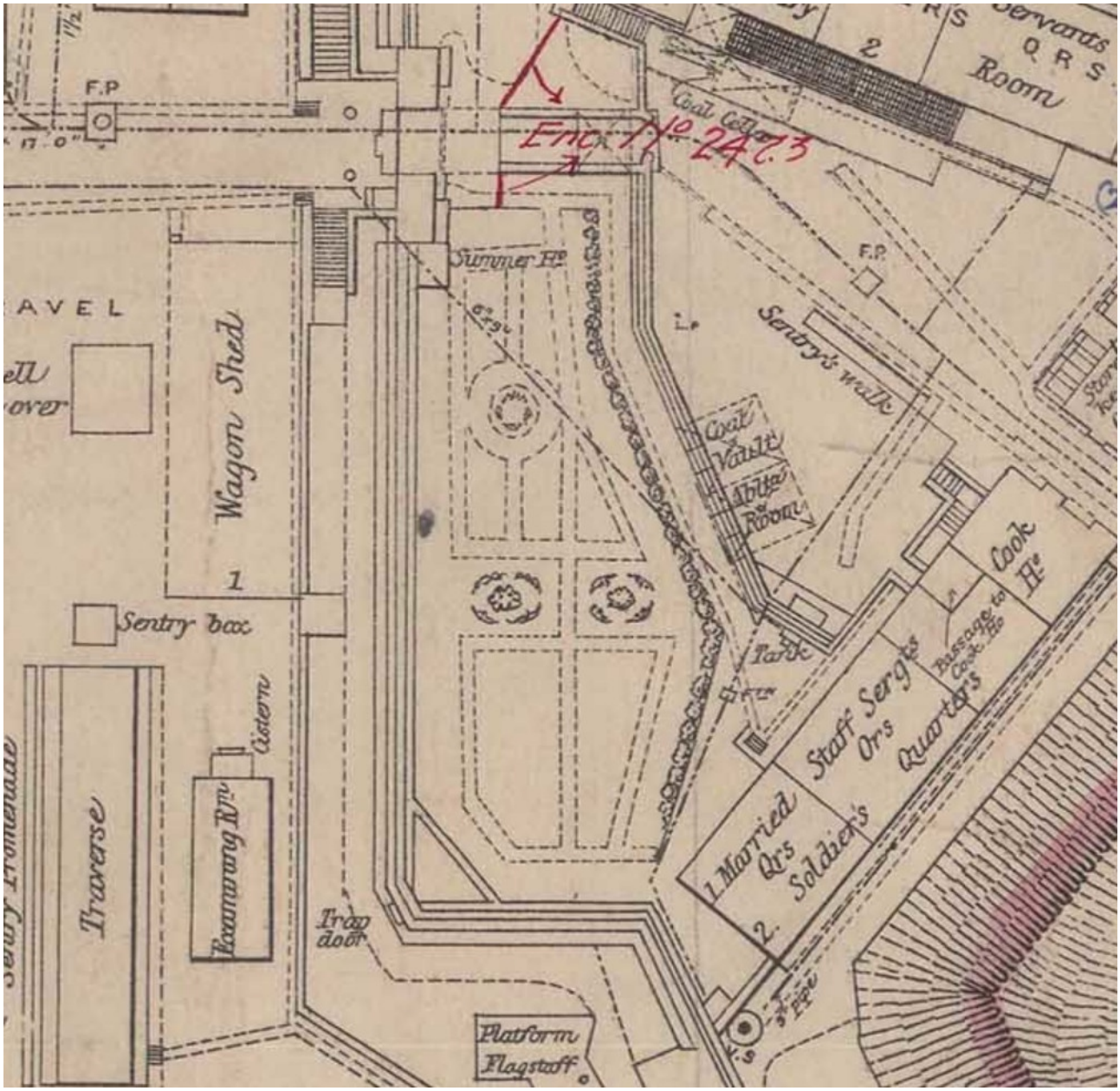




Survey of Magazine Fort (surveyed 1859, published 1861) showing formal gardens

the main fort, and a less formal garden north of the bridge. The test-trenches established that the southern garden area coincides with a thick archaeological deposit of imported dark organic soil containing 19th century artefacts, which had been carefully levelled over a roughly rectangular area 30m north-south by 8.5 to 12.5m east-west, and is absent elsewhere in the magazine fort. No testing was carried out in the northern garden. This dark soil deposit represents the primary archaeological evidence for the former 19th century gardens.

The southern garden was almost walled in nature: framed by the high rampart walls to the west and south, the retaining glacis wall to the northwest, and Building L to the southeast. It was also enclosed by a 'privet hedge' (privet is an ornamental shrub), which is labelled on the 1901 plan for the construction of the new ablution room. The 1959 survey and especially the 1883 revised survey depict this hedge as wide



1883 revised survey showing slight changes to the formal gardens

and bushy, rather than low and small. The hedge ran along the edge of the southern garden and separated it from the path to the postern gates. A drain running alongside the path and hedge is probably contemporary.

The southern garden is depicted with a formal layout of three paths running north to south, joined by paths running east to west at the south, centre and north of the garden. The paths are shaded on the 1859-61 survey to indicate a gravel surface. The paths connect to the two entrances into the garden: one north and one southeast. The northern one at least was closed by a gate, based on the 1901 plan. Three possible paths were located in the archaeological test-trenches, two of which correspond with the 1861 plan. The test-trenches established that the paths were originally surfaced in gravel, but over time lime or crushed limestone had been added to the gravel, as part of ongoing garden maintenance or in an effort to stabilise the path. A

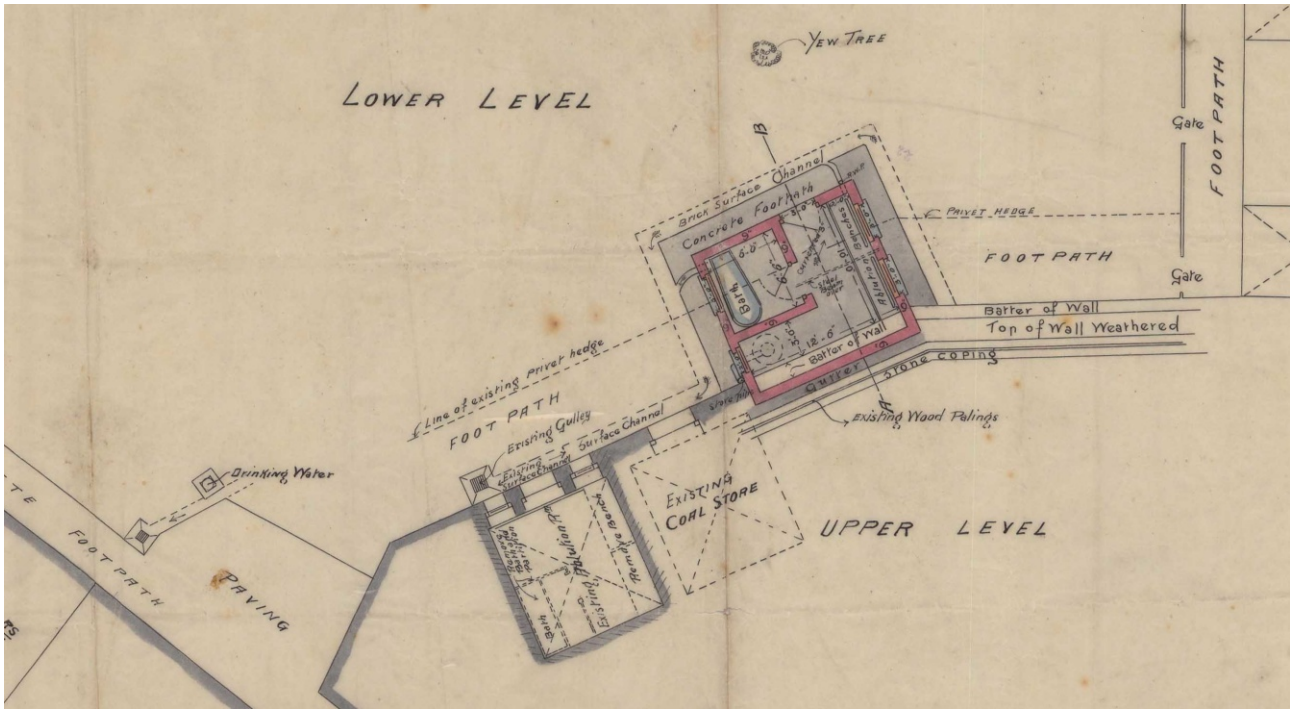
glass bead identified in the path may have belonged to a women's necklace, or be from a rosary. This artefact contrast with the military artefacts found elsewhere in the fort, and is likely to reflect the use of the garden for leisure by non-military personnel.

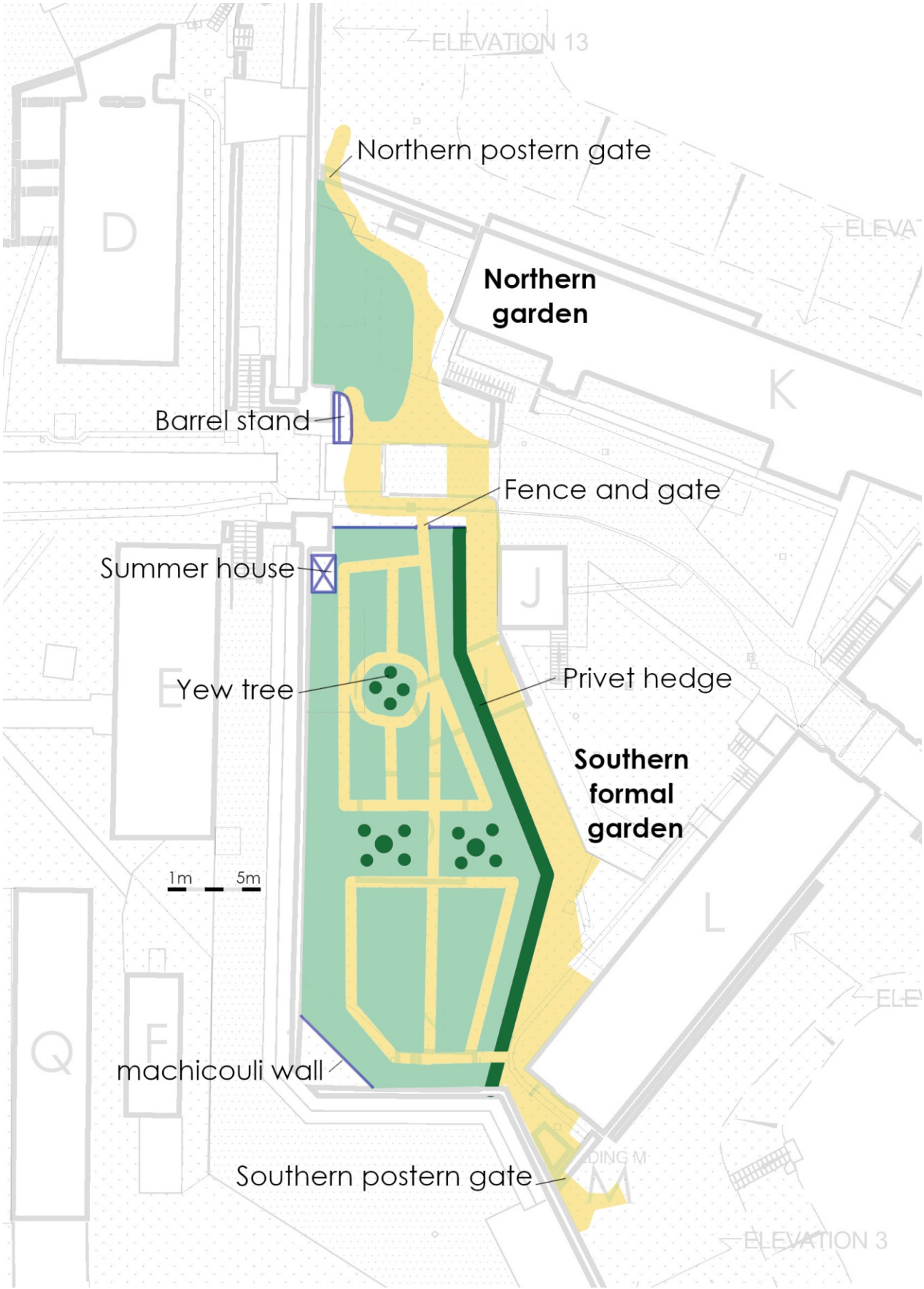
The 1859-61 plans show three features that act as focus points within the garden, and the largest of these is located in the same position as the 'yew tree' on the 1901 map, suggesting they represent ornamental trees. The 1859-61 plan also depicts a summer house abutting the ravelin wall where it meets the Duke of Dorset gate column.

The plots through which the paths run are drawn with diagonal lines on the 1859-61 survey, not the green tint denoting grass shown elsewhere. These lines continue out through the northern postern gate where an elliptical path or parade walk is situated. Just north of Cavalier 4, there is a deliberate treatment of green tint, west of which is larger diagonal lines along the glacis (not a break in slope). Outside of the ravelin, along its north-eastern and south-eastern walls, grass plots are depicted. The distinct treatment of the garden plots from grass surfaces on the 1859-61 survey suggests that the ground is planted with something other than grass (e.g. flowers, shrubs or vegetables).
The thick archaeological deposit of levelled imported dark organic soil that represents the primary archaeological evidence for the former gardens contained numerous artefacts dating the 19th century, tying in to the cartographic evidence. This deposit contained a large number of clay pipe fragments, which is significant as clay pipes are very rarely found elsewhere in the magazine fort, as smoking was strictly prohibited on account of the gunpowder. The 19th century clay pipes in the garden layer thus represent further evidence for the use of this area for non-military leisure activities.

Changing standards of hygiene and changes in the way the fort was used in the second half of the 19th century led to a decrease in the size of the fort gardens. By 1883 an ablution (washing) room was constructed in a former coal cellar

1901 plan for a new ablution room, showing route of former privet hedge, garden gates and a yew tree





Reconstruction of Magazine Fort gardens based on archaeological, cartographic and historical research

adjacent to the gardens, then replaced by a purpose-built structure in 1901 which removed part of the privet hedge. The construction of the Married Quarters by 1883 necessitated the removal of another part of the privet hedge, and the associated requirement for a separate women's wash house - also constructed on part of the gardens - further decreased the garden size later on.

By the 20th the century the Magazine Fort gardens were no longer in use. By 1925, the garden had been further covered by the Men's Shed and the paths, summer house and privet hedge were completely erased. On the 17th of September 1936, Cmdt S. Buggle, Army Ordnance Depot Island Bridge, wrote to the Director of Ordnance at the Department of Defence seeking weed-killer for the various paths in the fort, making no mention of a garden. By 1988 the caretaker was using the former gardens to keep goats (McCullen pers. comm. 2020).

the Magazine Fort gardens as they are today

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